



via electronic mail

January 31, 2022

Ms. Karen M. Gaidasz
Offshore Wind and Hydroelectric Section Chief
Bureau of Energy Project Management
New York State Department of Environmental Conservation
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, NY 12233-1750

Subject: Air State Facility Permit Application
Marmen-Welcon Tower Manufacturing Plant

Dear Ms. Gaidasz:

On behalf of Marmen, Inc. (Marmen), Proactive Environmental Solutions, LLC. (Proactive) is pleased to submit the enclosed Application for an Air State Facility Permit for a new offshore tower manufacturing facility to be located at the Port of Albany, Albany County, NY.

Project Description. The manufacturing process will start with receipt of raw materials (steel plates, steel flanges and mechanical & electrical internals). Transformation of that raw material will start with the cutting and beveling of the steel plates. These are cut to size using oxyfuel cutting machines. Once cut to size, plates will go thru descaling equipment, where steel abrasive media will be used to remove oxides from plate surfaces. The plates are then taken to the forming area.

Forming of each plate into a shell will be performed using hydraulic rolling machines. The plates will be turned into cylindrical forms before being welded at the longitudinal seam. Some shells will then go thru another welding phase where a connecting flange will be welded to the shell. Manufacturing of a full tower section involves assembling, thru different circular welding stations, a given quantity of shells to one another. The number will vary from 4 to 12 shells depending on the section length. Once the section has been assembled, fully welded and inspected, it is ready for finishing.

The finishing processes are composed of abrasive blasting, metallizing and painting. These steps are common operations involved in coating metal components. Just like for plates, descaling of the section uses metal abrasive media to remove rust, oxides and gives the steel a profile (roughness) to which the coating (paint) can adhere. Metallization (also known as thermal spray coating) has the purpose of applying a zinc coating to the section (or parts of the section) in order to offer a greater protection against corrosion. As a final step of the finishing process, a coating system (paint system) is applied to both the inside and outside of the section. These systems can vary from model to model but will usually be composed of an epoxy primer

coating followed by a polyurethane coating. Some could have a zinc rich primer instead of the metallization.

The aforementioned description of the tower manufacturing processes would also apply to the facility's transition piece manufacturing. A Transition Piece serves as the connecting component between a monopile foundation (manufactured by others) and a Wind Tower. The new facility is designed to produce 150 Towers per year, or a combination of 100 Towers and 100 Transition Pieces.

Considering the manufacturing operations described above, the following emission sources are considered emission units that are subject to NYSDEC air permitting requirements.

- Machining (i.e., oxyfuel-cutting, pre-heating torches, rolling) of steel plates and flanges;
- Welding;
- Grinding (belt sanding);
- Abrasive blasting and related air pollution controls;
- Metallization (thermal spraying) and related air pollution controls;
- Paint spray booths with integrated natural gas-fired curing ovens and related air pollution controls; and,
- Natural gas-fired air makeup unit(s) > 10 million British thermal units per hour (serving paint spray booth(s))

Pursuant to 6 NYCRR Subpart 201-7, the facility's emissions of volatile organic compounds (VOC) and hazardous air pollutants are each proposed to be capped below major source thresholds (i.e., < 50 tpy VOC; < 25 tpy combined hazardous air pollutants (HAP) and < 10 tpy of any single HAP) under the Air State Facility Permit.

Complete NYSDEC Air State Facility Permit Application Forms and supporting information are provided as the following attachments:

ATTACHMENTS

- Attachment A – NYSDEC Air State Facility Application Forms and Continuation Sheets
- Attachment B – Facility Potential Emissions Calculations
- Attachment C – Figures 1-2
 - Figure 1 - Site Location Map
 - Figure 2 – Site Plan and Part 212 Process Source Emission Point Locations
- Attachment D – Part 212 Compliance Demonstration (to be submitted under separate cover)
- Attachment E – Coating Air Quality Data Sheets
- Attachment F – Material Data Sheets

- Attachment G – Equipment Technical Data Sheets

It should be noted that the project has already submitted an Environmental Impact Statement to address provisions of the New York State Environmental Quality Review Act (6 NYCRR Part 617), and has evaluated the project's consistency with the Climate Leadership and Community Protection Act (CLCPA) and its Statewide GHG emission limits (as established in Article 75 of the Environmental Conservation Law).

We hope this information provides NYSDEC with sufficient information to begin the process necessary to review and issue an Air State Facility Permit for the Marmen facility. Please contact Paul Eisen at (516) 510-2878 / peisen@pro-enviro.com or Chris Geraghty at (631) 624-7745 / cgeraghty@pro-enviro.com if you have any questions.

Sincerely,

PROACTIVE ENVIRONMENTAL SOLUTIONS



Paul Eisen, CCM
Principal Scientist / CEO



Chris Geraghty, CCM
Lead Scientist

Enclosures:

Attachments A through G

Electronic Copy:

James Hogan, NYSDEC

John W. Kent, NYSDEC

Brian M. McCarthy, NYSDEC

Benjamin Potter, NYSDEC

Steve Boisvert, McFarland-Johnson, Inc.

David Rosa, McFarland-Johnson, Inc.

ATTACHMENT A

NYSDEC Air State Facility Permit Application

New York State Department of Environmental Conservation
Air Permit Application



Department of Environmental Conservation

DEC ID									
-									

Application ID									
-							/		

Application Type	
<input checked="" type="checkbox"/> State Facility	<input type="checkbox"/> Title V

Section I - Certification

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information required to complete this application, I believe the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Responsible Official PIERRE-DAVID PAQUETTE	Title EXEC. DIRECTOR
Signature <i>Pierre-David Paquette</i>	Date 01-31-2022

Professional Engineer Certification

I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments as they pertain to the practice of engineering. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Professional Engineer	NYS License No.
Signature	Date

Section II - Identification Information

Type of Permit Action Requested

<input checked="" type="checkbox"/> New	<input type="checkbox"/> Renewal	<input type="checkbox"/> Significant Modification	<input type="checkbox"/> Administrative Amendment	<input type="checkbox"/> Minor Modification
<input checked="" type="checkbox"/> Application for the construction of a new facility		<input type="checkbox"/> Application involves the construction of new emission unit(s)		

Facility Information

Name	Marmen-Welcon Tower Manufacturing Plant		
Location Address	309 River Road		
City / <input checked="" type="checkbox"/> Town / <input type="checkbox"/> Village	Bethlehem	Zip	12077

Owner/Firm Information

Name	Marmen Energy Company		Business Taxpayer ID				
Street Address	1820 North Plum Avenue		3 0 0 7 7 4 0 2 2				
City	Brandon	State/Province	South Dakota	Country	USA	Zip	57005
Owner Classification:	<input type="checkbox"/> Federal	<input type="checkbox"/> State	<input type="checkbox"/> Municipal	<input checked="" type="checkbox"/> Corporation/Partnership	<input type="checkbox"/> Individual		

Owner/Firm Contact Information

Name	Pierre-David Paquette		Phone	
E-mail Address	pierre-david.paquette@marmeninc.com		Fax	
Affiliation	Marmen Energy Company	Title	Executive Director - Wind Towers	
Street Address				
City	State/Province	Country	Zip	

Facility Contact Information

Name	Pierre-David Paquette		Phone	
E-mail Address	pierre-david.paquette@marmeninc.com		Fax	
Affiliation	Marmen Energy Company	Title	Executive Director - Wind Towers	
Street Address				
City	State/Province	Country	Zip	

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Project Description		<input type="checkbox"/> Continuation Sheet(s)
Please see cover letter.		

Section III - Facility Information

Facility Classification					
<input type="checkbox"/> Hospital	<input type="checkbox"/> Residential	<input type="checkbox"/> Educational/Institutional	<input type="checkbox"/> Commercial	<input checked="" type="checkbox"/> Industrial	<input type="checkbox"/> Utility

Affected States (Title V Applications Only)					
<input type="checkbox"/> Vermont	<input type="checkbox"/> Massachusetts	<input type="checkbox"/> Rhode Island	<input type="checkbox"/> Pennsylvania	Tribal Land: _____	
<input type="checkbox"/> New Hampshire	<input type="checkbox"/> Connecticut	<input type="checkbox"/> New Jersey	<input type="checkbox"/> Ohio	Tribal Land: _____	

SIC Code(s)			NAICS Code(s)			
3441			332312			

Facility Description		<input checked="" type="checkbox"/> Continuation Sheet(s)
Please see continuation sheet.		

Compliance Statements (Title V Applications Only)
<p>I certify that as of the date of this application the facility is in compliance with all applicable requirements. Yes No</p> <p>If one or more emission units at the facility are not in compliance with all applicable requirements at the time of signing this application (the 'NO' box must be checked), the noncomplying units must be identified in the "Compliance Plan" block on page 8 of this form along with the compliance plan information required. For all emission units at the facility that are operating <u>in compliance</u> with all applicable requirements, complete the following:</p> <p><input type="checkbox"/> This facility will continue to be operated and maintained in such a manner as to assure compliance for the duration of the permit, except those emission units referenced in the compliance plan portion of this application.</p> <p><input type="checkbox"/> For all emission units subject to any applicable requirements that will become effective during the term of the permit, this facility will meet such requirements on a timely basis.</p> <p><input type="checkbox"/> Compliance certification reports will be submitted at least once per year. Each report will certify compliance status with respect to each applicable requirement, and the method used to determine the status.</p>

Facility Applicable Federal Requirements										<input checked="" type="checkbox"/> Continuation Sheet(s)
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
See	attached		continuation	sheet.						

Facility State Only Requirements										<input checked="" type="checkbox"/> Continuation Sheet(s)
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
See	attached		continuation	sheet.						

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Facility Compliance Certification * Continuation Sheet(s)

Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR		201-7						
* Applicable Federal Requirement					CAS Number		Contaminant Name		
State Only Requirement			* Capping		0NY998-00-0		Volatile Organic Compounds		

Monitoring Information

Work Practice Involving Specific Operations Ambient Air Monitoring * Record Keeping/Maintenance Procedures

Compliance Activity Description

The total facility-wide emissions of Volatile Organic Compounds (VOC) shall be limited to 10 tons per year for any consecutive 12-month period. The facility must maintain records in a format acceptable to the Department that verify the facility's VOC emissions. Upon request, these records must be submitted to the Department. Records to verify compliance with the permit limit shall be maintained at the facility, which shall include operating hours, and quantity of VOC containing material. The facility shall report the monthly total 12-month rolling VOC emissions to the Department annually.

Work Practice Type Code	Process Material			Reference Test Method	
	Code	Description			
Monitored Parameter				Manufacturer's Name/Model Number	
Code	Description				
Limit		Limit Units			
Upper	Lower	Code	Description		
Averaging Method		Monitoring Frequency		Reporting Requirements	
Code	Description	Code	Description	Code	Description
85	12-MO AVERAGE - ROLLED MONTHLY	05	monthly	15	annually (calendar)

Facility Emissions Summary * Continuation Sheet(s)

CAS Number	Contaminant Name	Potential to Emit (tons/yr)	Actual Emissions (pounds/yr)
0NY075 - 00 - 5	PM-10	25.4	< 50820
0NY750 - 02 - 5	PM-2.5	25.2	< 50440
007446 - 09 - 5	Sulfur Dioxide	0.456	< 912
0NY210 - 00 - 0	Oxides of Nitrogen	76.3	< 152632
000630 - 08 - 0	Carbon Monoxide	66.8	< 133558
007439 - 92 - 1	Lead (elemental)	4.03E-04	< 0.806
0NY998 - 00 - 0	Total Volatile Organic Compounds	9.91	< 19825
0NY100 - 00 - 0	Total Hazardous Air Pollutants	5.54	< 11089
0NY750 - 00 - 0	Carbon Dioxide Equivalents	91401	< 182801244
1330-20-7	Xylene	2.54	< 5080
7439-96-5	Manganese	0.771	< 1543

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Section IV - Emission Unit Information

Emission Unit Description										<input checked="" type="checkbox"/> Continuation Sheet(s)
Emission Unit	-									
Please see attached continuation sheets.										

Building Information					<input type="checkbox"/> Continuation Sheet(s)	
Building ID	Building Name			Length (ft)	Width (ft)	Orientation
BLDG A	Plate Preparation and Weldings			1050	315	300
BLDG B	Welding-Finishing			730	205	70
BLDG C	Blast-Metallization-Paint			732	170	10

Emission Unit	Emission Unit Emissions Summary										<input checked="" type="checkbox"/> Continuation Sheet(s)
-											
CAS Number	Contaminant Name										
	Please see attached continuation sheets.										
ERP (lbs/yr)	Potential to Emit					Actual Emissions					
	(lbs/hr)		(lbs/yr)			(lbs/hr)		(lbs/yr)			
CAS Number	Contaminant Name										
ERP (lbs/yr)	Potential to Emit					Actual Emissions					
	(lbs/hr)		(lbs/yr)			(lbs/hr)		(lbs/yr)			
CAS Number	Contaminant Name										
ERP (lbs/yr)	Potential to Emit					Actual Emissions					
	(lbs/hr)		(lbs/yr)			(lbs/hr)		(lbs/yr)			
CAS Number	Contaminant Name										
ERP (lbs/yr)	Potential to Emit					Actual Emissions					
	(lbs/hr)		(lbs/yr)			(lbs/hr)		(lbs/yr)			

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Emission Point Information							× Continuation Sheet(s)
Emission Point							
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		
					Length (in)	Width (in)	
See	attached	continuation	sheets.				
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal	
Emission Point							
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		
					Length (in)	Width (in)	
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal	
Emission Point							
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		
					Length (in)	Width (in)	
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal	

Emission Source/Control Information								× Continuation Sheet(s)
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model Number	
ID	Type				Code	Description		
	See	attached	continuation	sheets.				
Design Capacity	Design Capacity Units			Waste Feed		Waste Type		
	Code	Description		Code	Description	Code	Description	
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model Number	
ID	Type				Code	Description		
Design Capacity	Design Capacity Units			Waste Feed		Waste Type		
	Code	Description		Code	Description	Code	Description	
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model Number	
ID	Type				Code	Description		
Design Capacity	Design Capacity Units			Waste Feed		Waste Type		
	Code	Description		Code	Description	Code	Description	

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Process Information							x Continuation Sheet(s)		
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Emission Unit	-									Process			
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Process Description												
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See attached continuation sheets.

Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units			
	Quantity/Hr	Quantity/Yr	Code	Description		

Confidential Operating at Maximum Capacity	Operating Schedule		Building	Floor/Location
	Hours/Day	Days/Year		

Emission Point Identifier(s)						
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Emission Source/Control Identifier(s)						
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Emission Unit	-									Process			
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Process Description												
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Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units			
	Quantity/Hr	Quantity/Yr	Code	Description		

Confidential Operating at Maximum Capacity	Operating Schedule		Building	Floor/Location
	Hours/Day	Days/Year		

Emission Point Identifier(s)						
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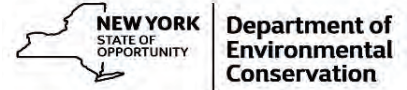
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Emission Source/Control Identifier(s)						
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Process Emissions Summary							x Continuation Sheet(s)			
Emission Unit	-						Process			
CAS Number	Contaminant Name			% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
Please see	attached continuation sheets.									
Potential to Emit			Standard Units	Potential to Emit How Determined	Actual Emissions					
(lbs/hr)	(lbs/yr)	(standard units)			(lbs/hr)	(lbs/yr)				
Emission Unit	-						Process			
CAS Number	Contaminant Name			% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
Potential to Emit			Standard Units	Potential to Emit How Determined	Actual Emissions					
(lbs/hr)	(lbs/yr)	(standard units)			(lbs/hr)	(lbs/yr)				
Emission Unit	-						Process			
CAS Number	Contaminant Name			% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
Potential to Emit			Standard Units	Potential to Emit How Determined	Actual Emissions					
(lbs/hr)	(lbs/yr)	(standard units)			(lbs/hr)	(lbs/yr)				

Emission Source Emissions Summary							Continuation Sheet(s)			
Emission Source							Process			
CAS Number	Contaminant Name			% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
Potential to Emit			Standard Units	Potential to Emit How Determined	Actual Emissions					
(lbs/hr)	(lbs/yr)	(standard units)			(lbs/hr)	(lbs/yr)				
Emission Source							Process			
CAS Number	Contaminant Name			% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
Potential to Emit			Standard Units	Potential to Emit How Determined	Actual Emissions					
(lbs/hr)	(lbs/yr)	(standard units)			(lbs/hr)	(lbs/yr)				
Emission Source							Process			
CAS Number	Contaminant Name			% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
Potential to Emit			Standard Units	Potential to Emit How Determined	Actual Emissions					
(lbs/hr)	(lbs/yr)	(standard units)			(lbs/hr)	(lbs/yr)				

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Emission Unit	Emission Point	Process	Emission Source	Emission Unit Applicable Federal Requirements							× Continuation Sheet(s)		
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Cl.	Subcl.
See attached	continuation	sheets.											

Emission Unit	Emission Point	Process	Emission Source	Emission Unit State Only Requirements							× Continuation Sheet(s)		
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Cl.	Subcl.
See attached	continuation	sheets.											

Emission Unit Compliance Certification × Continuation Sheet(s)

Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
See	attached		continuation	sheets.						
Applicable Federal Requirement				State Only Requirement			Capping			
Emission Unit	Emission Point	Process	Emission Source	CAS Number		Contaminant Name				

Monitoring Information	
Continuous Emission Monitoring	Monitoring of a Process or Control Device Parameters as a Surrogate
Intermittent Emission Testing	Work Practice Involving Specific Operations
Ambient Air Monitoring	Record Keeping/Maintenance Procedures

Compliance Activity Description

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Work Practice Type Code	Process Material		Reference Test Method		
	Code	Description			
Monitored Parameter			Manufacturer's Name/Model Number		
Code	Description				
Limit		Limit Units			
Upper	Lower	Code	Description		
Averaging Method		Monitoring Frequency		Reporting Requirements	
Code	Description	Code	Description	Code	Description

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Determination of Non-Applicability (Title V Applications Only) Continuation Sheet(s)

Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
Emission Unit	Emission Point	Process	Emission Source	Applicable Federal Requirement					
				State Only Requirement					

Non-Applicability Description

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Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
Emission Unit	Emission Point	Process	Emission Source	Applicable Federal Requirement					
				State Only Requirement					

Non-Applicability Description

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Compliance Plan Continuation Sheet(s)

For any emission units which are not in compliance at the time of permit application, the applicant shall complete the following:

Consent Order		Certified progress reports are to be submitted every 6 months beginning / /
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Emission Unit	Process	Emission Source	Applicable Federal Requirement										
			Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.	

Remedial Measures and Intermediate Milestones										R/I	Date Scheduled

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Request for Emission Reduction Credits Continuation Sheet(s)

Emission Source					
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Emission Reduction Description

Contaminant Emission Reduction Data

Baseline Period ____/____/____ to ____/____/____		Reduction	
		Date	Method
CAS Number	Contaminant Name	ERC (lbs/yr)	
		Netting	Offset

Facility to Use Future Reduction

Name	Application ID													
	-										/			
Location Address														
City/ Town / Village										State			Zip	

Use of Emission Reduction Credits Continuation Sheet(s)

Emission Source					
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Proposed Project Description

Contaminant Emissions Increase Data

CAS Number	Contaminant Name	Project Emission Potential (lbs/yr)

Statement of Compliance

All facilities under the ownership of this "owner/firm" are operating in compliance with all applicable requirements and state regulations including any compliance certification requirements under Section 114(a)(3) of the Clean Air Act Amendments of 1990, or are meeting the schedule of a consent order.

Source of Emission Reduction Credit - Facility

Name	Permit ID													
	-										/			
Location Address														
City/ Town / Village										State			Zip	

Emission Source	CAS Number	Contaminant Name	ERC (lbs/yr)	
			Netting	Offset

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Supporting Documentation and Attachments	
Required Supporting Documentation	Date of Document
<input type="checkbox"/> List of Exempt Activities (attach form)	
<input checked="" type="checkbox"/> Plot Plan	2022-01-31
<input type="checkbox"/> Process Flow Diagram	
<input checked="" type="checkbox"/> Methods Used to Determine Compliance (attach form)	2022-01-31
<input checked="" type="checkbox"/> Emissions Calculations	2022-01-31
Optional Supporting Documentation	Date of Document
<input type="checkbox"/> Air Quality Model	
<input type="checkbox"/> Confidentiality Justification	
<input type="checkbox"/> Ambient Air Quality Monitoring Plan or Reports	
<input type="checkbox"/> Stack Test Protocol	
<input type="checkbox"/> Stack Test Report	
<input type="checkbox"/> Continuous Emissions Monitoring Plan	
<input type="checkbox"/> Lowest Achievable Emission Rate (LAER) Demonstration	
<input type="checkbox"/> Best Available Control Technology (BACT) Demonstration	
<input type="checkbox"/> Reasonably Available Control Technology (RACT) Demonstration	
<input type="checkbox"/> Toxic Impact Assessment (TIA)	
<input type="checkbox"/> Environmental Rating Demonstration	
<input type="checkbox"/> Operational Flexibility Protocol/Description of Alternate Operating Scenarios	
<input type="checkbox"/> Title IV Permit Application	
<input type="checkbox"/> Emission Reduction Credit (ERC) Quantification (attach form)	
<input type="checkbox"/> Baseline Period Demonstration	
<input type="checkbox"/> Use of Emission Reduction Credits (attach form)	
<input type="checkbox"/> Analysis of Contemporaneous Emissions Increase/Decrease	
Other Supporting Documentation	Date of Document
Figure 1 - Site Location Map	2022-01-31
Figure 2 - Site Plan and Part 212 Process Source Emission Point Locations	2022-01-31
Attachment E - Coating Air Quality Data Sheets	2022-01-31
Attachment F - Material Data Sheets	2022-01-31
Attachment G - Equipment Technical Data Sheets	2022-01-31

ATTACHMENT A
NYSDEC Air State Facility Permit Application
Section III – Facility Information
(continuation sheets)

**New York State Department of Environmental Conservation
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Section III - Facility Information

Facility Description (continuation)

The Offshore Wind Tower and Transition Piece Manufacturing Facility will be constructed at the Port of Albany, New York to support expansion of offshore wind energy on the East Coast. The facility will be designed to produce 150 towers per year or a combination of 100 towers and 100 transition pieces. Transition pieces are the lower support structures made up of heavy steel fabrication, which lie beneath the offshore wind towers and connect them to the foundation.

The facility will employ highly automated, state-of-the-art equipment to manufacture towers and transition pieces. Manufacturing activities include cutting and beveling of steel plates, plate descaling (plate blast), rolling machines, welding, abrasive blasting (tower blast), thermal spray coating (metallization) and surface coating using fully automated and hand held airless spray guns. Cutting and beveling, as well as rolling and welding equipment are fueled by natural gas. The facility also includes three (3) natural gas-fired emergency generators.

Machining, abrasive blasting, welding and grinding activities are subject to 6NYCRR Part 212 and federal MACT Subpart XXXXXX. The plate blast and tower blast booth will be equipped with high efficiency cartridge dust collectors for particulate control. Metallizing activities are subject to 6NYCRR Part 212. Surface coating activities are subject to 6NYCRR Part 212 and 6NYCRR Subpart 228-1. Surface coating activities will occur in a "large" booth and a "small" booth. Both the large and small booths will be equipped with staged filtration systems for particulate control and recuperative thermal oxidizers (RTOs) to meet VOC control requirements of Subpart 228-1.

The facility is restricting its VOC and HAP emissions to less than the major source thresholds and is capping out of the applicable requirements of 6NYCRR Subpart 201-6.

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Section III - Facility Information

Facility Applicable Federal Requirements (continuation)									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR		201-7						
6	NYCRR			211.1					

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Section III - Facility Information

Facility Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR		201-7						
<input checked="" type="checkbox"/> Applicable Federal Requirement <input type="checkbox"/> State Only Requirement			<input checked="" type="checkbox"/> Capping		CAS No. 0NY100-00-0		Contaminant Name Total HAP		
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring <input type="checkbox"/> Intermittent Emission Testing <input type="checkbox"/> Ambient Air Monitoring			<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate <input type="checkbox"/> Work Practice Involving Specific Operations <input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures						
Description									
Facility-wide total (combined) annual HAP emissions shall be limited to 6.0 tpy for any consecutive 12-month period. Individual HAP emissions shall be limited to 3.0 tpy for any consecutive 12-month period. The facility shall calculate usage of materials and calculate aggregate HAP emissions from monthly usage of abrasive media and coatings as applied and and calculate total HAP emissions on a monthly and 12-month rolling basis. The facility shall maintain records verifying the emissions calculations.									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Parameter		Manufacturer Name/Model No.							
Code	Description								
Limit				Limit Units					
Upper		Lower		Code	Description				
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
85	12-MO AVERAGE - ROLLED MONTHLY		05	monthly		15	annually (calendar)		

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Section III - Facility Information

Facility Emissions Summary (continuation)				
CAS No.	Contaminant Name	Potential to Emit		Actual Emissions (lbs/yr)
		(lbs/yr)	Range	
	Air contaminants subject to Part 212 Review to be added later.			

ATTACHMENT A
NYSDEC Air State Facility Permit Application
Section IV – Emission Unit U-PBLST
(continuation sheets)

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Section IV - Emission Unit Information

Emission Unit Description (continuation)										
Emission Unit	U	-	P	B	L	S	T			
<p>Roller conveyor wheel blast machine designed for continuous operation for the purpose of plate descaling (rust removal). The plate blast machine uses steel shot as the abrasive media and will be equipped with a high efficiency cartridge dust collector, which discharges outdoors.</p>										

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Section IV - Emission Unit Information

Emission Point Information (continuation)																				
Emission Unit					U	-	P	B	L	S	T	Emission Point				0	0	0	1	A
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section															
					Length (in)		Width (in)													
9	30	-65	54	75																
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal												
9.8	9417	601.192	4717.336	BLDG A	174															
Emission Unit					-							Emission Point								
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section															
					Length (in)		Width (in)													
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal												
Emission Unit					-							Emission Point								
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section															
					Length (in)		Width (in)													
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal												
Emission Unit					-							Emission Point								
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section															
					Length (in)		Width (in)													
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal												
Emission Unit					-							Emission Point								
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section															
					Length (in)		Width (in)													
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal												

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Section IV - Emission Unit Information

Emission Source/Control (continuation)													
Emission Unit		U	-	P	B	L	S	T					
Emission Source		Date of Construction		Date of Operation		Date of Removal		Control Type		Manufacturer's Name/Model No.			
ID	Type							Code	Description				
PBLAST	I	Apr 2022		Oct 2023						SciTeeX/RS-RC 4220			
Design Capacity	Design Capacity Units									Waste Feed		Waste Type	
	Code	Description				Code	Description			Code	Description		
1333	3	pounds abrasive media (steel shot) per hour											
Emission Source		Date of Construction		Date of Operation		Date of Removal		Control Type		Manufacturer's Name/Model No.			
ID	Type							Code	Description				
PBLSTFLTR	K	Apr 2022		Oct 2023				016	fabric filter				
Design Capacity	Design Capacity Units									Waste Feed		Waste Type	
	Code	Description				Code	Description			Code	Description		
9400	0156	SCFM average airflow											
Emission Source		Date of Construction		Date of Operation		Date of Removal		Control Type		Manufacturer's Name/Model No.			
ID	Type							Code	Description				
Design Capacity	Design Capacity Units									Waste Feed		Waste Type	
	Code	Description				Code	Description			Code	Description		
Emission Source		Date of Construction		Date of Operation		Date of Removal		Control Type		Manufacturer's Name/Model No.			
ID	Type							Code	Description				
Design Capacity	Design Capacity Units									Waste Feed		Waste Type	
	Code	Description				Code	Description			Code	Description		
Emission Source		Date of Construction		Date of Operation		Date of Removal		Control Type		Manufacturer's Name/Model No.			
ID	Type							Code	Description				
Design Capacity	Design Capacity Units									Waste Feed		Waste Type	
	Code	Description				Code	Description			Code	Description		
Emission Source		Date of Construction		Date of Operation		Date of Removal		Control Type		Manufacturer's Name/Model No.			
ID	Type							Code	Description				
Design Capacity	Design Capacity Units									Waste Feed		Waste Type	
	Code	Description				Code	Description			Code	Description		

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Section IV - Emission Unit Information

Process Information (continuation)																
Emission Unit	U	-	P	B	L	S	T	Process			0	0	1			
Description																
Roller conveyor wheel blast machine designed for continuous operation for the purpose of plate descaling (rust removal). The plate blast machine uses steel shot as the abrasive media and will be equipped with a high efficiency cartridge dust collector.																
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units													
	Quantity/Hr	Quantity/Yr	Code	Description												
30900207	1333	11677080	26	pounds												
<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location											
		Hrs/Day	Days/Yr													
		24	365	BLDG A	Plate Blast											
Emission Point Identifier(s)																
0001A																
Emission Source/Control Identifier(s)																
PBLAST PBLSTFLTR																
Emission Unit	-										Process					
Description																
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units													
	Quantity/Hr	Quantity/Yr	Code	Description												
<input type="checkbox"/> Confidential <input type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location											
		Hrs/Day	Days/Yr													
Emission Point Identifier(s)																
Emission Source/Control Identifier(s)																

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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit Applicable Federal Requirements (continuation)									
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.
U-PBLST	0001A	001		40	CFR	63	XXXXXX	63.11514	(b)	(1)			
U-PBLST	0001A	001		40	CFR	63	XXXXXX	63.11515	(b)				
U-PBLST	0001A	001		40	CFR	63	XXXXXX	63.11516	(a)	(3)			
U-PBLST	0001A	001		40	CFR	63	XXXXXX	63.11517	(b)				
U-PBLST	0001A	001		40	CFR	63	XXXXXX	63.11519	(a)	(1), (2)			
U-PBLST	0001A	001		40	CFR	63	XXXXXX	63.11519	(b), (c)				

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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit State Only Requirements (continuation)									
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.
U-PBLST	0001A	001		6	NYCRR	212	212-1	212-1.5	(g)				
U-PBLST	0001A	001		6	NYCRR	212	212-1	212-1.5	(e)	(2)			
U-PBLST	0001A	001		6	NYCRR	212	212-1	212-1.6	(a)				

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11516	(a)	(3)	(i)			
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-PBLST	0001A	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>You must take measures necessary to minimize excess dust in the surrounding area to reduce metal fabrication HAP (manganese) emissions, as practicable; and</p> <p>You must enclose abrasive material storage areas and holding bins, seal chutes and conveyors that transport abrasive material; and</p> <p>You must operate all equipment associated with dry abrasive blasting operations according to manufacturer's instructions; and</p> <p>You must not re-use abrasive blasting media unless contaminants (i.e., any material other than the base metal, such as paint residue) have been removed by filtration or screening, and the abrasive material conforms to its original size.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			03	daily		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11516	(a)	(3)	(ii)-(iv)			
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-PBLST	0001A	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring			<input checked="" type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate							
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations							
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures							
Description										
<p>For abrasive blasting of objects greater than 8 feet (2.4 meters) in any one dimension that is performed indoors, you must perform visual determinations of fugitive emissions at the primary vent, stack, exit, or opening from the building containing the abrasive blasting operations.</p> <p>You must keep a record of all visual determinations of fugitive emissions along with any corrective action taken in accordance with the requirements in § 63.11519(c)(2).</p> <p>If visible fugitive emissions are detected, you must perform corrective actions until the visible fugitive emissions are eliminated, at which time you must:</p> <p>Perform a follow-up inspection for visible fugitive emissions in accordance with § 63.11517(a).</p> <p>You must report all instances where visible emissions are detected, along with any corrective action taken and the results of subsequent follow-up inspections for visible emissions, with your annual certification and compliance report as required by § 63.11519(b)(5).</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
69	visible emissions									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
						16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
40	CFR	63	XXXXXX	63.11517	(b)				
<input checked="" type="checkbox"/> Applicable Federal Requirement						<input type="checkbox"/> State Only Requirement		<input type="checkbox"/> Capping	
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name			
U-PBLST	0001A	001		7439-96-5		Manganese			
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring			<input checked="" type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate						
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations						
<input type="checkbox"/> Ambient Air Monitoring			<input type="checkbox"/> Record Keeping/Maintenance Procedures						
Description									
<p>Visual determination of fugitive emissions, graduated schedule. Visual determinations of fugitive emissions must be performed in accordance with paragraph (a) of this section and according to the schedule in paragraphs (b)(1) through (4) of this section.</p> <p>Daily Method 22 Testing. Perform visual determination of fugitive emissions once per day, on each day the process is in operation, during operation of the process.</p> <p>Weekly Method 22 Testing. If no visible fugitive emissions are detected in consecutive daily EPA Method 22 tests, performed in accordance with paragraph (b)(1) of this section for 10 days of work day operation of the process, you may decrease the frequency of EPA Method 22 testing to once every five days of operation of the process (one calendar week). If visible fugitive emissions are detected during these tests, you must resume EPA Method 22 testing of that operation once per day during each day that the process is in operation, in accordance with paragraph (b)(1) of this section.</p> <p>Monthly Method 22 Testing. If no visible fugitive emissions are detected in four consecutive weekly EPA Method 22 tests performed in accordance with paragraph (b)(2) of this section, you may decrease the frequency of EPA Method 22 testing to once per 21 days of operation of the process (one calendar month). If visible fugitive emissions are detected during these tests, you must resume weekly EPA Method 22 in accordance with paragraph (b)(2) of this section.</p> <p>Quarterly Method 22 Testing. If no visible fugitive emissions are detected in three consecutive monthly EPA Method 22 tests performed in accordance with paragraph (b)(3) of this section, you may decrease the frequency of EPA Method 22 testing to once per 60 days of operation of the process (3 calendar months). If visible fugitive emissions are detected during these tests, you must resume monthly EPA Method 22 in accordance with paragraph (b)(3) of this section.</p>									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
69	visible emissions								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description					

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(a)	(1)	(i)-(iv)			
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-PBLST	0001A	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>Initial notification. You must submit the initial notification required by § 63.9(b), for a new affected source no later than 120 days after initial startup. Your initial notification must provide the following information:</p> <p>The name, address, phone number and e-mail address of the owner and operator;</p> <p>The address (physical location) of the affected source;</p> <p>An identification of the relevant standard (i.e., this subpart); and</p> <p>A brief description of the type of operation. For example, a brief characterization of the types of products (e.g., aerospace components, sports equipment, etc.), the number and type of processes, and the number of workers usually employed.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(a)	(2)	(i)-(ii), (iv)			
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-PBLST	0001A	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>Notification of compliance status. If you are the owner or operator of a new affected source, you must submit a notification of compliance status within 120 days after initial startup. You are required to submit the following information with your notification of compliance status:</p> <p>Your company's name and address;</p> <p>A statement by a responsible official with that official's name, title, phone number, e-mail address and signature, certifying the truth, accuracy, and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of this subpart;</p> <p>The date of the notification of compliance status.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(b)	(1), (2)				
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-PBLST	0001A	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>Annual certification and compliance reports. You must prepare and submit annual certification and compliance reports for each affected source according to the requirements of paragraphs (b)(2), (b)(4) and b(5) of this section.</p> <p>Dates. Unless the Administrator has approved or agreed to a different schedule for submission of reports under § 63.10(a), you must prepare and submit each annual certification and compliance report according to the dates specified in paragraphs (b)(2)(i) through (iii) of this section. Note that the information reported for each of the months in the reporting period will be based on the last 12 months of data prior to the date of each monthly calculation.</p> <p>The first annual certification and compliance report must cover the first annual reporting period which begins the day after the compliance date and ends on December 31.</p> <p>Each subsequent annual certification and compliance report must cover the subsequent semiannual reporting period from January 1 through December 31.</p> <p>Each annual certification and compliance report must be prepared and submitted no later than January 31 and kept in a readily-accessible location for inspector review. If an exceedance has occurred during the year, each annual certification and compliance report must be submitted along with the exceedance reports, and postmarked or delivered no later than January 31.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(b)	(4), (5)				
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-PBLST	0001A	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>General requirements. The annual certification and compliance report must contain the information specified in paragraphs (b)(4)(i) through (iii) of this section, and the information specified in paragraphs (b) (5) through (7) of this section that is applicable to each affected source.</p> <p>The date of every visual determination of fugitive emissions which resulted in detection of visible emissions;</p> <p>A description of the corrective actions taken subsequent to the test; and</p> <p>The date and results of the follow-up visual determination of fugitive emissions performed after the corrective actions.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(c)					
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBLST	0001A	001		7439-96-5	Manganese					
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>What records must I keep? You must collect and keep records of the data and information specified in paragraphs (c)(1) through (13) of this section, according to the requirements in paragraph (c)(14) of this section.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.5	(g)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-PBLST	0001A	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
At all times, the facility owner or operator must operate and maintain all process emission sources, including the associated air pollution control and monitoring equipment, in a manner consistent with safety, good air pollution control practices, good engineering practices and manufacturers' recommendations for minimizing emissions.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.5	(e)	(2)				
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-PBLST	0001A	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>A process emission source subject to the Federal National Emission Standards for Hazardous Air Pollutants (NESHAP) under 40 CFR part 61 or part 63 (see table 1 of section 200.9 of this Title) satisfies the requirements of this Part for the respective air contaminant regulated by the Federal standard if the facility owner or operator can demonstrate that the process emission source is in compliance with the relevant Federal regulation and, for those NESHAPs regulating HTACs found in section 212-2.2, table 2 – high toxicity air contaminant list, of this Part, provide a TIA demonstrating that the maximum offsite ambient air concentration is less than the AGC/SGC and that emissions are less than the PB trigger for the respective air contaminant.</p> <p>Facility owners or operators required to submit a TIA shall submit a protocol describing the procedures to be used to predict the maximum offsite ambient air concentration. Once the protocol is approved by the department and the TIA is conducted, the facility owner or operator shall submit a final report to the department along with the air dispersion modeling results for approval. The department requires the use of an EPA approved air dispersion model for all screening and/or refined air dispersion modeling assessments; however, screen dispersion models do not require an approved modeling protocol.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			17	once during the term of the permit		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	212	212-1	212-1.6	(a)				
<input type="checkbox"/> Applicable Federal Requirement <input checked="" type="checkbox"/> State Only Requirement						<input type="checkbox"/> Capping			
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name			
U-PBLST	0001A	001		7439-96-5		Manganese			
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring			<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate						
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations						
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures						
Description									
No facility owner or operator shall cause or allow emissions having an average opacity during any six consecutive minutes of 20 percent or greater from any process emission source or emission point, except for the emission of uncombined water.									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description		10	upon request by regulatory agency		

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Section IV - Emission Unit Information

Process Emissions Summary (continuation)													
Emission Unit	U	-	P	B	L	S	T	Process			0	0	1
CAS No.	Contaminant Name						% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
NY075-00-5	PM-10							100	99.9	28.0	03		
PTE			Standard Units		PTE How Determined		Actual						
(lbs/hr)	(lbs/yr)	(standard units)					(lbs/hr)	(lbs/yr)					
0.202	1768				04		< 0.202	< 1768					
Emission Unit	U	-	P	B	L	S	T	Process			0	0	1
CAS No.	Contaminant Name						% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
NY750-02-5	PM-2.5							100	99.9	1.74	03		
PTE			Standard Units		PTE How Determined		Actual						
(lbs/hr)	(lbs/yr)	(standard units)					(lbs/hr)	(lbs/yr)					
0.202	1768				04		< 0.202	1768					
Emission Unit	U	-	P	B	L	S	T	Process			0	0	1
CAS No.	Contaminant Name						% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
7439-96-5	Manganese						1	100	99.9	0.336	03		
PTE			Standard Units		PTE How Determined		Actual						
(lbs/hr)	(lbs/yr)	(standard units)					(lbs/hr)	(lbs/yr)					
2.42E-03	21.2				04		< 2.42E-03	< 21.2					
Emission Unit		-						Process					
CAS No.	Contaminant Name						% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
PTE			Standard Units		PTE How Determined		Actual						
(lbs/hr)	(lbs/yr)	(standard units)					(lbs/hr)	(lbs/yr)					
Emission Unit		-						Process					
CAS No.	Contaminant Name						% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined		
PTE			Standard Units		PTE How Determined		Actual						
(lbs/hr)	(lbs/yr)	(standard units)					(lbs/hr)	(lbs/yr)					

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Section IV - Emission Unit Information

Emission Unit		Emission Unit Emissions Summary (continuation)			
U	P	B	L	S	T
CAS Number		Contaminant Name			
NY075-00-5		PM-10			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
245219	0.202	1768	< 0.202	< 1768	
CAS Number		Contaminant Name			
NY750-02-5		PM-2.5			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
15180	0.202	1768	< 0.202	< 1768	
CAS Number		Contaminant Name			
7439-96-5		Manganese			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
1471	2.42E-03	21.2	< 2.42E-03	< 21.2	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	

ATTACHMENT A
NYSDEC Air State Facility Permit Application
Section IV – Emission Unit U-MFR_A
(continuation sheets)

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Section IV - Emission Unit Information

Emission Unit Description (continuation)									
Emission Unit	U	-	M	F	R	_	A		
<p>U-MFR_A includes machining, welding and grinding of steel plates and flanges inside Building A. Machining equipment (plasma arc cutting, preheating, rolling) as well as welding activities utilize oxyfuel and electricity for power.</p> <p>Welding techniques employed will consist of metal inert gas (MIG), submerged arc welding (SAW), gas metal arc welding (GMAW), and flux-cored arc welding (FCAW).</p> <p>All activities are performed indoors but have the potential to be released outdoors via Building A ventilation system vents. Potential emissions may be released from building vents due to the combustion of oxyfuel and fumes related to machining, welding and grinding activities.</p>									

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Section IV - Emission Unit Information

Emission Point Information (continuation)											
Emission Unit					Emission Point						
U	-	M	F	R	-	A	V	N	T	1	A
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		Building	Distance to Property Line (ft)	Date of Removal		
					Length (in)	Width (in)					
9	89	-6		70	72	78					
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)								
8.54	20000	601.371	4717.130				BLDG A	150			
Emission Unit					Emission Point						
U	-	M	F	R	-	A	V	N	T	2	A
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		Building	Distance to Property Line (ft)	Date of Removal		
					Length (in)	Width (in)					
11	89	-6		70	72	78					
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)								
8.54	20000	601.352	4717.174				BLDG A	315			
Emission Unit					Emission Point						
U	-	M	F	R	-	A	V	N	T	3	A
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		Building	Distance to Property Line (ft)	Date of Removal		
					Length (in)	Width (in)					
11	89	-6		70	72	78					
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)								
8.54	20000	601.333	4717.219				BLDG A	440			
Emission Unit					Emission Point						
U	-	M	F	R	-	A	V	N	T	4	A
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		Building	Distance to Property Line (ft)	Date of Removal		
					Length (in)	Width (in)					
9	89	-6		70	72	78					
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)								
8.54	20000	601.312	4717.267				BLDG A	460			
Emission Unit					Emission Point						
U	-	M	F	R	-	A	V	N	T	5	A
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		Building	Distance to Property Line (ft)	Date of Removal		
					Length (in)	Width (in)					
9	89	-6		70	72	78					
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)								
8.54	20000	601.292	4717.315				BLDG A	475			

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Section IV - Emission Unit Information

Emission Point Information (continuation)										
Emission Unit						Emission Point				
U	-	M	F	R	A	V	N	T	6	A
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section					
					Length (in)	Width (in)				
9	89	-6		70	72	78				
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal				
8.54	20000	601.272	4717.362	BLDG A	455					
Emission Unit						Emission Point				
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section					
					Length (in)	Width (in)				
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal				
Emission Unit						Emission Point				
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section					
					Length (in)	Width (in)				
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal				
Emission Unit						Emission Point				
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section					
					Length (in)	Width (in)				
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal				
Emission Unit						Emission Point				
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section					
					Length (in)	Width (in)				
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal				

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Section IV - Emission Unit Information

Emission Source/Control (continuation)											
Emission Unit		U	-	M	F	R	-	A			
Emission Source		Date of Construction		Date of Operation		Date of Removal		Control Type		Manufacturer's Name/Model No.	
ID	Type							Code	Description		
MACHINING_A	I	Apr 2022		Oct 2023							
Design Capacity	Design Capacity Units						Waste Feed		Waste Type		
	Code	Description						Code	Description	Code	Description
150		complete towers per year (each tower consists of 3 tower sections)									
WELD_A	I	Apr 2022		Oct 2023							
Design Capacity	Design Capacity Units						Waste Feed		Waste Type		
	Code	Description						Code	Description	Code	Description
150		complete towers per year (each tower consists of 3 tower sections)									
GRIND_A	I	Apr 2022		Oct 2023							
Design Capacity	Design Capacity Units						Waste Feed		Waste Type		
	Code	Description						Code	Description	Code	Description
150		complete towers per year (each tower consists of 3 tower sections)									
Design Capacity	Design Capacity Units						Waste Feed		Waste Type		
	Code	Description						Code	Description	Code	Description
Design Capacity	Design Capacity Units						Waste Feed		Waste Type		
	Code	Description						Code	Description	Code	Description
Design Capacity	Design Capacity Units						Waste Feed		Waste Type		
	Code	Description						Code	Description	Code	Description

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Section IV - Emission Unit Information

Process Information (continuation)														
Emission Unit	U	-	M	F	R	-	A	Process				M	A	C
Description														
Various machining (oxyfuel cutting, oxyfuel preheating, rolling) of steel plates and flanges in designated work stations throughout Building A.														
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units											
30904600	Quantity/Hr	Quantity/Yr	Code	Description										
		8760	0083	hours of operation										
<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location									
		Hrs/Day	Days/Yr											
		24	365	BLDG A										
Emission Point Identifier(s)														
VNT1A	VNT2A	VNT3A	VNT4A	VNT5A	VNT6A									
Emission Source/Control Identifier(s)														
MACHINING_A														
Emission Unit	U	-	M	F	R	-	A	Process				W	E	L
Description														
Various oxyfuel welding activities (MIG, SAW, GMAW, FCAW) in designated work stations throughout Building A.														
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units											
30904400	Quantity/Hr	Quantity/Yr	Code	Description										
	44480	6672000	0103	lbs welding rod used										
<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location									
		Hrs/Day	Days/Yr											
		24	365	BLDG A										
Emission Point Identifier(s)														
VNT1A	VNT2A	VNT3A	VNT4A	VNT5A	VNT6A									
Emission Source/Control Identifier(s)														
WELD_A														

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Section IV - Emission Unit Information

Process Information (continuation)														
Emission Unit	U	-	M	F	R	-	A				Process	G	R	I
Description														
Belt sanding activities in designated work stations throughout Building A.														
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units											
30900198	Quantity/Hr	Quantity/Yr	Code	Description										
		8760	0083	hours of operation										
<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location									
		Hrs/Day	Days/Yr	BLDG A										
		24	365											
Emission Point Identifier(s)														
VNT1A	VNT2A	VNT3A	VNT4A	VNT5A	VNT6A									
Emission Source/Control Identifier(s)														
GRIND_A														
Emission Unit	-										Process			
Description														
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units											
	Quantity/Hr	Quantity/Yr	Code	Description										
<input type="checkbox"/> Confidential <input type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location									
		Hrs/Day	Days/Yr											
Emission Point Identifier(s)														
Emission Source/Control Identifier(s)														

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(a)	(1)	(i)-(iv)			
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-MFR_A				7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>Initial notification. You must submit the initial notification required by § 63.9(b), for a new affected source no later than 120 days after initial startup. Your initial notification must provide the following information:</p> <p>The name, address, phone number and e-mail address of the owner and operator;</p> <p>The address (physical location) of the affected source;</p> <p>An identification of the relevant standard (i.e., this subpart); and</p> <p>A brief description of the type of operation. For example, a brief characterization of the types of products (e.g., aerospace components, sports equipment, etc.), the number and type of processes, and the number of workers usually employed.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(a)	(2)	(i)-(ii), (iv)			
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-MFR_A				7439-96-5	Manganese					
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>Notification of compliance status. If you are the owner or operator of a new affected source, you must submit a notification of compliance status within 120 days after initial startup. You are required to submit the following information with your notification of compliance status:</p> <p>Your company's name and address;</p> <p>A statement by a responsible official with that official's name, title, phone number, e-mail address and signature, certifying the truth, accuracy, and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of this subpart;</p> <p>The date of the notification of compliance status.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(b)	(1)				
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-MFR_A				7439-96-5	Manganese					
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
Annual certification and compliance reports. You must prepare and submit annual certification and compliance reports for each affected source according to the requirements of paragraphs (b)(2) through (7) of this section.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(c)					
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-MFR_A				7439-96-5	Manganese					
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>What records must I keep? You must collect and keep records of the data and information specified in paragraphs (c)(1) through (13) of this section, according to the requirements in paragraph (c)(14) of this section.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
40	CFR	63	XXXXXX	63.11516	(b)				
<input checked="" type="checkbox"/> Applicable Federal Requirement						<input type="checkbox"/> State Only Requirement		<input type="checkbox"/> Capping	
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-MFR_A		MAC		7439-96-5	Manganese				
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate				
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations				
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures				
Description									
<p>Standards for machining. If you own or operate a new or existing machining affected source, you must implement management practices to minimize emissions of MFHAP as specified in paragraph (b)(1) and (2) of this section for each machining operation that uses materials that contain MFHAP, as defined in § 63.11522, or has the potential to emit MFHAP. These requirements do not apply when machining operations are being performed that do not use any materials containing MFHAP and do not have the potential to emit MFHAP.</p> <p>(1) You must take measures necessary to minimize excess dust in the surrounding area to reduce MFHAP emissions, as practicable; and</p> <p>(2) You must operate all equipment associated with machining according to manufacturer's instructions.</p>									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
69	visible emissions								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description		10	upon request by regulatory agency		

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
40	CFR	63	XXXXXX	63.11516	(f)				
<input checked="" type="checkbox"/> Applicable Federal Requirement						<input type="checkbox"/> State Only Requirement		<input type="checkbox"/> Capping	
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-MFR_A		WEL		7439-96-5	Manganese				
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate				
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations				
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures				
Description									
Standards for welding. If you own or operate a new or existing welding affected source, you must comply with the requirements in paragraphs (f)(1) and (2) of this section for each welding operation that uses materials that contain MFHAP, as defined in § 63.11522, or has the potential to emit MFHAP. If your welding affected source uses 2,000 pounds or more per year of welding rod containing one or more MFHAP (calculated on a rolling 12-month basis), you must demonstrate that management practices or fume control measures are being implemented by complying with the requirements in paragraphs (f)(3) through (8) of this section. The requirements in paragraphs (f)(1) through (8) of this section do not apply when welding operations are being performed that do not use any materials containing MFHAP or do not have the potential to emit MFHAP.									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
69	visible emissions								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description		10	upon request by regulatory agency		

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
40	CFR	63	XXXXXX	63.11517	(b)				
<input checked="" type="checkbox"/> Applicable Federal Requirement						<input type="checkbox"/> State Only Requirement		<input type="checkbox"/> Capping	
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-MFR_A	VNT1A - VNT6A	WEL		7439-96-5	Manganese				
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring			<input checked="" type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate						
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations						
<input type="checkbox"/> Ambient Air Monitoring			<input type="checkbox"/> Record Keeping/Maintenance Procedures						
Description									
<p>Visual determination of fugitive emissions, graduated schedule. Visual determinations of fugitive emissions must be performed in accordance with paragraph (a) of this section and according to the schedule in paragraphs (b)(1) through (4) of this section.</p> <p>Daily Method 22 Testing. Perform visual determination of fugitive emissions once per day, on each day the process is in operation, during operation of the process.</p> <p>Weekly Method 22 Testing. If no visible fugitive emissions are detected in consecutive daily EPA Method 22 tests, performed in accordance with paragraph (b)(1) of this section for 10 days of work day operation of the process, you may decrease the frequency of EPA Method 22 testing to once every five days of operation of the process (one calendar week). If visible fugitive emissions are detected during these tests, you must resume EPA Method 22 testing of that operation once per day during each day that the process is in operation, in accordance with paragraph (b)(1) of this section.</p> <p>Monthly Method 22 Testing. If no visible fugitive emissions are detected in four consecutive weekly EPA Method 22 tests performed in accordance with paragraph (b)(2) of this section, you may decrease the frequency of EPA Method 22 testing to once per 21 days of operation of the process (one calendar month). If visible fugitive emissions are detected during these tests, you must resume weekly EPA Method 22 in accordance with paragraph (b)(2) of this section.</p> <p>Quarterly Method 22 Testing. If no visible fugitive emissions are detected in three consecutive monthly EPA Method 22 tests performed in accordance with paragraph (b)(3) of this section, you may decrease the frequency of EPA Method 22 testing to once per 60 days of operation of the process (3 calendar months). If visible fugitive emissions are detected during these tests, you must resume monthly EPA Method 22 in accordance with paragraph (b)(3) of this section.</p>									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
69	visible emissions								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description					

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11516	(c)					
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-MFR_A		GRI		7439-96-5	Manganese					
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>Standards for dry grinding and dry polishing with machines. If you own or operate a new dry grinding and dry polishing with machines affected source, you must comply with the requirements of paragraphs (c)(1) and (2) of this section for each dry grinding and dry polishing with machines operation that uses materials that contain MFHAP, as defined in § 63.11522, or has the potential to emit MFHAP. These requirements do not apply when dry grinding and dry polishing operations are being performed that do not use any materials containing MFHAP and do not have the potential to emit MFHAP.</p> <p>(1) You must capture emissions and vent them to a filtration control device. You must demonstrate compliance with this requirement by maintaining a record of the manufacturer's specifications for the filtration control devices, as specified by the requirements in § 63.11519(c)(4).</p> <p>(2) You must implement management practices to minimize emissions of MFHAP as specified in paragraphs (c) (2)(i) and (ii) of this section.</p> <p>(i) You must take measures necessary to minimize excess dust in the surrounding area to reduce MFHAP emissions, as practicable;</p> <p>(ii) You must operate all equipment associated with the operation of dry grinding and dry polishing with machines, including the filtration control device, according to manufacturer's instructions.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
69	visible emissions									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.5	(g)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-MFR_A										
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
At all times, the facility owner or operator must operate and maintain all process emission sources, including the associated air pollution control and monitoring equipment, in a manner consistent with safety, good air pollution control practices, good engineering practices and manufacturers' recommendations for minimizing emissions.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.5	(e)	(2)				
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-MFR_A				7439-96-5	Manganese					
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring			<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate							
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations							
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures							
Description										
<p>A process emission source subject to the Federal National Emission Standards for Hazardous Air Pollutants (NESHAP) under 40 CFR part 61 or part 63 (see table 1 of section 200.9 of this Title) satisfies the requirements of this Part for the respective air contaminant regulated by the Federal standard if the facility owner or operator can demonstrate that the process emission source is in compliance with the relevant Federal regulation and, for those NESHAPs regulating HTACs found in section 212-2.2, table 2 – high toxicity air contaminant list, of this Part, provide a TIA demonstrating that the maximum offsite ambient air concentration is less than the AGC/SGC and that emissions are less than the PB trigger for the respective air contaminant.</p> <p>Facility owners or operators required to submit a TIA shall submit a protocol describing the procedures to be used to predict the maximum offsite ambient air concentration. Once the protocol is approved by the department and the TIA is conducted, the facility owner or operator shall submit a final report to the department along with the air dispersion modeling results for approval. The department requires the use of an EPA approved air dispersion model for all screening and/or refined air dispersion modeling assessments; however, screen dispersion models do not require an approved modeling protocol.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter					Manufacturer Name/Model No.					
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			17	once during the term of the permit		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.6	(a)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-MFR_A										
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring			<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate							
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations							
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures							
Description										
No facility owner or operator shall cause or allow emissions having an average opacity during any six consecutive minutes of 20 percent or greater from any process emission source or emission point, except for the emission of uncombined water.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter					Manufacturer Name/Model No.					
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

ATTACHMENT A
NYSDEC Air State Facility Permit Application
Section IV – Emission Unit U-MFR_B
(continuation sheets)

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Section IV - Emission Unit Information

Emission Unit Description (continuation)										
Emission Unit	U	-	M	F	R	_	B			
<p>U-MFR_B includes machining, welding and grinding of steel plates and flanges inside Building B. Machining equipment (plasma arc cutting, preheating, rolling) as well as welding activities utilize oxyfuel and electricity for power.</p> <p>Welding techniques employed will consist of metal inert gas (MIG), submerged arc welding (SAW), gas metal arc welding (GMAW), and flux-cored arc welding (FCAW).</p> <p>All activities are performed indoors but have the potential to be released outdoors via Building B ventilation system vents. Potential emissions may be released from building vents due to the combustion of oxyfuel and fumes related to machining, welding and grinding activities.</p>										

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Section IV - Emission Unit Information

Emission Point Information (continuation)									
Emission Unit					Emission Point				
U - M F R _ B					V N T 1 B				
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section				
					Length (in)	Width (in)			
9	61	-4		70	68	78			
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal			
8.29	17790	601.136	4717.440	BLDG B	90				
Emission Unit					Emission Point				
U - M F R _ B					V N T 2 B				
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section				
					Length (in)	Width (in)			
9	61	-4		70	68	78			
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal			
8.29	17790	601.125	4717.466	BLDG B	70				
Emission Unit					Emission Point				
U - M F R _ B					V N T 3 B				
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section				
					Length (in)	Width (in)			
9	61	-4		70	68	78			
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal			
8.29	17790	601.115	4717.493	BLDG B	48				
Emission Unit					Emission Point				
U - M F R _ B					V N T 4 B				
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section				
					Length (in)	Width (in)			
9	61	-4		70	68	78			
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal			
8.29	17790	601.213	4717.534	BLDG B	384				
Emission Unit					Emission Point				
U - M F R _ B					V N T 5 B				
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section				
					Length (in)	Width (in)			
9	61	-4		70	68	78			
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal			
8.29	17790	601.223	4717.509	BLDG B	410				

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Section IV - Emission Unit Information

Emission Point Information (continuation)															
Emission Unit					U - M F R - B			Emission Point					V N T 6 B		
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section										
					Length (in)			Width (in)							
9	89	-6		70	66			78							
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal							
8.29	17790	601.235	4717.482	BLDG B	430										
Emission Unit					-			Emission Point							
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section										
					Length (in)			Width (in)							
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal							
Emission Unit					-			Emission Point							
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section										
					Length (in)			Width (in)							
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal							
Emission Unit					-			Emission Point							
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section										
					Length (in)			Width (in)							
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal							
Emission Unit					-			Emission Point							
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section										
					Length (in)			Width (in)							
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal							

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Section IV - Emission Unit Information

Emission Source/Control (continuation)										
Emission Unit		U	-	M	F	R	-	B		
Emission Source		Date of Construction		Date of Operation		Date of Removal		Control Type		Manufacturer's Name/Model No.
ID	Type							Code	Description	
MACHINING_B	I	Apr 2022		Oct 2023						
Design Capacity	Design Capacity Units					Waste Feed		Waste Type		
	Code	Description					Code	Description	Code	Description
150		complete towers per year (each tower consists of 3 tower sections)								
WELD_B	I	Apr 2022		Oct 2023						
Design Capacity	Design Capacity Units					Waste Feed		Waste Type		
	Code	Description					Code	Description	Code	Description
150		complete towers per year (each tower consists of 3 tower sections)								
GRIND_B	I	Apr 2022		Oct 2023						
Design Capacity	Design Capacity Units					Waste Feed		Waste Type		
	Code	Description					Code	Description	Code	Description
150		complete towers per year (each tower consists of 3 tower sections)								
Design Capacity	Design Capacity Units					Waste Feed		Waste Type		
	Code	Description					Code	Description	Code	Description
Design Capacity	Design Capacity Units					Waste Feed		Waste Type		
	Code	Description					Code	Description	Code	Description
Design Capacity	Design Capacity Units					Waste Feed		Waste Type		
	Code	Description					Code	Description	Code	Description

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Section IV - Emission Unit Information

Process Information (continuation)														
Emission Unit	U	-	M	F	R	-	B	Process				M	A	C
Description														
Various machining (oxyfuel cutting, oxyfuel preheating, rolling) of steel plates and flanges in designated work stations throughout Building B.														
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units											
30904600	Quantity/Hr	Quantity/Yr	Code	Description										
		8760	0083	hours of operation										
<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location									
		Hrs/Day	Days/Yr	BLDG B										
		24	365											
Emission Point Identifier(s)														
VNT1B	VNT2B	VNT3B	VNT4B	VNT5B	VNT6B									
Emission Source/Control Identifier(s)														
MACHINING_B														
Emission Unit	U	-	M	F	R	-	B	Process				W	E	L
Description														
Various oxyfuel welding activities (MIG, SAW, GMAW, FCAW) in designated work stations throughout Building B.														
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units											
30904400	Quantity/Hr	Quantity/Yr	Code	Description										
	44480	6672000	0103	lbs welding rod used										
<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location									
		Hrs/Day	Days/Yr	BLDG B										
		24	365											
Emission Point Identifier(s)														
VNT1B	VNT2B	VNT3B	VNT4B	VNT5B	VNT6B									
Emission Source/Control Identifier(s)														
WELD_B														

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Section IV - Emission Unit Information

Process Information (continuation)																
Emission Unit	U	-	M	F	R	-	B	Process				G	R	I		
Description																
Belt sanding activities in designated work stations throughout Building B.																
Source Classification Code (SCC)	Total Throughput				Throughput Quantity Units											
	Quantity/Hr	Quantity/Yr	Code	Description												
30900198		8760	0083	hours of operation												
<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity				Operating Schedule		Building	Floor/Location									
Hrs/Day	Days/Yr	24	365	BLDG B												
Emission Point Identifier(s)																
VNT1B	VNT2B	VNT3B	VNT4B	VNT5B	VNT6B											
Emission Source/Control Identifier(s)																
GRIND_B																
Emission Unit	-										Process					
Description																
Source Classification Code (SCC)	Total Throughput				Throughput Quantity Units											
	Quantity/Hr	Quantity/Yr	Code	Description												
<input type="checkbox"/> Confidential <input type="checkbox"/> Operating at Maximum Capacity				Operating Schedule		Building	Floor/Location									
Hrs/Day	Days/Yr															
Emission Point Identifier(s)																
Emission Source/Control Identifier(s)																

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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit Applicable Federal Requirements (continuation)									
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.
U-MFR_B		MAC		40	CFR	63	XXXXXXX	63.11514	(b)	(2)			
U-MFR_B		MAC		40	CFR	63	XXXXXXX	63.11516	(b)				
U-MFR_B		WEL		40	CFR	63	XXXXXXX	63.11514	(b)	(5)			
U-MFR_B		WEL		40	CFR	63	XXXXXXX	63.11516	(f)				
U-MFR_B	VNT1A-VNT6A	WEL		40	CFR	63	XXXXXXX	63.11517	(b)				
U-MFR_B		GRI		40	CFR	63	XXXXXXX	63.11514	(b)	(3)			
U-MFR_B		GRI		40	CFR	63	XXXXXXX	63.11516	(c)				
U-MFR_B				40	CFR	63	XXXXXXX	63.11515	(b)				
U-MFR_B				40	CFR	63	XXXXXXX	63.11519	(a)	(1), (2)			
U-MFR_B				40	CFR	63	XXXXXXX	63.11519	(b), (c)				

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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit State Only Requirements (continuation)									
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.
U-MFR_B				6	NYCRR	212	212-1	212-1.5	(g)				
U-MFR_B				6	NYCRR	212	212-1	212-1.5	(e)	(2)			
U-MFR_B				6	NYCRR	212	212-1	212-1.6	(a)				

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(a)	(1)	(i)-(iv)			
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-MFR_B				7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>Initial notification. You must submit the initial notification required by § 63.9(b), for a new affected source no later than 120 days after initial startup. Your initial notification must provide the following information:</p> <p>The name, address, phone number and e-mail address of the owner and operator;</p> <p>The address (physical location) of the affected source;</p> <p>An identification of the relevant standard (i.e., this subpart); and</p> <p>A brief description of the type of operation. For example, a brief characterization of the types of products (e.g., aerospace components, sports equipment, etc.), the number and type of processes, and the number of workers usually employed.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(a)	(2)	(i)-(ii), (iv)			
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-MFR_B				7439-96-5	Manganese					
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>Notification of compliance status. If you are the owner or operator of a new affected source, you must submit a notification of compliance status within 120 days after initial startup. You are required to submit the following information with your notification of compliance status:</p> <p>Your company's name and address;</p> <p>A statement by a responsible official with that official's name, title, phone number, e-mail address and signature, certifying the truth, accuracy, and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of this subpart;</p> <p>The date of the notification of compliance status.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter					Manufacturer Name/Model No.					
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(b)	(1)				
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-MFR_B				7439-96-5	Manganese					
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
Annual certification and compliance reports. You must prepare and submit annual certification and compliance reports for each affected source according to the requirements of paragraphs (b)(2) through (7) of this section.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter		Manufacturer Name/Model No.								
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method		Monitoring Frequency		Reporting Requirements						
Code	Description	Code	Description	Code	Description					
		14	as required - see monitoring description	16	as required - see monitoring description					

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(c)					
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-MFR_B				7439-96-5	Manganese					
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>What records must I keep? You must collect and keep records of the data and information specified in paragraphs (c)(1) through (13) of this section, according to the requirements in paragraph (c)(14) of this section.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
40	CFR	63	XXXXXX	63.11516	(b)				
<input checked="" type="checkbox"/> Applicable Federal Requirement						<input type="checkbox"/> State Only Requirement		<input type="checkbox"/> Capping	
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-MFR_B		MAC		7439-96-5	Manganese				
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate				
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations				
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures				
Description									
<p>Standards for machining. If you own or operate a new or existing machining affected source, you must implement management practices to minimize emissions of MFHAP as specified in paragraph (b)(1) and (2) of this section for each machining operation that uses materials that contain MFHAP, as defined in § 63.11522, or has the potential to emit MFHAP. These requirements do not apply when machining operations are being performed that do not use any materials containing MFHAP and do not have the potential to emit MFHAP.</p> <p>(1) You must take measures necessary to minimize excess dust in the surrounding area to reduce MFHAP emissions, as practicable; and</p> <p>(2) You must operate all equipment associated with machining according to manufacturer's instructions.</p>									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
69	visible emissions								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description		10	upon request by regulatory agency		

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
40	CFR	63	XXXXXX	63.11516	(f)				
<input checked="" type="checkbox"/> Applicable Federal Requirement						<input type="checkbox"/> State Only Requirement		<input type="checkbox"/> Capping	
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-MFR_B		WEL		7439-96-5	Manganese				
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate				
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations				
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures				
Description									
Standards for welding. If you own or operate a new or existing welding affected source, you must comply with the requirements in paragraphs (f)(1) and (2) of this section for each welding operation that uses materials that contain MFHAP, as defined in § 63.11522, or has the potential to emit MFHAP. If your welding affected source uses 2,000 pounds or more per year of welding rod containing one or more MFHAP (calculated on a rolling 12-month basis), you must demonstrate that management practices or fume control measures are being implemented by complying with the requirements in paragraphs (f)(3) through (8) of this section. The requirements in paragraphs (f)(1) through (8) of this section do not apply when welding operations are being performed that do not use any materials containing MFHAP or do not have the potential to emit MFHAP.									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
69	visible emissions								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description		10	upon request by regulatory agency		

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
40	CFR	63	XXXXXX	63.11517	(b)				
<input checked="" type="checkbox"/> Applicable Federal Requirement						<input type="checkbox"/> State Only Requirement		<input type="checkbox"/> Capping	
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-MFR_B	VNT1B - VNT6B	WEL		7439-96-5	Manganese				
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring			<input checked="" type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate						
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations						
<input type="checkbox"/> Ambient Air Monitoring			<input type="checkbox"/> Record Keeping/Maintenance Procedures						
Description									
<p>Visual determination of fugitive emissions, graduated schedule. Visual determinations of fugitive emissions must be performed in accordance with paragraph (a) of this section and according to the schedule in paragraphs (b)(1) through (4) of this section.</p> <p>Daily Method 22 Testing. Perform visual determination of fugitive emissions once per day, on each day the process is in operation, during operation of the process.</p> <p>Weekly Method 22 Testing. If no visible fugitive emissions are detected in consecutive daily EPA Method 22 tests, performed in accordance with paragraph (b)(1) of this section for 10 days of work day operation of the process, you may decrease the frequency of EPA Method 22 testing to once every five days of operation of the process (one calendar week). If visible fugitive emissions are detected during these tests, you must resume EPA Method 22 testing of that operation once per day during each day that the process is in operation, in accordance with paragraph (b)(1) of this section.</p> <p>Monthly Method 22 Testing. If no visible fugitive emissions are detected in four consecutive weekly EPA Method 22 tests performed in accordance with paragraph (b)(2) of this section, you may decrease the frequency of EPA Method 22 testing to once per 21 days of operation of the process (one calendar month). If visible fugitive emissions are detected during these tests, you must resume weekly EPA Method 22 in accordance with paragraph (b)(2) of this section.</p> <p>Quarterly Method 22 Testing. If no visible fugitive emissions are detected in three consecutive monthly EPA Method 22 tests performed in accordance with paragraph (b)(3) of this section, you may decrease the frequency of EPA Method 22 testing to once per 60 days of operation of the process (3 calendar months). If visible fugitive emissions are detected during these tests, you must resume monthly EPA Method 22 in accordance with paragraph (b)(3) of this section.</p>									
Work Practice		Process Material			Reference Test Method				
Type	Code	Description							
Monitored Parameter					Manufacturer Name/Model No.				
Code	Description								
69	visible emissions								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description					

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
40	CFR	63	XXXXXX	63.11516	(c)				
<input checked="" type="checkbox"/> Applicable Federal Requirement						<input type="checkbox"/> State Only Requirement		<input type="checkbox"/> Capping	
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-MFR_B		GRI		7439-96-5	Manganese				
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate				
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations				
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures				
Description									
<p>Standards for dry grinding and dry polishing with machines. If you own or operate a new dry grinding and dry polishing with machines affected source, you must comply with the requirements of paragraphs (c)(1) and (2) of this section for each dry grinding and dry polishing with machines operation that uses materials that contain MFHAP, as defined in § 63.11522, or has the potential to emit MFHAP. These requirements do not apply when dry grinding and dry polishing operations are being performed that do not use any materials containing MFHAP and do not have the potential to emit MFHAP.</p> <p>(1) You must capture emissions and vent them to a filtration control device. You must demonstrate compliance with this requirement by maintaining a record of the manufacturer's specifications for the filtration control devices, as specified by the requirements in § 63.11519(c)(4).</p> <p>(2) You must implement management practices to minimize emissions of MFHAP as specified in paragraphs (c) (2)(i) and (ii) of this section.</p> <p>(i) You must take measures necessary to minimize excess dust in the surrounding area to reduce MFHAP emissions, as practicable;</p> <p>(ii) You must operate all equipment associated with the operation of dry grinding and dry polishing with machines, including the filtration control device, according to manufacturer's instructions.</p>									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
69	visible emissions								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description		10	upon request by regulatory agency		

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.5	(g)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-MFR_B										
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
At all times, the facility owner or operator must operate and maintain all process emission sources, including the associated air pollution control and monitoring equipment, in a manner consistent with safety, good air pollution control practices, good engineering practices and manufacturers' recommendations for minimizing emissions.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter					Manufacturer Name/Model No.					
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.5	(e)	(2)				
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-MFR_B				7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>A process emission source subject to the Federal National Emission Standards for Hazardous Air Pollutants (NESHAP) under 40 CFR part 61 or part 63 (see table 1 of section 200.9 of this Title) satisfies the requirements of this Part for the respective air contaminant regulated by the Federal standard if the facility owner or operator can demonstrate that the process emission source is in compliance with the relevant Federal regulation and, for those NESHAPs regulating HTACs found in section 212-2.2, table 2 – high toxicity air contaminant list, of this Part, provide a TIA demonstrating that the maximum offsite ambient air concentration is less than the AGC/SGC and that emissions are less than the PB trigger for the respective air contaminant.</p> <p>Facility owners or operators required to submit a TIA shall submit a protocol describing the procedures to be used to predict the maximum offsite ambient air concentration. Once the protocol is approved by the department and the TIA is conducted, the facility owner or operator shall submit a final report to the department along with the air dispersion modeling results for approval. The department requires the use of an EPA approved air dispersion model for all screening and/or refined air dispersion modeling assessments; however, screen dispersion models do not require an approved modeling protocol.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			17	once during the term of the permit		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.6	(a)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-MFR_B										
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
No facility owner or operator shall cause or allow emissions having an average opacity during any six consecutive minutes of 20 percent or greater from any process emission source or emission point, except for the emission of uncombined water.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

ATTACHMENT A
NYSDEC Air State Facility Permit Application
Section IV – Emission Unit U-TBLST
(continuation sheets)

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Section IV - Emission Unit Information

Emission Unit Description (continuation)

Emission Unit	U	-	T	B	L	S	T
---------------	---	---	---	---	---	---	---

Fully enclosed blast room for the purpose of tower and transition piece descaling (rust, oxide removal). The tower blast room uses steel shot as the abrasive media and will be equipped with a high efficiency cartridge dust collector.

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Section IV - Emission Unit Information

Building (continuation)					
Emission Unit	Building ID	Building Name	Length (ft)	Width (ft)	Orientation
U-TBLST	BLDG C	Blast-Metallization-Paint	732	170	10

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Section IV - Emission Unit Information

Emission Point Information (continuation)																				
Emission Unit						U	-	T	B	L	S	T	Emission Point			0	0	0	1	C
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section								Length (in)	Width (in)						
8	85	17	24	75																
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)		Date of Removal													
45.1	8240	601.117	4717.808	BLDG C	78															
Emission Unit						U	-	T	B	L	S	T	Emission Point			0	0	0	2	C
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section								Length (in)	Width (in)						
9	85	17	24	75																
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)		Date of Removal													
45.1	8240	601.122	4717.808	BLDG C	95															
Emission Unit						U	-	T	B	L	S	T	Emission Point			0	0	0	3	C
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section								Length (in)	Width (in)						
9	85	17	24	75																
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)		Date of Removal													
45.1	8240	601.127	4717.808	BLDG C																
Emission Unit							-						Emission Point							
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section								Length (in)	Width (in)						
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)		Date of Removal													
Emission Unit							-						Emission Point							
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section								Length (in)	Width (in)						
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)		Date of Removal													

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Section IV - Emission Unit Information

Emission Source/Control (continuation)									
Emission Unit		U	-	T	B	L	S	T	
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
TBLAST	I	TBD	TBD				SciTeeX/BLASTLUX PC-BL 671414		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
3500	3	pounds abrasive media (steel shot) per hour							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
TBLSTFLTR	K	TBD	TBD		016	fabric filter			
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
24800	0156	SCFM average airflow							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	

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Section IV - Emission Unit Information

Process Information (continuation)													
Emission Unit	U	-	T	B	L	S	T	Process			0	0	1
Description													
Fully enclosed blast room for the purpose of tower and transition piece descaling (rust, oxide removal). The tower blast room uses steel shot as the abrasive media and will be equipped with a high efficiency cartridge dust collector.													
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units										
	Quantity/Hr	Quantity/Yr	Code	Description									
30900207	3500	30660000	26	pounds									
<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location								
		Hrs/Day	Days/Yr										
		24	365	BLDG C	Tower Blast Booth								
Emission Point Identifier(s)													
0001C	0002C	0003C											
Emission Source/Control Identifier(s)													
TBLAST	TBLSTFLTR												
Emission Unit	-						Process						
Description													
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units										
	Quantity/Hr	Quantity/Yr	Code	Description									
<input type="checkbox"/> Confidential <input type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location								
		Hrs/Day	Days/Yr										
Emission Point Identifier(s)													
Emission Source/Control Identifier(s)													

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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit Applicable Federal Requirements (continuation)										
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.	
U-TBLST	0001C-0003C	001		40	CFR	63	XXXXXX	63.11514	(b)	(1)				
U-TBLST	0001C-0003C	001		40	CFR	63	XXXXXX	63.11515	(b)					
U-TBLST	0001C-0003C	001		40	CFR	63	XXXXXX	63.11516	(a)	(3)				
U-TBLST	0001C-0003C	001		40	CFR	63	XXXXXX	63.11517	(b)					
U-TBLST	0001C-0003C	001		40	CFR	63	XXXXXX	63.11519	(a)	(1), (2)				
U-TBLST	0001C-0003C	001		40	CFR	63	XXXXXX	63.11519	(b), (c)					

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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit State Only Requirements (continuation)									
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.
U-TBLST	0001C-0003C	001		6	NYCRR	212	212-1	212-1.5	(g)				
U-TBLST	0001C-0003C	001		6	NYCRR	212	212-1	212-1.5	(e)	(2)			
U-TBLST	0001C-0003C	001		6	NYCRR	212	212-1	212-1.6	(a)				

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11516	(a)	(3)	(i)			
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-TBLST	0001C-0003C	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>You must take measures necessary to minimize excess dust in the surrounding area to reduce metal fabrication HAP (manganese) emissions, as practicable; and</p> <p>You must enclose abrasive material storage areas and holding bins, seal chutes and conveyors that transport abrasive material; and</p> <p>You must operate all equipment associated with dry abrasive blasting operations according to manufacturer's instructions; and</p> <p>You must not re-use abrasive blasting media unless contaminants (i.e., any material other than the base metal, such as paint residue) have been removed by filtration or screening, and the abrasive material conforms to its original size.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			03	daily		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11516	(a)	(3)	(ii)-(iv)			
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-TBLST	0001C-0003C	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring			<input checked="" type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate							
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations							
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures							
Description										
<p>For abrasive blasting of objects greater than 8 feet (2.4 meters) in any one dimension that is performed indoors, you must perform visual determinations of fugitive emissions at the primary vent, stack, exit, or opening from the building containing the abrasive blasting operations.</p> <p>You must keep a record of all visual determinations of fugitive emissions along with any corrective action taken in accordance with the requirements in § 63.11519(c)(2).</p> <p>If visible fugitive emissions are detected, you must perform corrective actions until the visible fugitive emissions are eliminated, at which time you must:</p> <p>Perform a follow-up inspection for visible fugitive emissions in accordance with § 63.11517(a).</p> <p>You must report all instances where visible emissions are detected, along with any corrective action taken and the results of subsequent follow-up inspections for visible emissions, with your annual certification and compliance report as required by § 63.11519(b)(5).</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
69	visible emissions									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
						16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
40	CFR	63	XXXXXX	63.11517	(b)				
<input checked="" type="checkbox"/> Applicable Federal Requirement						<input type="checkbox"/> State Only Requirement		<input type="checkbox"/> Capping	
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name			
U-TBLST	0001C-0003C	001		7439-96-5		Manganese			
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring			<input checked="" type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate						
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations						
<input type="checkbox"/> Ambient Air Monitoring			<input type="checkbox"/> Record Keeping/Maintenance Procedures						
Description									
<p>Visual determination of fugitive emissions, graduated schedule. Visual determinations of fugitive emissions must be performed in accordance with paragraph (a) of this section and according to the schedule in paragraphs (b)(1) through (4) of this section.</p> <p>Daily Method 22 Testing. Perform visual determination of fugitive emissions once per day, on each day the process is in operation, during operation of the process.</p> <p>Weekly Method 22 Testing. If no visible fugitive emissions are detected in consecutive daily EPA Method 22 tests, performed in accordance with paragraph (b)(1) of this section for 10 days of work day operation of the process, you may decrease the frequency of EPA Method 22 testing to once every five days of operation of the process (one calendar week). If visible fugitive emissions are detected during these tests, you must resume EPA Method 22 testing of that operation once per day during each day that the process is in operation, in accordance with paragraph (b)(1) of this section.</p> <p>Monthly Method 22 Testing. If no visible fugitive emissions are detected in four consecutive weekly EPA Method 22 tests performed in accordance with paragraph (b)(2) of this section, you may decrease the frequency of EPA Method 22 testing to once per 21 days of operation of the process (one calendar month). If visible fugitive emissions are detected during these tests, you must resume weekly EPA Method 22 in accordance with paragraph (b)(2) of this section.</p> <p>Quarterly Method 22 Testing. If no visible fugitive emissions are detected in three consecutive monthly EPA Method 22 tests performed in accordance with paragraph (b)(3) of this section, you may decrease the frequency of EPA Method 22 testing to once per 60 days of operation of the process (3 calendar months). If visible fugitive emissions are detected during these tests, you must resume monthly EPA Method 22 in accordance with paragraph (b)(3) of this section.</p>									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
69	visible emissions								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description					

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(a)	(1)	(i)-(iv)			
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-TBLST	0001C-0003C	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
Initial notification. You must submit the initial notification required by § 63.9(b), for a new affected source no later than 120 days after initial startup. Your initial notification must provide the following information:										
The name, address, phone number and e-mail address of the owner and operator;										
The address (physical location) of the affected source;										
An identification of the relevant standard (i.e., this subpart); and										
A brief description of the type of operation. For example, a brief characterization of the types of products (e.g., aerospace components, sports equipment, etc.), the number and type of processes, and the number of workers usually employed.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(a)	(2)	(i)-(ii), (iv)			
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-TBLST	0001C-0003C	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>Notification of compliance status. If you are the owner or operator of a new affected source, you must submit a notification of compliance status within 120 days after initial startup. You are required to submit the following information with your notification of compliance status:</p> <p>Your company's name and address;</p> <p>A statement by a responsible official with that official's name, title, phone number, e-mail address and signature, certifying the truth, accuracy, and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of this subpart;</p> <p>The date of the notification of compliance status.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(b)	(1), (2)				
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-TBLST	0001C-0003C	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>Annual certification and compliance reports. You must prepare and submit annual certification and compliance reports for each affected source according to the requirements of paragraphs (b)(2), (b)(4) and b(5) of this section.</p> <p>Dates. Unless the Administrator has approved or agreed to a different schedule for submission of reports under § 63.10(a), you must prepare and submit each annual certification and compliance report according to the dates specified in paragraphs (b)(2)(i) through (iii) of this section. Note that the information reported for each of the months in the reporting period will be based on the last 12 months of data prior to the date of each monthly calculation.</p> <p>The first annual certification and compliance report must cover the first annual reporting period which begins the day after the compliance date and ends on December 31.</p> <p>Each subsequent annual certification and compliance report must cover the subsequent semiannual reporting period from January 1 through December 31.</p> <p>Each annual certification and compliance report must be prepared and submitted no later than January 31 and kept in a readily-accessible location for inspector review. If an exceedance has occurred during the year, each annual certification and compliance report must be submitted along with the exceedance reports, and postmarked or delivered no later than January 31.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(b)	(4), (5)				
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-TBLST	0001C-0003C	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>General requirements. The annual certification and compliance report must contain the information specified in paragraphs (b)(4)(i) through (iii) of this section, and the information specified in paragraphs (b) (5) through (7) of this section that is applicable to each affected source.</p> <p>The date of every visual determination of fugitive emissions which resulted in detection of visible emissions;</p> <p>A description of the corrective actions taken subsequent to the test; and</p> <p>The date and results of the follow-up visual determination of fugitive emissions performed after the corrective actions.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		16	as required - see monitoring description			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX	63.11519	(c)					
<input checked="" type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-TBLST	0001C-0003C	001		7439-96-5	Manganese					
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>What records must I keep? You must collect and keep records of the data and information specified in paragraphs (c)(1) through (13) of this section, according to the requirements in paragraph (c)(14) of this section.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter					Manufacturer Name/Model No.					
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.5	(g)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-TBLST	0001C-0003C	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
At all times, the facility owner or operator must operate and maintain all process emission sources, including the associated air pollution control and monitoring equipment, in a manner consistent with safety, good air pollution control practices, good engineering practices and manufacturers' recommendations for minimizing emissions.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.5	(e)	(2)				
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-TBLST	0001C-0003C	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>A process emission source subject to the Federal National Emission Standards for Hazardous Air Pollutants (NESHAP) under 40 CFR part 61 or part 63 (see table 1 of section 200.9 of this Title) satisfies the requirements of this Part for the respective air contaminant regulated by the Federal standard if the facility owner or operator can demonstrate that the process emission source is in compliance with the relevant Federal regulation and, for those NESHAPs regulating HTACs found in section 212-2.2, table 2 – high toxicity air contaminant list, of this Part, provide a TIA demonstrating that the maximum offsite ambient air concentration is less than the AGC/SGC and that emissions are less than the PB trigger for the respective air contaminant.</p> <p>Facility owners or operators required to submit a TIA shall submit a protocol describing the procedures to be used to predict the maximum offsite ambient air concentration. Once the protocol is approved by the department and the TIA is conducted, the facility owner or operator shall submit a final report to the department along with the air dispersion modeling results for approval. The department requires the use of an EPA approved air dispersion model for all screening and/or refined air dispersion modeling assessments; however, screen dispersion models do not require an approved modeling protocol.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			17	once during the term of the permit		10	upon request by regulatory agency			

New York State Department of Environmental Conservation
Air Permit Application Form



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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.6	(a)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.		Contaminant Name				
U-TBLST	0001C-0003C	001		7439-96-5		Manganese				
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
No facility owner or operator shall cause or allow emissions having an average opacity during any six consecutive minutes of 20 percent or greater from any process emission source or emission point, except for the emission of uncombined water.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

ATTACHMENT A
NYSDEC Air State Facility Permit Application
Section IV – Emission Unit U-METAL
(continuation sheets)

**New York State Department of Environmental Conservation
Air Permit Application Form**



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Section IV - Emission Unit Information

Emission Unit Description (continuation)											
Emission Unit	U	-	M	E	T	A	L				
<p>Thermal spraying (metallizing) is performed using zinc based wire to apply coating to a section (or parts of the section) to offer greater protection against corrosion. The metallizing system is equipped with a portable emission capture and control system. It will be equipped with a mobile state-of-the-art staged HEPA filtration system which discharges indoors. Potential emissions may be released outdoors via building ventilation system exhaust.</p>											

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Section IV - Emission Unit Information

Building (continuation)					
Emission Unit	Building ID	Building Name	Length (ft)	Width (ft)	Orientation
U-METAL	BLDG C	Blast-Metallization-Paint	732	170	10

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Air Permit Application Form



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Section IV - Emission Unit Information

Emission Point Information (continuation)													
Emission Unit					Emission Point								
U - M E T A L					V N T 1 C								
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal
					Length (in)	Width (in)							
9.1	73	-4		70	42	42	7.527	5532	601.160	4717.709	BLDG C	250	
U - M E T A L					V N T 2 C								
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal
					Length (in)	Width (in)							
9.1	73	-4		70	42	42	7.527	5532	601.163	4717.771	BLDG C	240	
U - M E T A L					V N T 3 C								
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal
					Length (in)	Width (in)							
8.9	73	5		70	42	42	7.527	5532	601.165	4717.820	BLDG C	245	
U - M E T A L					V N T 4 C								
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal
					Length (in)	Width (in)							
8.7	73	5		70	42	42	7.527	5532	601.167	4717.860	BLDG C	234	
U - M E T A L					V N T 5 C								
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section		Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)	Date of Removal
					Length (in)	Width (in)							

**New York State Department of Environmental Conservation
Air Permit Application Form**



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Section IV - Emission Unit Information

Emission Source/Control (continuation)									
Emission Unit		U - M E T A L							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
METALLIZING	I	Apr 2022	Oct 2023				Thermion/Precision Arc 5.0		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description		Code	Description	Code	Description		
400	3	pounds per hour							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
METALFLTR	K	Apr 2022	Oct 2023		016	fabric filter	Endurex EX-14D52-B16-SF		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description		Code	Description	Code	Description		
Unknown	0156	SCFM average airflow							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description		Code	Description	Code	Description		
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description		Code	Description	Code	Description		
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description		Code	Description	Code	Description		
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description		Code	Description	Code	Description		

New York State Department of Environmental Conservation
Air Permit Application Form



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Section IV - Emission Unit Information

Process Information (continuation)														
Emission Unit	U	-	M	E	T	A	L	Process			0	0	1	
Description														
<p>Thermal spraying (metallizing) is performed using zinc based wire to apply coating to a section (or parts of the section) to offer greater protection against corrosion. The metallizing system is equipped with an emission capture and control system. It will be equipped with a mobile state-of-the-art staged HEPA filtration system which discharges indoors. Potential emissions may be released outdoors via building ventilation system exhaust.</p> <p>Metallizing is performed via both manual and automated thermal spray coating.</p>														
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units											
30904500	Quantity/Hr	Quantity/Yr	Code	Description										
	400	3504000	26	pounds										
<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location									
		Hrs/Day	Days/Yr											
		24	365	BLDG C	Metallization Booth									
Emission Point Identifier(s)														
VNT1C	VNT2C	VNT3C	VNT4C											
Emission Source/Control Identifier(s)														
METALLIZING	METALFLTR													
Emission Unit	-									Process				
Description														
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units											
	Quantity/Hr	Quantity/Yr	Code	Description										
<input type="checkbox"/> Confidential <input type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location									
		Hrs/Day	Days/Yr											
Emission Point Identifier(s)														
Emission Source/Control Identifier(s)														

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 Air Permit Application Form



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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit Applicable Federal Requirements (continuation)									
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.
U-METAL		001		40	CFR	63	wwwwww	63.11505		(a)	(2)		

Continuation Sheet ____ of ____



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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit State Only Requirements (continuation)									
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.
U-METAL	VNT1C-4C	001		6	NYCRR	212	212-1	212-1.5	(g)				
U-METAL	VNT1C-4C	001		6	NYCRR	212	212-1	212-1.6	(a)				
U-METAL	VNT1C-4C	001		6	NYCRR	212	212-2	212-2.3	(a), (b)				
U-METAL	VNT1C-4C	001		6	NYCRR	212	212-2	212-2.4	(b)	(1)			

New York State Department of Environmental Conservation
Air Permit Application Form



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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
40	CFR	63	WWWWWW						
<input type="checkbox"/> Applicable Federal Requirement			<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping			
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-METAL									
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring			<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate						
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations						
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures						
Description									
<p>The facility's thermal spraying (metallizing) process is not subject to 40 CFR 63 Subpart WWWWWW since it does not use, nor has emissions of compounds of one or more plating and polishing metal HAP, as defined in §63.11511.</p> <p>Maintain an up-to-date copy of the safety data sheet for the zinc wire used at all times to demonstrate that the facility is exempt from Subpart WWWWWW.</p>									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter		Manufacturer Name/Model No.							
Code	Description								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description		10	upon request by regulatory agency		

New York State Department of Environmental Conservation
Air Permit Application Form



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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.5	(g)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-METAL	VNT1C-VNT4C	001								
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
At all times, the facility owner or operator must operate and maintain all process emission sources, including the associated air pollution control and monitoring equipment, in a manner consistent with safety, good air pollution control practices, good engineering practices and manufacturers' recommendations for minimizing emissions.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

New York State Department of Environmental Conservation
Air Permit Application Form



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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	212	212-1	212-1.6	(a)				
<input type="checkbox"/> Applicable Federal Requirement <input checked="" type="checkbox"/> State Only Requirement						<input type="checkbox"/> Capping			
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-METAL	VNT1C-VNT4C	001							
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring			<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate						
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations						
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures						
Description									
No facility owner or operator shall cause or allow emissions having an average opacity during any six consecutive minutes of 20 percent or greater from any process emission source or emission point, except for the emission of uncombined water.									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter					Manufacturer Name/Model No.				
Code	Description								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description		10	upon request by regulatory agency		

New York State Department of Environmental Conservation
Air Permit Application Form



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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-2	212-2.3, 2.4						
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-METAL	VNT1C-VNT4C	001	METALFLTR							
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring			<input checked="" type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate							
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations							
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures							
Description										
Monitor pressure drop across booth fabric filters each operating day and maintain in accordance with manufacturer recommendations.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
63	pressure differential					TBD				
Limit			Limit Units							
Upper	Lower	Code	Description							
TBD	TBD	284	inches of water							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
61	Minimum - not to fall below stated value - see monitoring description		14	as required - see monitoring description		10	upon request by regulatory agency			

ATTACHMENT A
NYSDEC Air State Facility Permit Application
Section IV – Emission Unit U-PBTH1
(continuation sheets)

**New York State Department of Environmental Conservation
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Section IV - Emission Unit Information

Emission Unit Description (continuation)										
Emission Unit	U	-	P	B	T	H	1			
<p>Large enclosed paint spray booth equipped with staged ventilation and filtration to capture and control particulate (PM-10, PM-2.5) emissions. The booth includes two (2) natural gas-fired curing ovens with design heat input capacities equal to 16.0 mmBtu/hr each. The booth will also be equipped with a recuperative thermal oxidizer (RTO) for control of VOC. The RTO has a maximum design firing rate equal to 3.73 mmBtu/hr and fires natural gas as supplemental fuel.</p> <p>Surface coating activities are performed on tower and transition pieces using both automated and manually operated airless spray guns. Coatings are applied to the parts in a specific sequence where the inside and outside of parts are coated and cured.</p>										

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Section IV - Emission Unit Information

Building (continuation)					
Emission Unit	Building ID	Building Name	Length (ft)	Width (ft)	Orientation
U-PBTH1	BLDG C	Blast-Metallization-Paint	732	170	10

New York State Department of Environmental Conservation
Air Permit Application Form



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Section IV - Emission Unit Information

Emission Point Information (continuation)																					
Emission Unit					U	-	P	B	T	H	1	Emission Point					0	0	0	4	C
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
9.1	85	8	51	160	Length (in)					Width (in)											
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)					Date of Removal											
54.9	47086	601.164	4717.739	BLDG C	255																
Emission Unit					-							Emission Point									
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)					Width (in)											
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)					Date of Removal											
Emission Unit					-							Emission Point									
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)					Width (in)											
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)					Date of Removal											
Emission Unit					-							Emission Point									
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)					Width (in)											
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)					Date of Removal											
Emission Unit					-							Emission Point									
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)					Width (in)											
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)					Date of Removal											

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Air Permit Application Form



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Section IV - Emission Unit Information

Emission Source/Control (continuation)									
Emission Unit	U	-	P	B	T	H	1		
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
MANUAL_P1	I	Apr 2022	Oct 2023				Graco XTR Airless Spray Gun		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
86	16	gallons per hour							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
AUTO_P1	I	Apr 2022	Oct 2023				Graco AL Automatic Airless Spray Gun		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
86	16	gallons per hour							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
OVEN_A	I	Apr 2022	Oct 2023				Scitex DIANA PB-DB 1221314		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
16000000	200	British thermal units per hour							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
OVEN_B	I	Apr 2022	Oct 2023				Scitex DIANA PB-DB 1221314		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
16000000	200	British thermal units per hour							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
PBTHLTR_A	K	Apr 2022	Oct 2023		016	fabric filter	Various (multi-stage system)		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
Various	41	cubic feet per hour							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
PBTHLTR_B	K	Apr 2022	Oct 2023		016	fabric filter	Various (multi-stage system)		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
Various	41	cubic feet per hour							

New York State Department of Environmental Conservation
Air Permit Application Form



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Section IV - Emission Unit Information

Process Information (continuation)																																																																																																																																																		
Emission Unit	U	-	P	B	T	H	1																																																																																																																																											
Description								Process	0	0	1																																																																																																																																							
<p>Large enclosed paint spray booth equipped with staged ventilation and filtration to capture and control particulate (PM-10, PM-2.5) emissions. The booth, which consists of two (2) zones, will also be equipped with a recuperative thermal oxidizer (RTO) for control of VOC.</p> <p>Surface coating activities are performed on tower and transition pieces using both automated and manually operated airless spray guns. Coatings are applied to the parts in a specific sequence where the inside and outside of parts are coated.</p>																																																																																																																																																		
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units																																																																																																																																															
	Quantity/Hr	Quantity/Yr	Code	Description																																																																																																																																														
30900198	86	134415	15	gallons																																																																																																																																														
<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location																																																																																																																																													
		Hrs/Day	Days/Yr																																																																																																																																															
		24	365	BLDG C	Large Spray Booth																																																																																																																																													
Emission Point Identifier(s)																																																																																																																																																		
0004C																																																																																																																																																		
Emission Source/Control Identifier(s)																																																																																																																																																		
MANUAL_P1	AUTO_P1	PBTH_FLTR_A	PBTHFLTR_B	RTO_1																																																																																																																																														
<table border="1"> <tr> <th>Emission Unit</th> <td>U</td> <td>-</td> <td>P</td> <td>B</td> <td>T</td> <td>H</td> <td>1</td> <td></td> <td></td> <td></td> </tr> <tr> <th colspan="8">Description</th> <th>Process</th> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td colspan="11"> <p>Large enclosed paint spray booth equipped with two (2) integral curing ovens. In curing mode, each of the two (2) zones use a natural gas-fired process heater with design maximum heat input rating equal to 16 mmBtu/hr each. Exhaust gases vent to the booth's RTO stack (Emission Point 0004C).</p> </td> </tr> <tr> <th rowspan="2">Source Classification Code (SCC)</th> <th colspan="2">Total Throughput</th> <th colspan="8">Throughput Quantity Units</th> </tr> <tr> <th>Quantity/Hr</th> <th>Quantity/Yr</th> <th>Code</th> <th colspan="7">Description</th> </tr> <tr> <td>30990003</td> <td>0.0305</td> <td>267</td> <td>0115</td> <td colspan="7">million cubic feet gas (both ovens combined)</td> </tr> <tr> <td colspan="2"> <input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity </td> <th colspan="2">Operating Schedule</th> <th rowspan="2">Building</th> <th colspan="6" rowspan="2">Floor/Location</th> </tr> <tr> <td colspan="2"></td> <th>Hrs/Day</th> <th>Days/Yr</th> </tr> <tr> <td colspan="2"></td> <td>24</td> <td>365</td> <td>BLDG C</td> <td colspan="6">Large Spray Booth</td> </tr> <tr> <th colspan="11">Emission Point Identifier(s)</th> </tr> <tr> <td colspan="11">0004C</td> </tr> <tr> <th colspan="11">Emission Source/Control Identifier(s)</th> </tr> <tr> <td>OVEN_A</td> <td>OVEN_B</td> <td>RTO_1</td> <td colspan="8"></td> </tr> </table>											Emission Unit	U	-	P	B	T	H	1				Description								Process	0	0	2	<p>Large enclosed paint spray booth equipped with two (2) integral curing ovens. In curing mode, each of the two (2) zones use a natural gas-fired process heater with design maximum heat input rating equal to 16 mmBtu/hr each. Exhaust gases vent to the booth's RTO stack (Emission Point 0004C).</p>											Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units								Quantity/Hr	Quantity/Yr	Code	Description							30990003	0.0305	267	0115	million cubic feet gas (both ovens combined)							<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location								Hrs/Day	Days/Yr			24	365	BLDG C	Large Spray Booth						Emission Point Identifier(s)											0004C											Emission Source/Control Identifier(s)											OVEN_A	OVEN_B	RTO_1								
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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit Applicable Federal Requirements (continuation)										
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.	
U-PBTH1		001		40	CFR	63	XXXXXX	63.11514	(b)	(4)				
U-PBTH1		002		40	CFR	63	DDDDD							

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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit State Only Requirements (continuation)									
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.
U-PBTH1	0004C			6	NYCRR	212	212-1	212-1.5	(g)				
U-PBTH1	0004C			6	NYCRR	212	212-1	212-1.6	(a)				
U-PBTH1	0004C			6	NYCRR	212	212-2	212-2.3	(a), (b)				
U-PBTH1	0004C			6	NYCRR	212	212-2	212-2.4	(b)	(1)			
U-PBTH1	0004C			6	NYCRR	228	228-1						

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX							
<input type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH1		001								
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>The facility's surface coating activities are not subject to 40 CFR 63 Subpart XXXXXX since it does not perform spray-applied painting operations using paints which contain metal fabrication HAP (MFHAP), as defined in §63.11522.</p> <p>Maintain up-to-date copies of the safety data sheets for all coatings used at all times to demonstrate that the facility is exempt from Subpart XXXXXX.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter		Manufacturer Name/Model No.								
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	DDDDD							
<input type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH1		002								
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
The facility's curing ovens (process heaters) are not subject to 40 CFR 63 Subpart DDDDD since the facility is not a major source of HAP.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.5	(g)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH1	0004C									
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
At all times, the facility owner or operator must operate and maintain all process emission sources, including the associated air pollution control and monitoring equipment, in a manner consistent with safety, good air pollution control practices, good engineering practices and manufacturers' recommendations for minimizing emissions.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.6	(a)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH1	0004C									
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
No facility owner or operator shall cause or allow emissions having an average opacity during any six consecutive minutes of 20 percent or greater from any process emission source or emission point, except for the emission of uncombined water.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter					Manufacturer Name/Model No.					
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-2	212-2.3, 2.4						
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH1	0004C		PBTH_FLTRA-B							
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring			<input checked="" type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate							
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations							
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures							
Description										
Monitor pressure drop across booth fabric filters each operating day and maintain in accordance with manufacturer recommendations.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter					Manufacturer Name/Model No.					
Code	Description									
63	pressure differential				TBD					
Limit			Limit Units							
Upper	Lower	Code	Description							
TBD	TBD	284	inches of water							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
61	Minimum - not to fall below stated value - see monitoring description		14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	228	228-1	1.3	(a)				
<input type="checkbox"/> Applicable Federal Requirement <input checked="" type="checkbox"/> State Only Requirement						<input type="checkbox"/> Capping			
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-PBTH1	0004C								
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring		<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate							
<input type="checkbox"/> Intermittent Emission Testing		<input type="checkbox"/> Work Practice Involving Specific Operations							
<input type="checkbox"/> Ambient Air Monitoring		<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures							
Description									
No person shall cause or allow emissions to the outdoor atmosphere having an average opacity of 20 percent or greater for any consecutive six-minute period from any emission source subject to this Subpart.									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description		10	upon request by regulatory agency		

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	228	228-1	1.3	(b)	(1)				
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH1										
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>The owner or operator of any emission source subject to this Subpart must maintain and, upon request, provide the department with a certification from the coating supplier/manufacturer which lists the parameters used to determine the actual VOC content of each as applied coating used at the facility. In addition, purchase, usage and/or production records of the coating material, including solvents, must be maintained in a format acceptable to the department and, upon request, these records must be submitted to the department within 90 days of receiving the request. Any facility required to perform the overall removal efficiency calculation set forth in equation 2 of section 228-1.5(c) of this Subpart, must maintain records to verify the parameters used in the calculation. A facility owner or operator must maintain a record that identifies each air cleaning device that has an overall removal efficiency of at least 90 percent. Any additional information required to determine compliance with this Part must be provided to the department in a format acceptable to the department. All records required by this paragraph must be maintained at the facility for a period of five years.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	228	228-1	1.3	(d)				
<input type="checkbox"/> Applicable Federal Requirement <input checked="" type="checkbox"/> State Only Requirement						<input type="checkbox"/> Capping			
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-PBTH1									
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate				
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations				
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures				
Description									
<p>Within the work area(s) associated with a coating line, the owner or operator of a facility subject to this Subpart must:</p> <p>use closed, non-leaking containers to store or dispose of cloth or other absorbent applicators impregnated with VOC solvents that are used for surface preparation, cleanup or coating removal;</p> <p>store in closed, non-leaking containers spent or fresh VOC solvents to be used for surface preparation, cleanup or coating removal;</p> <p>not use VOC solvents to cleanup spray equipment unless equipment is used to collect the cleaning compounds and to minimize VOC evaporation;</p> <p>not use open containers to store or dispense surface coatings and/or inks unless production, sampling, maintenance or inspection procedures require operational access. This provision does not apply to the actual device or equipment designed for the purpose of applying a coating material to a substrate. These devices may include, but are not limited to: spray guns, flow coaters, dip tanks, rollers, knife coaters, and extrusion coaters;</p> <p>not use open containers to store or dispose of spent surface coatings, or spent VOC solvents;</p> <p>minimize spills during the handling and transfer of coatings and VOC solvents; and</p> <p>clean hand held spray guns by one of the following: an enclosed spray gun cleaning system that is kept closed when not in use; non-atomized discharge of VOC solvent into a paint waste container that is kept closed when not in use; disassembling and cleaning of the spray gun in a vat that is kept closed when not in use; or atomized spray into a paint waste container that is fitted with a device designed to capture atomized VOC solvent emissions.</p>									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description		10	upon request by regulatory agency		

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	228	228-1	1.5	(a)-(c)				
<input type="checkbox"/> Applicable Federal Requirement <input checked="" type="checkbox"/> State Only Requirement						<input type="checkbox"/> Capping			
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-PBTH1	0004C		RTO_1	NY998-00-0	Volatile Organic Compounds				
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring			<input checked="" type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate						
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations						
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures						
Description									
<p>Maintain minimum overall VOC removal efficiency of 95% by weight.</p> <p>The permittee shall continuously monitor the temperature of the combustion chamber associated with source RTO_1 to verify that it is above the indicator for 95% overall removal efficiency for VOC at all times during operations.</p> <p>An alarm shall be triggered if the temperature falls below the temperature demonstrated by Department approved stack testing to achieve 95% overall removal efficiency of VOC at all times during operation of source RTO_1.</p>									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
03	temperature					TBD			
Limit			Limit Units						
Upper	Lower	Code	Description						
	TBD	44	degrees Fahrenheit						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
32	15-minute rolling average		14	as required - see monitoring description		10	upon request by regulatory agency		

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	228	228-1	1.6						
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH1	0004C		RTO_1							
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input checked="" type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
Upon request by the Department, perform stack emissions testing to demonstrate compliance with VOC overall removal efficiency according to requirements of section 228-1.6.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Process Emissions Summary (continuation)														
Emission Unit		U	-	P	B	T	H	1	Process			0	0	1
CAS No.	Contaminant Name		% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined							
NY998-00-0	Volatile Organic Compounds			100	95	188	02, 04							
PTE			Standard Units	PTE How Determined		Actual								
(lbs/hr)	(lbs/yr)	(standard units)				(lbs/hr)	(lbs/yr)							
9.42	11425			02, 04		< 9.42	< 11425							
Emission Unit		-						Process						
CAS No.	Contaminant Name		% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined							
PTE			Standard Units	PTE How Determined		Actual								
(lbs/hr)	(lbs/yr)	(standard units)				(lbs/hr)	(lbs/yr)							
Emission Unit		-						Process						
CAS No.	Contaminant Name		% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined							
PTE			Standard Units	PTE How Determined		Actual								
(lbs/hr)	(lbs/yr)	(standard units)				(lbs/hr)	(lbs/yr)							
Emission Unit		-						Process						
CAS No.	Contaminant Name		% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined							
PTE			Standard Units	PTE How Determined		Actual								
(lbs/hr)	(lbs/yr)	(standard units)				(lbs/hr)	(lbs/yr)							
Emission Unit		-						Process						
CAS No.	Contaminant Name		% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined							
PTE			Standard Units	PTE How Determined		Actual								
(lbs/hr)	(lbs/yr)	(standard units)				(lbs/hr)	(lbs/yr)							

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Section IV - Emission Unit Information

Emission Unit		Emission Unit Emissions Summary (continuation)			
U	-	P	B	T	H
CAS Number		Contaminant Name			
NY998-00-0		Volatile Organic Compounds			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
228492	9.42	11425	< 9.42	< 11425	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	

ATTACHMENT A
NYSDEC Air State Facility Permit Application
Section IV – Emission Unit U-PBTH2
(continuation sheets)

**New York State Department of Environmental Conservation
Air Permit Application Form**



DEC ID									
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Section IV - Emission Unit Information

Emission Unit Description (continuation)

Emission Unit	U	-	P	B	T	H	2
---------------	---	---	---	---	---	---	---

Small enclosed paint spray booth equipped with staged ventilation and filtration to capture and control particulate (PM-10, PM-2.5) emissions. The booth includes two (2) natural gas-fired curing ovens with design heat input capacities equal to 16.0 mmBtu/hr each. The booth will also be equipped with a recuperative thermal oxidizer (RTO) for control of VOC. The RTO has a maximum design firing rate equal to 3.73 mmBtu/hr and fires natural gas as supplemental fuel.

Surface coating activities are performed on tower and transition pieces using both automated and manually operated airless spray guns. Coatings are applied to the parts in a specific sequence where the inside and outside of parts are coated and cured.

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Section IV - Emission Unit Information

Building (continuation)					
Emission Unit	Building ID	Building Name	Length (ft)	Width (ft)	Orientation
U-PBTH2	BLDG C	Blast-Metallization-Paint	732	170	10

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Section IV - Emission Unit Information

Emission Point Information (continuation)																					
Emission Unit					U	-	P	B	T	H	2	Emission Point					0	0	0	5	C
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)		Width (in)														
9.1	85	8	51	160																	
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal													
54.9	47086	601.165	4717.762	BLDG C	238																
Emission Unit					-							Emission Point									
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)		Width (in)														
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal													
Emission Unit					-							Emission Point									
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)		Width (in)														
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal													
Emission Unit					-							Emission Point									
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)		Width (in)														
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal													
Emission Unit					-							Emission Point									
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)		Width (in)														
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal													

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Section IV - Emission Unit Information

Emission Source/Control (continuation)									
Emission Unit	U	-	P	B	T	H	2		
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
MANUAL_P2	I	Apr 2022	Oct 2023				Graco XTR Airless Spray Gun		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
86	16	gallons per hour							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
AUTO_P2	I	Apr 2022	Oct 2023				Graco AL Automatic Airless Spray Gun		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
86	16	gallons per hour							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
OVEN_C	I	Apr 2022	Oct 2023				Scitex DIANA PB-DB 122112		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
16000000	200	British thermal units per hour							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
OVEN_D	I	Apr 2022	Oct 2023				Scitex DIANA PB-DB 122112		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
16000000	200	British thermal units per hour							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
PBTHFLTR_C	K	Apr 2022	Oct 2023		016	fabric filter	Various (multi-stage system)		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
Various	41	cubic feet per hour							
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.		
ID	Type				Code	Description			
PBTHFLTR_D	K	Apr 2022	Oct 2023		016	fabric filter	Various (multi-stage system)		
Design Capacity	Design Capacity Units				Waste Feed		Waste Type		
	Code	Description			Code	Description	Code	Description	
Various	41	cubic feet per hour							

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Section IV - Emission Unit Information

Process Information (continuation)													
Emission Unit	U	-	P	B	T	H	2	Process			0	0	1
Description													
<p>Small enclosed paint spray booth equipped with staged ventilation and filtration to capture and control particulate (PM-10, PM-2.5) emissions. The booth, which consists of two (2) zones, will also be equipped with a recuperative thermal oxidizer (RTO) for control of VOC.</p> <p>Surface coating activities are performed on tower and transition pieces using both automated and manually operated airless spray guns. Coatings are applied to the parts in a specific sequence where the inside and outside of parts are coated.</p>													
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units										
	Quantity/Hr	Quantity/Yr	Code	Description									
30900198	86	134415	15	gallons									
<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location								
		Hrs/Day	Days/Yr										
		24	365	BLDG C	Small Spray Booth								
Emission Point Identifier(s)													
0005C													
Emission Source/Control Identifier(s)													
MANUAL_P2	AUTO_P2	PBTH_FLTR_C	PBTHFLTR_D	RTO_2									
Emission Unit	U	-	P	B	T	H	2	Process			0	0	2
Description													
<p>Small enclosed paint spray booth equipped with two (2) integral curing ovens. In curing mode, each of the two (2) zones use a natural gas-fired process heater with design maximum heat input rating equal to 16 mmBtu/hr each. Exhaust gases vent to the booth's RTO stack (Emission Point 0005C).</p>													
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units										
	Quantity/Hr	Quantity/Yr	Code	Description									
30990003	0.0305	267	0115	million cubic feet gas (both ovens combined)									
<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location								
		Hrs/Day	Days/Yr										
		24	365	BLDG C	Small Spray Booth								
Emission Point Identifier(s)													
0005C													
Emission Source/Control Identifier(s)													
OVEN_C	OVEN_D	RTO_2											

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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit Applicable Federal Requirements (continuation)										
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.	
U-PBTH2		001		40	CFR	63	XXXXXX	63.11514	(b)	(4)				
U-PBTH2		002		40	CFR	63	DDDDD							

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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit State Only Requirements (continuation)									
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.
U-PBTH2	0005C			6	NYCRR	212	212-1	212-1.5	(g)				
U-PBTH2	0005C			6	NYCRR	212	212-1	212-1.6	(a)				
U-PBTH2	0005C			6	NYCRR	212	212-2	212-2.3	(a), (b)				
U-PBTH2	0005C			6	NYCRR	212	212-2	212-2.4	(b)	(1)			
U-PBTH2	0005C			6	NYCRR	228	228-1						

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	XXXXXX							
<input type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH2		001								
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>The facility's surface coating activities are not subject to 40 CFR 63 Subpart XXXXXX since it does not perform spray-applied painting operations using paints which contain metal fabrication HAP (MFHAP), as defined in §63.11522.</p> <p>Maintain up-to-date copies of the safety data sheets for all coatings used at all times to demonstrate that the facility is exempt from Subpart XXXXXX.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
40	CFR	63	DDDDD							
<input type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH2		002								
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring			<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate							
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations							
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures							
Description										
The facility's curing ovens (process heaters) are not subject to 40 CFR 63 Subpart DDDDD since the facility is not a major source of HAP.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter					Manufacturer Name/Model No.					
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.5	(g)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH2	0005C									
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
At all times, the facility owner or operator must operate and maintain all process emission sources, including the associated air pollution control and monitoring equipment, in a manner consistent with safety, good air pollution control practices, good engineering practices and manufacturers' recommendations for minimizing emissions.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-1	212-1.6	(a)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH2	0005C									
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
No facility owner or operator shall cause or allow emissions having an average opacity during any six consecutive minutes of 20 percent or greater from any process emission source or emission point, except for the emission of uncombined water.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	212	212-2	212-2.3, 2.4						
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH2	0005C		PBTH_FLTRC-D							
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring			<input checked="" type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate							
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations							
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures							
Description										
Monitor pressure drop across booth fabric filters each operating day and maintain in accordance with manufacturer recommendations.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
63	pressure differential					TBD				
Limit			Limit Units							
Upper	Lower	Code	Description							
TBD	TBD	284	inches of water							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
61	Minimum - not to fall below stated value - see monitoring description		14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	228	228-1	1.3	(a)				
<input type="checkbox"/> Applicable Federal Requirement <input checked="" type="checkbox"/> State Only Requirement						<input type="checkbox"/> Capping			
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-PBTH2	0005C								
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate				
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations				
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures				
Description									
No person shall cause or allow emissions to the outdoor atmosphere having an average opacity of 20 percent or greater for any consecutive six-minute period from any emission source subject to this Subpart.									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
			14	as required - see monitoring description		10	upon request by regulatory agency		

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	228	228-1	1.3	(b)	(1)				
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH2										
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>The owner or operator of any emission source subject to this Subpart must maintain and, upon request, provide the department with a certification from the coating supplier/manufacturer which lists the parameters used to determine the actual VOC content of each as applied coating used at the facility. In addition, purchase, usage and/or production records of the coating material, including solvents, must be maintained in a format acceptable to the department and, upon request, these records must be submitted to the department within 90 days of receiving the request. Any facility required to perform the overall removal efficiency calculation set forth in equation 2 of section 228-1.5(c) of this Subpart, must maintain records to verify the parameters used in the calculation. A facility owner or operator must maintain a record that identifies each air cleaning device that has an overall removal efficiency of at least 90 percent. Any additional information required to determine compliance with this Part must be provided to the department in a format acceptable to the department. All records required by this paragraph must be maintained at the facility for a period of five years.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	228	228-1	1.3	(d)					
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH2										
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
<p>Within the work area(s) associated with a coating line, the owner or operator of a facility subject to this Subpart must:</p> <p>use closed, non-leaking containers to store or dispose of cloth or other absorbent applicators impregnated with VOC solvents that are used for surface preparation, cleanup or coating removal;</p> <p>store in closed, non-leaking containers spent or fresh VOC solvents to be used for surface preparation, cleanup or coating removal;</p> <p>not use VOC solvents to cleanup spray equipment unless equipment is used to collect the cleaning compounds and to minimize VOC evaporation;</p> <p>not use open containers to store or dispense surface coatings and/or inks unless production, sampling, maintenance or inspection procedures require operational access. This provision does not apply to the actual device or equipment designed for the purpose of applying a coating material to a substrate. These devices may include, but are not limited to: spray guns, flow coaters, dip tanks, rollers, knife coaters, and extrusion coaters;</p> <p>not use open containers to store or dispose of spent surface coatings, or spent VOC solvents;</p> <p>minimize spills during the handling and transfer of coatings and VOC solvents; and</p> <p>clean hand held spray guns by one of the following: an enclosed spray gun cleaning system that is kept closed when not in use; non-atomized discharge of VOC solvent into a paint waste container that is kept closed when not in use; disassembling and cleaning of the spray gun in a vat that is kept closed when not in use; or atomized spray into a paint waste container that is fitted with a device designed to capture atomized VOC solvent emissions.</p>										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
6	NYCRR	228	228-1	1.5	(a)-(c)				
<input type="checkbox"/> Applicable Federal Requirement <input checked="" type="checkbox"/> State Only Requirement						<input type="checkbox"/> Capping			
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-PBTH2	0005C		RTO_2	NY998-00-0	Volatile Organic Compounds				
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring			<input checked="" type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate						
<input type="checkbox"/> Intermittent Emission Testing			<input type="checkbox"/> Work Practice Involving Specific Operations						
<input type="checkbox"/> Ambient Air Monitoring			<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures						
Description									
<p>Maintain minimum overall VOC removal efficiency of 95% by weight.</p> <p>The permittee shall continuously monitor the temperature of the combustion chamber associated with source RTO_2 to verify that it is above the indicator for 95% overall removal efficiency for VOC at all times during operations.</p> <p>An alarm shall be triggered if the temperature falls below the temperature demonstrated by Department approved stack testing to achieve 95% overall removal efficiency of VOC at all times during operation of source RTO_2.</p>									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
03	temperature					TBD			
Limit			Limit Units						
Upper	Lower	Code	Description						
	TBD	44	degrees Fahrenheit						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		
32	15-minute rolling average		14	as required - see monitoring description		10	upon request by regulatory agency		

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)										
Rule Citation										
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause	
6	NYCRR	228	228-1	1.6						
<input type="checkbox"/> Applicable Federal Requirement					<input checked="" type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping		
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name					
U-PBTH2	0005C		RTO_2							
Monitoring Information										
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate					
<input checked="" type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations					
<input type="checkbox"/> Ambient Air Monitoring					<input checked="" type="checkbox"/> Record Keeping/Maintenance Procedures					
Description										
Upon request by the Department, perform stack emissions testing to demonstrate compliance with VOC overall removal efficiency according to requirements of section 228-1.6.										
Work Practice		Process Material				Reference Test Method				
Type	Code	Description								
Monitored Parameter						Manufacturer Name/Model No.				
Code	Description									
Limit			Limit Units							
Upper	Lower	Code	Description							
Averaging Method			Monitoring Frequency			Reporting Requirements				
Code	Description		Code	Description		Code	Description			
			14	as required - see monitoring description		10	upon request by regulatory agency			

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Section IV - Emission Unit Information

Process Emissions Summary (continuation)															
Emission Unit		U	-	P	B	T	H	2	Process				0	0	1
CAS No.	Contaminant Name					% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined					
NY998-00-0	Volatile Organic Compounds						100	95	188	02, 04					
PTE			Standard Units		PTE How Determined			Actual							
(lbs/hr)	(lbs/yr)	(standard units)						(lbs/hr)	(lbs/yr)						
9.42	11425				02, 04			< 9.42	< 11425						
Emission Unit		-							Process						
CAS No.	Contaminant Name					% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined					
PTE			Standard Units		PTE How Determined			Actual							
(lbs/hr)	(lbs/yr)	(standard units)						(lbs/hr)	(lbs/yr)						
Emission Unit		-							Process						
CAS No.	Contaminant Name					% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined					
PTE			Standard Units		PTE How Determined			Actual							
(lbs/hr)	(lbs/yr)	(standard units)						(lbs/hr)	(lbs/yr)						
Emission Unit		-							Process						
CAS No.	Contaminant Name					% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined					
PTE			Standard Units		PTE How Determined			Actual							
(lbs/hr)	(lbs/yr)	(standard units)						(lbs/hr)	(lbs/yr)						
Emission Unit		-							Process						
CAS No.	Contaminant Name					% Throughput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined					
PTE			Standard Units		PTE How Determined			Actual							
(lbs/hr)	(lbs/yr)	(standard units)						(lbs/hr)	(lbs/yr)						

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Section IV - Emission Unit Information

Emission Unit		Emission Unit Emissions Summary (continuation)			
U	-	P	B	T	H 2
CAS Number		Contaminant Name			
NY998-00-0		Volatile Organic Compounds			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
228492	9.42	11425	< 9.42	< 11425	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	
CAS Number		Contaminant Name			
ERP (lbs/yr)	Potential to Emit		Actual Emissions		
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	

ATTACHMENT A
NYSDEC Air State Facility Permit Application
Section IV – Emission Unit U-AMU01
(continuation sheets)

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Section IV - Emission Unit Information

Emission Unit Description (continuation)										
Emission Unit	U	-	A	M	U	0	1			
Air Makeup Unit serving large paint spray booth with design maximum heat input rating equal to 12.2 mmBtu/hr firing natural gas.										

DEC ID									
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Section IV - Emission Unit Information

Building (continuation)					
Emission Unit	Building ID	Building Name	Length (ft)	Width (ft)	Orientation
U-AMU01	BLDG C	Blast-Metallization-Paint	732	170	10

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Section IV - Emission Unit Information

Emission Point Information (continuation)																					
Emission Unit					U	-	A	M	U	0	1	Emission Point					0	0	0	6	C
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)		Width (in)														
TBD	TBD	TBD	TBD	TBD																	
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal													
TBD	TBD	TBD	TBD	BDLG C																	
Emission Unit					-							Emission Point									
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)		Width (in)														
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal													
Emission Unit					-							Emission Point									
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)		Width (in)														
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal													
Emission Unit					-							Emission Point									
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)		Width (in)														
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal													
Emission Unit					-							Emission Point									
Ground Elevation (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section																
					Length (in)		Width (in)														
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (km)	NYTM (N) (km)	Building	Distance to Property Line (ft)			Date of Removal													

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Section IV - Emission Unit Information

Emission Source/Control (continuation)										
Emission Unit		U	-	A	M	U	0	1		
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.			
ID	Type				Code	Description				
BTH1_AMU	C	Apr 2022	Oct 2023							
Design Capacity	Design Capacity Units				Waste Feed		Waste Type			
	Code	Description			Code	Description	Code	Description		
12.2	25	million Btu per hour								
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.			
ID	Type				Code	Description				
Design Capacity	Design Capacity Units				Waste Feed		Waste Type			
	Code	Description			Code	Description	Code	Description		
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.			
ID	Type				Code	Description				
Design Capacity	Design Capacity Units				Waste Feed		Waste Type			
	Code	Description			Code	Description	Code	Description		
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.			
ID	Type				Code	Description				
Design Capacity	Design Capacity Units				Waste Feed		Waste Type			
	Code	Description			Code	Description	Code	Description		
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.			
ID	Type				Code	Description				
Design Capacity	Design Capacity Units				Waste Feed		Waste Type			
	Code	Description			Code	Description	Code	Description		
Emission Source		Date of Construction	Date of Operation	Date of Removal	Control Type		Manufacturer's Name/Model No.			
ID	Type				Code	Description				
Design Capacity	Design Capacity Units				Waste Feed		Waste Type			
	Code	Description			Code	Description	Code	Description		

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Section IV - Emission Unit Information

Process Information (continuation)														
Emission Unit	U	-	A	M	U	0	1	Process	0	0	1			
Description														
Air Makeup Unit serving large paint spray booth with design maximum heat input rating equal to 12.2 mmBtu/hr firing natural gas.														
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units											
	Quantity/Hr	Quantity/Yr	Code	Description										
10300602	11.6	101616	0593	1000 cubic feet gas burned										
<input type="checkbox"/> Confidential <input type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location									
		Hrs/Day	Days/Yr											
		24	365	BLDG C	Building C Roof									
Emission Point Identifier(s)														
0006C														
Emission Source/Control Identifier(s)														
BTH1_AMU														
Emission Unit	-										Process			
Description														
Source Classification Code (SCC)	Total Throughput		Throughput Quantity Units											
	Quantity/Hr	Quantity/Yr	Code	Description										
<input type="checkbox"/> Confidential <input type="checkbox"/> Operating at Maximum Capacity		Operating Schedule		Building	Floor/Location									
		Hrs/Day	Days/Yr											
Emission Point Identifier(s)														
Emission Source/Control Identifier(s)														

New York State Department of Environmental Conservation Air Permit Application Form



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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit Applicable Federal Requirements (continuation)											
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.		
U-AMU01				40	CFR	82	F								

**New York State Department of Environmental Conservation
Air Permit Application Form**



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Section IV - Emission Unit Information

Emission Unit	Emission Point	Process	Emission Source	Emission Unit State Only Requirements (continuation)										
				Title	Type	Part	Subpart	Section	Subdiv.	Parag.	Subparag.	Clause	Subcl.	
None.														

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Section IV - Emission Unit Information

Emission Unit Compliance Certification (continuation)									
Rule Citation									
Title	Type	Part	Subpart	Section	Subdivision	Paragraph	Subparagraph	Clause	Subclause
None.									
<input type="checkbox"/> Applicable Federal Requirement					<input type="checkbox"/> State Only Requirement			<input type="checkbox"/> Capping	
Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name				
U-AMU01									
Monitoring Information									
<input type="checkbox"/> Continuous Emission Monitoring					<input type="checkbox"/> Monitoring of Process or Control Device Parameters as a Surrogate				
<input type="checkbox"/> Intermittent Emission Testing					<input type="checkbox"/> Work Practice Involving Specific Operations				
<input type="checkbox"/> Ambient Air Monitoring					<input type="checkbox"/> Record Keeping/Maintenance Procedures				
Description									
No monitoring requirements for U-AMU01.									
Work Practice		Process Material				Reference Test Method			
Type	Code	Description							
Monitored Parameter						Manufacturer Name/Model No.			
Code	Description								
Limit			Limit Units						
Upper	Lower	Code	Description						
Averaging Method			Monitoring Frequency			Reporting Requirements			
Code	Description		Code	Description		Code	Description		

ATTACHMENT B

Facility Potential Emissions Calculations

Facility Potential Emissions Summary (PTE)

Pollutant	Pollutant CAS No.	Is Facility PTE less than 6 NYCRR 201-2.1 Major Source Threshold?	6 NYCRR 201-2.1 Major Source Thresholds (tpy)	Facility-wide PTE ⁽¹⁾ (tpy)							
				Facility PTE (tpy)	Machining, Welding, Grinding Activities (Bldgs A, B)	Shot Blast (Plate and Tower Blast)	Metal Spray Booths (Thermal Spraying)	Paint Spray Booths (Including Ovens, RTOs)	Paint Spray Booth Natural Gas-Fired AMUs	Natural Gas-Fired Comfort Heating and Cooling Equipment (Permit Exempt)	Natural Gas-Fired Emergency Generators (Permit Exempt)
NO _x	NY210-00-0	Yes	100	76.3	18.4	--	--	29.8	8.67	19.1	0.383
CO	630-08-0	Yes	100	66.8	15.4	--	--	25.0	7.28	16.0	2.99
PM ₁₀	NY075-00-5	Yes	100	25.4	12.6	3.20	5.05	2.44	0.659	1.45	7.58E-03
PM _{2.5}	NY750-02-5	Yes	100	25.2	12.6	3.20	4.86	2.43	0.659	1.45	7.58E-03
SO ₂	7446-09-5	Yes	100	0.456	0.110	--	--	0.179	5.20E-02	0.114	4.69E-04
VOC	NY998-00-0	Yes	50	9.91	1.01	--	0.000	7.35	0.477	1.05	2.36E-02
Pb	7439-92-1	Yes	-	4.03E-04	9.19E-05	--	7.36E-06	1.65E-04	4.34E-05	9.53E-05	--
CO ₂	124-38-9	Yes	-	91,213	22,062	--	--	35,771	10,407	22,881	93.3
N ₂ O	10024-97-2	Yes	-	0.486	0.118	--	--	0.191	5.55E-02	0.122	1.76E-04
CH ₄	74-82-8	Yes	-	1.748	0.423	--	--	0.686	0.199	0.439	1.76E-03
CO ₂ e ⁽²⁾	NY750-00-0	Yes	100,000	91,401	22,107	--	--	35,844	10,428	22,928	93.4
NH ₃	7664-41-7	Yes	-	2.43	0.588	--	--	0.954	0.278	0.610	--
Total HAPs	NY100-00-0	Yes	25	5.54	1.208	1.92E-02	7.88E-05	3.77	0.164	0.360	2.58E-02
Any Individual HAP	--	Yes	10	2.54	0.376	1.92E-02	7.36E-06	2.54	0.156	0.343	1.64E-02

Notes:

- (1) Facility-wide PTE for VOC based upon paint booth RTO performance with overall 95% VOC control efficiency and coating usage based upon maximum yearly production of 150 Towers or 100 Towers and 100 Transition Pieces. Facility-wide PTE for particulates (PM₁₀, PM_{2.5}) based upon paint booth fabric filter performance with overall 99.9% control efficiency.
- (2) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.

Fume Emissions From Plasma Arc Cutting, Welding and Grinding Activities

Emission Unit ID: U-MFR_A, U-MFR_B
 Emission Source: MACHINING_A-B, WELD_A-B, GRIND_A-B
 Description: Fume-related emissions from machining (rolling, plasma arc cutting, beveling), welding, and grinding (belt sanding) of steel plates and flanges. Fume-related emissions from rolling, beveling are assumed to be negligible.
 Location: Building A, Building B

Plasma Arc Cutting

PM/PM₁₀ Emission Factor ⁽¹⁾: 5.30 g/min
 Annual Operating Hours: 8,760 hrs/yr

Welding Wire Usage and Emission Factors

Type of Weld Wire	Maximum Wire Usage (lbs/yr) ⁽²⁾	PM ₁₀ (lb/1,000 lb electrode)	HAP Emission Factors ⁽³⁾ (lb HAP/10,000 lb electrode consumed)			
			Chromium	Cobalt	Manganese	Nickel
EM12K (SAW)						
ESAB Spoolarc 81 (SA81) WIRE SUBARC EM12K	2,792,700	0.05	0	0	1.43E-03	0
ESAB OK Flux 10.72 for SAW, EM12K	3,490,950	0.05	0	0	2.29E-02	0
E70S(GMAW)						
NS-115 ER70S-6	62,700	5.2	0.01	0.01	3.18	0.01
E71T(FCAW)						
Bohler HL 51 L-MC	209,250	12.2	0.02	0.01	6.62	0.04
E71T-12M-JH4	116,400	12.2	0.02	0.01	6.62	0.04

Annual Operating Hours: 8,760 hrs/yr

Grinding

PM/PM₁₀ Emission Factor ⁽¹⁾: 0.39 g/min
 Annual Operating Hours: 8,760 hrs/yr

Machining (Plasma Cutting) and Grinding Activities

Steel Plate Alloy Composition ⁽⁴⁾ :	Cas No.	Min	Max	Avg
Chromium	7440-47-3	0.01%	5.5%	2.76%
Copper	7440-50-8	--	<1.75%	<1.75%
Manganese	7439-96-5	0.00%	2%	1.00%
Nickel	7440-02-0	0.01%	3.65%	1.83%

Grinding Activities

Sanding Belt Composition:	Cas No.	Min	Max	Avg
Aluminum Oxide (abrasives grain)	1344-28-1	20%	45%	32.5%
Cured Phenolic Resin (bonding)	9003-35-4	5%	15%	10.0%
Calcium Carbonate (filler)	16389-88-1	2%	7%	4.5%
Cryolite (filler)	13775-53-6	2%	12%	7.0%
Potassium Floroborate (filler)	14075-53-7	0%	12%	6.0%

Building Ventilation System Exhaust	# of Vents	Fan Rating Per Vent (ft ³ /min)	Total Exhaust Volume (ft ³ /min)	Calculated Exit Grain Loading (gr/ft ³) ⁽⁶⁾
Building A	6	20,000	120,000	0.001477
Building B	6	17,790	106,740	0.001485

Fume Emissions From Plasma Arc Cutting, Welding and Grinding Activities

Potential Fume Emissions from Plasma Arc Cutting (Per Building)

Pollutant Name	Pollutant CAS No.	Emission Rate (lb/hr)	Emission Rate Per Vent (lb/hr)	Annual Emissions (tpy)
PM ₁₀ ⁽⁷⁾	NY075-00-5	0.701	0.117	3.07
PM _{2.5} ⁽⁷⁾	NY750-02-5	0.701	0.117	3.07
	Chromium	7440-47-3	0.039	0.085
	Manganese	7439-96-5	0.014	0.031
	Nickel	7440-02-0	0.026	0.056
	Copper	7440-50-8	0.012	0.054

Potential Fume Emissions from Welding (Per Building)

Pollutant Name	Pollutant CAS No.	Emission Rate (lb/hr)	Emission Rate Per Vent (lb/hr)	Annual Emissions (tpy)
PM ₁₀ ⁽⁷⁾	NY075-00-5	0.527	8.78E-02	2.31
PM _{2.5} ⁽⁷⁾	NY750-02-5	0.527	8.78E-02	2.31
	Chromium	7440-47-3	8.15E-05	3.57E-04
	Cobalt	7440-48-4	4.43E-05	1.94E-04
	Manganese	7439-96-5	2.78E-02	1.22E-01
	Nickel	7440-02-0	1.56E-04	6.83E-04

Potential Fume Emissions from Grinding (Per Building)

Pollutant Name	Pollutant CAS No.	Emission Rate (lb/hr)	Emission Rate Per Vent (lb/hr)	Annual Emissions (tpy)
PM ₁₀ ⁽⁷⁾	NY075-00-5	5.16E-02	8.60E-03	0.226
PM _{2.5} ⁽⁷⁾	NY750-02-5	5.16E-02	8.60E-03	0.226
	Chromium	7440-47-3	2.84E-03	6.23E-03
	Manganese	7439-96-5	1.03E-03	2.26E-03
	Nickel	7440-02-0	1.88E-03	4.14E-03
	Copper	7440-50-8	9.03E-04	3.95E-03
	Aluminum Oxide	1344-28-1	2.32E-02	7.34E-02
	Cured Phenolic Resin	9003-35-4	7.74E-03	2.26E-02
	Calcium Carbonate	16389-88-1	3.61E-03	1.02E-02
	Cryolite	13775-53-6	6.19E-03	1.58E-02
	Potassium Floroborate	14075-53-7	6.19E-03	1.36E-02

Notes:

(1) Emission factors for plasma arc cutting and grinding from Environment Canada's 2021 Arc Welding, Cutting and Spraying Calculator. See link for more information:

<https://www.canada.ca/en/environment-climate-change/services/national-pollutant-release-inventory/report/tools-calculating-emissions/arc-welding-cutting-spraying-calculator.html>

(2) Annual quantity used based on maximum annual tower and transition piece production capacity.

(3) Emission factors obtained from AP-42 Table 12.19-2, except for EM12K (SAW), for which there is no data in AP-42. HAP emission factor data for EM12K (SAW) was taken from the San Diego Air Pollution Control welding emission factor Table A10.

(4) Steel plate chemical composition based upon data provided in steel plate SDS. Chemical composition for steel flanges assumed to be equivalent.

Fume Emissions From Plasma Arc Cutting, Welding and Grinding Activities

- (5) Sanding belt chemical composition based upon data provided in sanding belt SDS. Does not include "backing" component.
- (6) Calculated exit grain loading includes fume emissions from cutting, welding and grinding as well as particulate emissions from the combustion of oxyfuel.
- (7) Assume $PM = PM_{10} = PM_{2.5}$.

Potential Emissions From Oxyfuel Combustion (Process Equipment at Building A) ⁽¹⁾

Emission Unit ID: U-MFR_A
 Emission Source: MACHINING_A, WELD_A, GRIND_A
 Description: Oxyfuel combustion-related emissions from machining (preheat torches, plasma arc cutting, beveling) and welding of steel plates and flanges. Emissions from the combustion of oxyfuel assumed to be equivalent to emissions from external combustion sources firing natural gas.
 Location: Building A
 Maximum Combined Heat Input: 33,152,700 Btu/hr
 33.2 MMBtu/hr
 Fuel Type: Natural Gas
 HHV Natural Gas: 1,050 Btu/scf
 Hourly Fuel Consumption: 31,574 scf/hr
 Annual Operation: 8,760 hrs/yr
 Annual Fuel Cap: 277 MMscf/yr

Pollutant Name	Pollutant CAS No.	AP-42 Factors (lb/MMscf) ⁽²⁾	Emission Rate (lb/hr)	Emission Rate (lb/MMBtu)	Annual Emissions (tpy)
NO _x	NY210-00-0	100	3.16	9.52E-02	13.8
CO	630-08-0	84	2.65	8.00E-02	11.6
PM ₁₀	NY075-00-5	7.6	0.240	7.24E-03	1.05
PM _{2.5}	NY750-02-5	7.6	0.240	7.24E-03	1.05
SO ₂	7446-09-5	0.6	1.89E-02	5.71E-04	8.30E-02
VOC	NY998-00-0	5.5	0.174	5.24E-03	0.761
Pb	7439-92-1	0.0005	1.58E-05	4.76E-07	6.91E-05
CO ₂	124-38-9	120,000	3,789	114	16,595
N ₂ O	10024-97-2	0.64	2.02E-02	6.10E-04	8.85E-02
CH ₄	74-82-8	2.30	7.26E-02	2.19E-03	0.318
CO ₂ e ⁽³⁾	NY750-00-0	120,247	3,797	115	16,629
NH ₃ ⁽⁴⁾	7664-41-7	3.2	0.101	3.05E-03	0.443
Total HAPs	NY100-00-0	1.89	5.96E-02	1.80E-03	0.261
2-Methylnaphthalene	91-57-6	2.4E-05	7.58E-07	2.29E-08	3.32E-06
3-Methylchloranthrene	56-49-5	1.8E-06	5.68E-08	1.71E-09	2.49E-07
7,12-Dimethylbenz(a)anthracene	57-97-6	1.6E-05	5.05E-07	1.52E-08	2.21E-06
Acenaphthene	83-32-9	1.8E-06	5.68E-08	1.71E-09	2.49E-07
Acenaphthylene	203-96-8	1.8E-06	5.68E-08	1.71E-09	2.49E-07
Anthracene	120-12-7	2.4E-06	7.58E-08	2.29E-09	3.32E-07
Benz(a)anthracene	56-55-3	1.8E-06	5.68E-08	1.71E-09	2.49E-07
Benzene	71-43-2	2.1E-03	6.63E-05	2.00E-06	2.90E-04
Benzo(a)pyrene	50-32-8	1.2E-06	3.79E-08	1.14E-09	1.66E-07
Benzo(b)fluoranthene	205-99-2	1.8E-06	5.68E-08	1.71E-09	2.49E-07
Benzo(g,h,i)perylene	191-24-2	1.2E-06	3.79E-08	1.14E-09	1.66E-07
Benzo(k)fluoranthene	205-82-3	1.8E-06	5.68E-08	1.71E-09	2.49E-07

Potential Emissions From Oxyfuel Combustion (Process Equipment at Building A) ⁽¹⁾

<i>Chrysene</i>	218-01-9	1.8E-06	5.68E-08	1.71E-09	2.49E-07
<i>Dibenzo(a,h)anthracene</i>	53-70-3	1.2E-06	3.79E-08	1.14E-09	1.66E-07
<i>Dichlorobenzene</i>	25321-22-6	1.2E-03	3.79E-05	1.14E-06	1.66E-04
<i>Fluoranthene</i>	206-44-0	3.0E-06	9.47E-08	2.86E-09	4.15E-07
<i>Fluorene</i>	86-73-7	2.8E-06	8.84E-08	2.67E-09	3.87E-07
<i>Formaldehyde</i>	50-00-0	7.5E-02	2.37E-03	7.14E-05	1.04E-02
<i>Hexane</i>	110-54-3	1.80	5.68E-02	1.71E-03	0.249
<i>Indeno(1,2,3-cd)pyrene</i>	193-39-5	1.8E-06	5.68E-08	1.71E-09	2.49E-07
<i>Naphthalene</i>	91-20-3	6.1E-04	1.93E-05	5.81E-07	8.44E-05
<i>Phenanathrene</i>	85-01-8	1.7E-05	5.37E-07	1.62E-08	2.35E-06
<i>Pyrene</i>	129-00-0	5.0E-06	1.58E-07	4.76E-09	6.91E-07
<i>Toluene</i>	108-88-3	3.4E-03	1.07E-04	3.24E-06	4.70E-04
<i>Arsenic</i>	7440-38-2	2.0E-04	6.31E-06	1.90E-07	2.77E-05
<i>Beryllium</i>	7440-41-7	1.2E-05	3.79E-07	1.14E-08	1.66E-06
<i>Cadmium</i>	7440-43-9	1.1E-03	3.47E-05	1.05E-06	1.52E-04
<i>Chromium</i>	7440-47-3	1.4E-03	4.42E-05	1.33E-06	1.94E-04
<i>Cobalt</i>	7440-48-4	8.4E-05	2.65E-06	8.00E-08	1.16E-05
<i>Manganese</i>	7439-96-5	3.8E-04	1.20E-05	3.62E-07	5.26E-05
<i>Mercury</i>	7439-97-6	2.6E-04	8.21E-06	2.48E-07	3.60E-05
<i>Nickel</i>	7440-02-0	2.1E-03	6.63E-05	2.00E-06	2.90E-04
<i>Selenium</i>	7782-49-2	2.4E-05	7.58E-07	2.29E-08	3.32E-06

Notes:

(1) Includes combustion-related emissions from oxyfuel-fired welding, preheat torches and plasma arc cutting equipment. Emission factors from AP-42, Tables 1.4-2 & 1.4-3, unless otherwise noted.

(2) AP-42 factors from Tables 1.4-2 & Table 1.4-3, unless otherwise noted.

(3) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.

(4) Emission factor for Ammonia was taken from EPA's FIRE database for SCC code 10100602 (Natural Gas Boilers <100 MMBtu, uncontrolled).

Potential Emissions From Plasma Cutting, Preheat Torches, Rolling, Welding and Grinding Activities (Building A)

Emission Unit ID: U-MFR_A
 Emission Source: MACHINING_A, WELD_A, GRIND_A
 Description: Combined oxyfuel combustion- and fume-related emissions from machining (preheat torches, plasma arc cutting, beveling), welding and grinding (belt sanding) of steel plates and flanges. Potential emissions discharge outdoors via building ventilation system(s).
 Location: Building A
 Number of Exhaust Points: 6
 Annual Operating Hours: 8,760 hrs/yr

Pollutant Name	Pollutant CAS No.	Emission Rate (lb/hr)	Emission Rate Exhaust Point (lb/hr)	Annual Emissions (tpy)	Pollutant Emission Source Description
NO _x	NY210-00-0	3.16	0.526	13.8	Oxyfuel Combustion
CO	630-08-0	2.65	0.442	11.6	Oxyfuel Combustion
PM ₁₀	NY075-00-5	1.52	0.253	6.65	Oxyfuel Combustion, Machining, Welding, Grinding
PM _{2.5}	NY750-02-5	1.52	0.253	6.65	Oxyfuel Combustion, Machining, Welding, Grinding
SO ₂	7446-09-5	1.89E-02	3.16E-03	8.30E-02	Oxyfuel Combustion
VOC	NY998-00-0	0.174	2.89E-02	0.761	Oxyfuel Combustion
Pb	7439-92-1	1.58E-05	2.63E-06	6.91E-05	Oxyfuel Combustion
CO ₂	124-38-9	3,789	631	16,595	Oxyfuel Combustion
N ₂ O	10024-97-2	2.02E-02	3.37E-03	8.85E-02	Oxyfuel Combustion
CH ₄	74-82-8	7.26E-02	1.21E-02	3.18E-01	Oxyfuel Combustion
CO ₂ e ⁽³⁾	NY750-00-0	3,797	633	16,629	Oxyfuel Combustion
NH ₃ ⁽⁴⁾	7664-41-7	0.101	1.68E-02	0.443	Oxyfuel Combustion
Total HAPs	NY100-00-0	1.72E-01	2.86E-02	6.31E-01	Oxyfuel Combustion, Machining, Welding, Grinding
<i>2-Methylnaphthalene</i>	91-57-6	7.58E-07	1.26E-07	3.32E-06	Oxyfuel Combustion
<i>3-Methylchloranthrene</i>	56-49-5	5.68E-08	9.47E-09	2.49E-07	Oxyfuel Combustion
<i>7,12-Dimethylbenz(a)anthracene</i>	57-97-6	5.05E-07	8.42E-08	2.21E-06	Oxyfuel Combustion
<i>Acenaphthene</i>	83-32-9	5.68E-08	9.47E-09	2.49E-07	Oxyfuel Combustion
<i>Acenaphthylene</i>	203-96-8	5.68E-08	9.47E-09	2.49E-07	Oxyfuel Combustion

Potential Emissions From Plasma Cutting, Preheat Torches, Rolling, Welding and Grinding Activities (Building A)

Emission Unit ID: U-MFR_A
 Emission Source: MACHINING_A, WELD_A, GRIND_A
 Description: Combined oxyfuel combustion- and fume-related emissions from machining (preheat torches, plasma arc cutting, beveling), welding and grinding (belt sanding) of steel plates and flanges. Potential emissions discharge outdoors via building ventilation system(s).
 Location: Building A
 Number of Exhaust Points: 6
 Annual Operating Hours: 8,760 hrs/yr

Pollutant Name	Pollutant CAS No.	Emission Rate (lb/hr)	Emission Rate Exhaust Point (lb/hr)	Annual Emissions (tpy)	Pollutant Emission Source Description
<i>Anthracene</i>	120-12-7	7.58E-08	1.26E-08	3.32E-07	Oxyfuel Combustion
<i>Benz(a)anthracene</i>	56-55-3	5.68E-08	9.47E-09	2.49E-07	Oxyfuel Combustion
<i>Benzene</i>	71-43-2	6.63E-05	1.11E-05	2.90E-04	Oxyfuel Combustion
<i>Benzo(a)pyrene</i>	50-32-8	3.79E-08	6.31E-09	1.66E-07	Oxyfuel Combustion
<i>Benzo(b)fluoranthene</i>	205-99-2	5.68E-08	9.47E-09	2.49E-07	Oxyfuel Combustion
<i>Benzo(g,h,i)perylene</i>	191-24-2	3.79E-08	6.31E-09	1.66E-07	Oxyfuel Combustion
<i>Benzo(k)fluoranthene</i>	205-82-3	5.68E-08	9.47E-09	2.49E-07	Oxyfuel Combustion
<i>Chrysene</i>	218-01-9	5.68E-08	9.47E-09	2.49E-07	Oxyfuel Combustion
<i>Dibenzo(a,h)anthracene</i>	53-70-3	3.79E-08	6.31E-09	1.66E-07	Oxyfuel Combustion
<i>Dichlorobenzene</i>	25321-22-6	3.79E-05	6.31E-06	1.66E-04	Oxyfuel Combustion
<i>Fluoranthene</i>	206-44-0	9.47E-08	1.58E-08	4.15E-07	Oxyfuel Combustion
<i>Fluorene</i>	86-73-7	8.84E-08	1.47E-08	3.87E-07	Oxyfuel Combustion
<i>Formaldehyde</i>	50-00-0	2.37E-03	3.95E-04	1.04E-02	Oxyfuel Combustion
<i>Hexane</i>	110-54-3	5.68E-02	9.47E-03	2.49E-01	Oxyfuel Combustion
<i>Indeno(1,2,3-cd)pyrene</i>	193-39-5	5.68E-08	9.47E-09	2.49E-07	Oxyfuel Combustion
<i>Naphthalene</i>	91-20-3	1.93E-05	3.21E-06	8.44E-05	Oxyfuel Combustion
<i>Phenanathrene</i>	85-01-8	5.37E-07	8.95E-08	2.35E-06	Oxyfuel Combustion
<i>Pyrene</i>	129-00-0	1.58E-07	2.63E-08	6.91E-07	Oxyfuel Combustion
<i>Toluene</i>	108-88-3	1.07E-04	1.79E-05	4.70E-04	Oxyfuel Combustion

Potential Emissions From Plasma Cutting, Preheat Torches, Rolling, Welding and Grinding Activities (Building A)

Emission Unit ID: U-MFR_A
 Emission Source: MACHINING_A, WELD_A, GRIND_A
 Description: Combined oxyfuel combustion- and fume-related emissions from machining (preheat torches, plasma arc cutting, beveling), welding and grinding (belt sanding) of steel plates and flanges. Potential emissions discharge outdoors via building ventilation system(s).
 Location: Building A
 Number of Exhaust Points: 6
 Annual Operating Hours: 8,760 hrs/yr

Pollutant Name	Pollutant CAS No.	Emission Rate (lb/hr)	Emission Rate Exhaust Point (lb/hr)	Annual Emissions (tpy)	Pollutant Emission Source Description
<i>Arsenic</i>	7440-38-2	6.31E-06	1.05E-06	2.77E-05	Oxyfuel Combustion
<i>Beryllium</i>	7440-41-7	3.79E-07	6.31E-08	1.66E-06	Oxyfuel Combustion
<i>Cadmium</i>	7440-43-9	3.47E-05	5.79E-06	1.52E-04	Oxyfuel Combustion
<i>Chromium</i>	7440-47-3	4.15E-02	6.92E-03	0.182	Oxyfuel Combustion, Machining, Welding, Grinding
<i>Cobalt</i>	7440-48-4	4.70E-05	7.83E-06	2.06E-04	Oxyfuel Combustion, Welding
<i>Manganese</i>	7439-96-5	4.29E-02	7.15E-03	0.188	Oxyfuel Combustion, Machining, Welding, Grinding
<i>Mercury</i>	7439-97-6	8.21E-06	1.37E-06	3.60E-05	Oxyfuel Combustion
<i>Nickel</i>	7440-02-0	2.77E-02	4.62E-03	2.90E-04	Oxyfuel Combustion, Machining, Welding, Grinding
<i>Selenium</i>	7782-49-2	7.58E-07	1.26E-07	3.32E-06	Oxyfuel Combustion
Other Non-Criteria Air Contaminants					
Copper	7440-50-8	1.32E-02	2.20E-03	5.77E-02	Machining, Grinding
Aluminum Oxide	1344-28-1	2.32E-02	3.87E-03	0.102	Grinding
Cured Phenolic Resin	9003-35-4	7.74E-03	1.29E-03	3.39E-02	Grinding
Calcium Carbonate	16389-88-1	3.61E-03	6.02E-04	1.58E-02	Grinding
Cryolite	13775-53-6	6.19E-03	1.03E-03	2.71E-02	Grinding
Potassium Floroborate	14075-53-7	6.19E-03	1.03E-03	2.71E-02	Grinding

Potential Emissions From Oxyfuel Combustion (Process Equipment at Building B) ⁽¹⁾

Emission Unit ID:	U-MFR_B
Emission Source:	MACHINING_B, WELD_B, GRIND_B
Description:	Oxyfuel combustion-related emissions from machining (preheat torches, plasma arc cutting, beveling) and welding of steel plates and flanges. Emissions from the combustion of oxyfuel assumed to be equivalent to emissions from external combustion sources firing natural gas.
Location:	Building B
Maximum Combined Heat Input:	10,920,000 Btu/hr 10.9 MMBtu/hr
Fuel Type:	Natural Gas
HHV Natural Gas:	1,050 Btu/scf
Hourly Fuel Consumption:	10,400 scf/hr
Annual Operation:	8,760 hrs/yr
Annual Fuel Cap:	91.1 MMscf/yr

Pollutant Name	Pollutant CAS No.	AP-42 Factors (lb/MMscf) ⁽²⁾	Emission Rate (lb/hr)	Emission Rate (lb/MMBtu)	Annual Emissions (tpy)
NO _x	NY210-00-0	100	1.04	9.52E-02	4.56
CO	630-08-0	84	0.874	8.00E-02	3.83
PM ₁₀	NY075-00-5	7.6	7.90E-02	7.24E-03	0.346
PM _{2.5}	NY750-02-5	7.6	7.90E-02	7.24E-03	0.346
SO ₂	7446-09-5	0.6	6.24E-03	5.71E-04	2.73E-02
VOC	NY998-00-0	5.5	5.72E-02	5.24E-03	0.251
Pb	7439-92-1	0.0005	5.20E-06	4.76E-07	2.28E-05
CO ₂	124-38-9	120,000	1,248	114	5,466
N ₂ O	10024-97-2	0.64	6.66E-03	6.10E-04	2.92E-02
CH ₄	74-82-8	2.30	2.39E-02	2.19E-03	0.105
CO ₂ e ⁽³⁾	NY750-00-0	120,247	1,251	115	5,477
NH ₃ ⁽⁴⁾	7664-41-7	3.2	3.33E-02	3.05E-03	0.146
Total HAPs	NY100-00-0	1.89	1.96E-02	1.80E-03	8.60E-02
<i>2-Methylnaphthalene</i>	91-57-6	2.4E-05	2.50E-07	2.29E-08	1.09E-06
<i>3-Methylchloranthrene</i>	56-49-5	1.8E-06	1.87E-08	1.71E-09	8.20E-08
<i>7,12-Dimethylbenz(a)anthracene</i>	57-97-6	1.6E-05	1.66E-07	1.52E-08	7.29E-07
<i>Acenaphthene</i>	83-32-9	1.8E-06	1.87E-08	1.71E-09	8.20E-08
<i>Acenaphthylene</i>	203-96-8	1.8E-06	1.87E-08	1.71E-09	8.20E-08
<i>Anthracene</i>	120-12-7	2.4E-06	2.50E-08	2.29E-09	1.09E-07
<i>Benz(a)anthracene</i>	56-55-3	1.8E-06	1.87E-08	1.71E-09	8.20E-08
<i>Benzene</i>	71-43-2	2.1E-03	2.18E-05	2.00E-06	9.57E-05
<i>Benzo(a)pyrene</i>	50-32-8	1.2E-06	1.25E-08	1.14E-09	5.47E-08
<i>Benzo(b)fluoranthene</i>	205-99-2	1.8E-06	1.87E-08	1.71E-09	8.20E-08
<i>Benzo(g,h,i)perylene</i>	191-24-2	1.2E-06	1.25E-08	1.14E-09	5.47E-08
<i>Benzo(k)fluoranthene</i>	205-82-3	1.8E-06	1.87E-08	1.71E-09	8.20E-08

<i>Chrysene</i>	218-01-9	1.8E-06	1.87E-08	1.71E-09	8.20E-08
<i>Dibenzo(a,h)anthracene</i>	53-70-3	1.2E-06	1.25E-08	1.14E-09	5.47E-08
<i>Dichlorobenzene</i>	25321-22-6	1.2E-03	1.25E-05	1.14E-06	5.47E-05
<i>Fluoranthene</i>	206-44-0	3.0E-06	3.12E-08	2.86E-09	1.37E-07
<i>Fluorene</i>	86-73-7	2.8E-06	2.91E-08	2.67E-09	1.28E-07
<i>Formaldehyde</i>	50-00-0	7.5E-02	7.80E-04	7.14E-05	3.42E-03
<i>Hexane</i>	110-54-3	1.80	1.87E-02	1.71E-03	8.20E-02
<i>Indeno(1,2,3-cd)pyrene</i>	193-39-5	1.8E-06	1.87E-08	1.71E-09	8.20E-08
<i>Naphthalene</i>	91-20-3	6.1E-04	6.34E-06	5.81E-07	2.78E-05
<i>Phenanthrene</i>	85-01-8	1.7E-05	1.77E-07	1.62E-08	7.74E-07
<i>Pyrene</i>	129-00-0	5.0E-06	5.20E-08	4.76E-09	2.28E-07
<i>Toluene</i>	108-88-3	3.4E-03	3.54E-05	3.24E-06	1.55E-04
<i>Arsenic</i>	7440-38-2	2.0E-04	2.08E-06	1.90E-07	9.11E-06
<i>Beryllium</i>	7440-41-7	1.2E-05	1.25E-07	1.14E-08	5.47E-07
<i>Cadmium</i>	7440-43-9	1.1E-03	1.14E-05	1.05E-06	5.01E-05
<i>Chromium</i>	7440-47-3	1.4E-03	1.46E-05	1.33E-06	6.38E-05
<i>Cobalt</i>	7440-48-4	8.4E-05	8.74E-07	8.00E-08	3.83E-06
<i>Manganese</i>	7439-96-5	3.8E-04	3.95E-06	3.62E-07	1.73E-05
<i>Mercury</i>	7439-97-6	2.6E-04	2.70E-06	2.48E-07	1.18E-05
<i>Nickel</i>	7440-02-0	2.1E-03	2.18E-05	2.00E-06	9.57E-05
<i>Selenium</i>	7782-49-2	2.4E-05	2.50E-07	2.29E-08	1.09E-06

Notes:

- (1) Includes combustion-related emissions from oxyfuel-fired welding, preheat torches and plasma arc cutting equipment. Emission factors from AP-42, Tables 1.4-2 & 1.4-3, unless otherwise noted.
- (2) AP-42 factors from Tables 1.4-2 & Table 1.4-3, unless otherwise noted.
- (3) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.
- (4) Emission factor for Ammonia was taken from EPA's FIRE database for SCC code 10100602 (Natural Gas

Potential Emissions From Plasma Cutting, Preheat Torches, Rolling, Welding and Grinding Activities (Building B)

Emission Unit ID: U-MFR_B
 Emission Source: MACHINING_B, WELD_B, GRIND_B
 Description: Combined oxyfuel combustion- and fume-related emissions from machining (preheat torches, plasma arc cutting, beveling), welding and grinding (belt sanding) of steel plates and flanges. Potential emissions discharge outdoors via building ventilation system(s).
 Location: Building B
 Number of Exhaust Points: 6
 Annual Operating Hours: 8,760 hrs/yr

Pollutant Name	Pollutant CAS No.	Emission Rate (lb/hr)	Emission Rate Exhaust Point (lb/hr)	Annual Emissions (tpy)	Pollutant Emission Source Description
NO _x	NY210-00-0	1.04	0.173	4.56	Oxyfuel Combustion
CO	630-08-0	0.87	0.146	3.83	Oxyfuel Combustion
PM ₁₀	NY075-00-5	1.36	0.226	5.95	Oxyfuel Combustion, Machining, Welding, Grinding
PM _{2.5}	NY750-02-5	1.36	0.226	5.95	Oxyfuel Combustion, Machining, Welding, Grinding
SO ₂	7446-09-5	6.24E-03	1.04E-03	2.73E-02	Oxyfuel Combustion
VOC	NY998-00-0	5.72E-02	9.53E-03	0.251	Oxyfuel Combustion
Pb	7439-92-1	5.20E-06	8.67E-07	2.28E-05	Oxyfuel Combustion
CO ₂	124-38-9	1,248	208	5,466	Oxyfuel Combustion
N ₂ O	10024-97-2	6.66E-03	1.11E-03	2.92E-02	Oxyfuel Combustion
CH ₄	74-82-8	2.39E-02	3.99E-03	0.105	Oxyfuel Combustion
CO ₂ e ⁽³⁾	NY750-00-0	1,251	208	5,477	Oxyfuel Combustion
NH ₃ ⁽⁴⁾	7664-41-7	3.33E-02	5.55E-03	0.146	Oxyfuel Combustion
Total HAPs	NY100-00-0	1.32E-01	2.19E-02	5.77E-01	Oxyfuel Combustion, Machining, Welding, Grinding
<i>2-Methylnaphthalene</i>	91-57-6	2.50E-07	4.16E-08	1.09E-06	Oxyfuel Combustion
<i>3-Methylchloranthrene</i>	56-49-5	1.87E-08	3.12E-09	8.20E-08	Oxyfuel Combustion
<i>7,12-Dimethylbenz(a)anthracene</i>	57-97-6	1.66E-07	2.77E-08	7.29E-07	Oxyfuel Combustion
<i>Acenaphthene</i>	83-32-9	1.87E-08	3.12E-09	8.20E-08	Oxyfuel Combustion
<i>Acenaphthylene</i>	203-96-8	1.87E-08	3.12E-09	8.20E-08	Oxyfuel Combustion

Potential Emissions From Plasma Cutting, Preheat Torches, Rolling, Welding and Grinding Activities (Building B)

Emission Unit ID: U-MFR_B
 Emission Source: MACHINING_B, WELD_B, GRIND_B
 Description: Combined oxyfuel combustion- and fume-related emissions from machining (preheat torches, plasma arc cutting, beveling), welding and grinding (belt sanding) of steel plates and flanges. Potential emissions discharge outdoors via building ventilation system(s).
 Location: Building B
 Number of Exhaust Points: 6
 Annual Operating Hours: 8,760 hrs/yr

Pollutant Name	Pollutant CAS No.	Emission Rate (lb/hr)	Emission Rate Exhaust Point (lb/hr)	Annual Emissions (tpy)	Pollutant Emission Source Description
<i>Anthracene</i>	120-12-7	2.50E-08	4.16E-09	1.09E-07	Oxyfuel Combustion
<i>Benz(a)anthracene</i>	56-55-3	1.87E-08	3.12E-09	8.20E-08	Oxyfuel Combustion
<i>Benzene</i>	71-43-2	2.18E-05	3.64E-06	9.57E-05	Oxyfuel Combustion
<i>Benzo(a)pyrene</i>	50-32-8	1.25E-08	2.08E-09	5.47E-08	Oxyfuel Combustion
<i>Benzo(b)fluoranthene</i>	205-99-2	1.87E-08	3.12E-09	8.20E-08	Oxyfuel Combustion
<i>Benzo(g,h,i)perylene</i>	191-24-2	1.25E-08	2.08E-09	5.47E-08	Oxyfuel Combustion
<i>Benzo(k)fluoranthene</i>	205-82-3	1.87E-08	3.12E-09	8.20E-08	Oxyfuel Combustion
<i>Chrysene</i>	218-01-9	1.87E-08	3.12E-09	8.20E-08	Oxyfuel Combustion
<i>Dibenzo(a,h)anthracene</i>	53-70-3	1.25E-08	2.08E-09	5.47E-08	Oxyfuel Combustion
<i>Dichlorobenzene</i>	25321-22-6	1.25E-05	2.08E-06	5.47E-05	Oxyfuel Combustion
<i>Fluoranthene</i>	206-44-0	3.12E-08	5.20E-09	1.37E-07	Oxyfuel Combustion
<i>Fluorene</i>	86-73-7	2.91E-08	4.85E-09	1.28E-07	Oxyfuel Combustion
<i>Formaldehyde</i>	50-00-0	7.80E-04	1.30E-04	3.42E-03	Oxyfuel Combustion
<i>Hexane</i>	110-54-3	1.87E-02	3.12E-03	8.20E-02	Oxyfuel Combustion
<i>Indeno(1,2,3-cd)pyrene</i>	193-39-5	1.87E-08	3.12E-09	8.20E-08	Oxyfuel Combustion
<i>Naphthalene</i>	91-20-3	6.34E-06	1.06E-06	2.78E-05	Oxyfuel Combustion
<i>Phenanathrene</i>	85-01-8	1.77E-07	2.95E-08	7.74E-07	Oxyfuel Combustion
<i>Pyrene</i>	129-00-0	5.20E-08	8.67E-09	2.28E-07	Oxyfuel Combustion
<i>Toluene</i>	108-88-3	3.54E-05	5.89E-06	1.55E-04	Oxyfuel Combustion

Potential Emissions From Plasma Cutting, Preheat Torches, Rolling, Welding and Grinding Activities (Building B)

Emission Unit ID: U-MFR_B
 Emission Source: MACHINING_B, WELD_B, GRIND_B
 Description: Combined oxyfuel combustion- and fume-related emissions from machining (preheat torches, plasma arc cutting, beveling), welding and grinding (belt sanding) of steel plates and flanges. Potential emissions discharge outdoors via building ventilation system(s).
 Location: Building B
 Number of Exhaust Points: 6
 Annual Operating Hours: 8,760 hrs/yr

Pollutant Name	Pollutant CAS No.	Emission Rate (lb/hr)	Emission Rate Exhaust Point (lb/hr)	Annual Emissions (tpy)	Pollutant Emission Source Description
<i>Arsenic</i>	7440-38-2	2.08E-06	3.47E-07	9.11E-06	Oxyfuel Combustion
<i>Beryllium</i>	7440-41-7	1.25E-07	2.08E-08	5.47E-07	Oxyfuel Combustion
<i>Cadmium</i>	7440-43-9	1.14E-05	1.91E-06	5.01E-05	Oxyfuel Combustion
<i>Chromium</i>	7440-47-3	4.15E-02	6.92E-03	0.182	Oxyfuel Combustion, Machining, Welding, Grinding
<i>Cobalt</i>	7440-48-4	4.52E-05	7.53E-06	1.98E-04	Oxyfuel Combustion, Welding
<i>Manganese</i>	7439-96-5	4.29E-02	7.15E-03	0.188	Oxyfuel Combustion, Machining, Welding, Grinding
<i>Mercury</i>	7439-97-6	2.70E-06	4.51E-07	1.18E-05	Oxyfuel Combustion
<i>Nickel</i>	7440-02-0	2.76E-02	4.61E-03	0.121	Oxyfuel Combustion, Machining, Welding, Grinding
<i>Selenium</i>	7782-49-2	2.50E-07	4.16E-08	1.09E-06	Oxyfuel Combustion
Other Non-Criteria Air Contaminants					
Copper	7440-50-8	0.013	2.20E-03	0.058	Machining, Grinding
Aluminum Oxide	1344-28-1	2.32E-02	3.87E-03	0.102	Grinding
Cured Phenolic Resin	9003-35-4	7.74E-03	1.29E-03	0.034	Grinding
Calcium Carbonate	16389-88-1	3.61E-03	6.02E-04	0.016	Grinding
Cryolite	13775-53-6	6.19E-03	1.03E-03	0.027	Grinding
Potassium Floroborate	14075-53-7	6.19E-03	1.03E-03	0.027	Grinding

Process Equipment	Coating Product Name	Chemical Name	CAS No.	HAP?	Min Wt %	Max Wt %	Avg Wt %	Type	Physical Phase	Coating Density (lbs/gal)	VOC Content Less Exempt (lbs/gal)	Solids Wt %	Max HAP Wt %	Avg HAP Wt %	Max Yearly Usage (gal/yr)	Max Hourly Usage (gal/hr) (1)	Uncontrolled PM10		Uncontrolled PM2.5		Uncontrolled VOC		Uncontrolled HAP		PM10 After Control		PM2.5 After Control		VOC After Control		HAP After Control																										
																	ERP (lbs/hr)	PTE (lbs/yr)	ERP (lbs/hr)	PTE (lbs/yr)	ERP (lbs/hr)	PTE (lbs/yr)	ERP (lbs/hr)	PTE (lbs/yr)	PTE (lbs/hr)	PTE (lbs/yr)	PTE (lbs/hr)	PTE (lbs/yr)	PTE (lbs/hr)	PTE (lbs/yr)	PTE (lbs/hr)	PTE (lbs/yr)																									
Paint Spray Booths (Towers)	Hempadur Zinc 1736/G (Avantguard 750)	Middle molecular epoxy resin MMW 700-1200	25068-38-6	N	8.6974	8.6974	8.6974	Binders	P	18.92	2.75	85.2	11.5	11.5	25000	21.00	81.2440	96719.04	78.2820	93192.825	57.8336	68849.5543	45.8093	54534.9309	0.0812	96.71904	0.0783	93.192825	2.8917	3442.47771	2.2905	2726.74655																									
		Xylene	1330-20-7	Y	9.1886	9.1886	9.1886	Solvents	V																																																
		Ethylbenzene	100-41-4	Y	2.0443	2.0443	2.0443	Solvents	V																																																
		1-Chloro-2,3-epoxypropane (Epichlorohydrin)	106-89-8	Y	0.0016373	0.0016373	0.0016373	Binders, Monomers	V																																																
		Toluene	108-88-3	Y	0.10548	0.10548	0.10548	Solvents	V																																																
		4,4'-isopropylidenediphenol	80-05-7	N	0.0017459	0.0017459	0.0017459	Binders, Monomers	P																																																
		Oxirane, mono[(12-14-alkyloxy)methyl] derivs.	68609-97-2	N	0.94899	0.94899	0.94899	Binders	V																																																
		C12-14 Alcohols	80206-82-2	N	0.019397	0.019397	0.019397	Chemicals	V																																																
		Benzene	71-43-2	Y	0.0075039	0.0075039	0.0075039	Solvents	V																																																
		Respirable quartz	14808-60-7	N	0.010911	0.010911	0.010911	Pigments, Inorganic	P																																																
		Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlorides,comps. with b	71011-25-1	N	1.0912	1.0912	1.0912	Pigments, Inorganic	P																																																
		n-Butanol (N-Butyl Alcohol)	71-36-3	N	2.6424	2.6424	2.6424	Solvents	V																																																
		Water	7732-18-5	N	0.002645	0.002645	0.002645	Solvents, Water	V																																																
		2-Methylpropan-1-ol (Isobutyl Alcohol)	78-83-1	N	0.013225	0.013225	0.013225	Solvents	V																																																
		Propyleneglycol (Propanediol, 1,2-)	57-55-6	N	0.013225	0.013225	0.013225	Solvents	V																																																
		Polyamineamide salt	None	N	0.13225	0.13225	0.13225	Chemicals	P																																																
		Zeolites	1318-02-1	N	0.13225	0.13225	0.13225	Pigments, Inorganic	P																																																
		Pigment black 10, 77265 (Graphite)	7782-42-5	N	0.96984	0.96984	0.96984	Pigments, Inorganic	P																																																
		Zinc powder - zinc dust (stabilized)	7440-66-6	N	64.453	64.453	64.453	Pigments, Metallic	P																																																
		Zinc oxide	1314-13-2	N	4.1067	4.1067	4.1067	Pigments, Inorganic	P																																																
		3-(2,3-Epoxypropoxy) propyl trimethoxy silane	2530-83-8	N	0.43907	0.43907	0.43907	Chemicals	V																																																
		Methanol + Methanol (formed by reaction)	67-56-1	Y	0.1820625	0.1820625	0.1820625	Solvents	V																																																
		Allyl glycidyl ether	106-92-3	N	0.00043643	0.00043643	0.00043643	Solvents	V																																																
		Glass beads	65997-17-3	N	1.4113	1.4113	1.4113	Pigments, Inorganic	P																																																
		Precipitated silica	112926-00-8	N	0.043497	0.043497	0.043497	Pigments, Inorganic	P																																																
		2-Methoxypropanol	1589-47-5	N	0.0018376	0.0018376	0.0018376	Solvents	V																																																
		1-Methoxy-2-propanol (Propylene Glycol 1-Methyl Ether)	107-98-2	N	0.61094	0.61094	0.61094	Solvents	V																																																
		3,6-Diazaoctanethylenediamin (Triethylenetetramine)	112-24-3	N	0.085172	0.085172	0.085172	Binders, Monomers	V																																																
		Polymer of: triethylenetetramine, polyaminoamide and bisphenol A-(epichlorohydrin) epoxy resin	None	N	2.4353	2.4353	2.4353	Binders	P																																																
		bis[(Dimethylamino)methyl]phenol	71074-89-0	N	0.058181	0.058181	0.058181	Chemicals	V																																																
		2,4,6-tris(Dimethylaminomethyl)phenol	90-72-2	N	0.32969	0.32969	0.32969	Chemicals	V																																																
		Bisphenol A-(epichlorohydrin) epoxy resin MW <= 700	25068-38-6	N	37.211	37.211	37.211	Binders	P																																																
		1-Chloro-2,3-epoxypropane (Epichlorohydrin)	106-89-8	Y	0.00095748	0.00095748	0.00095748	Binders, Monomers	V																																																
		4,4'-isopropylidenediphenol	80-05-7	N	0.036876	0.036876	0.036876	Binders, Monomers	V																																																
		1,6-Hexanediol diglycidylether	16096-31-4	N	10.631	10.631	10.631	Binders	P																																																
		2,6-Dimethylheptan-4-one (Diisobutyl Ketone)	108-83-8	N	0.11156	0.11156	0.11156	Solvents	V																																																
		4,6-Dimethyl-2-heptanone	19549-80-5	N	0.041816	0.041816	0.041816	Solvents	V																																																
		Fluoro polysiloxane	None	N	0.0013189	0.0013189	0.0013189	Chemicals	P																																																
		Octamethylcyclotetrasiloxane (D4)	556-67-2	N	0.00015361	0.00015361	0.00015361	Chemicals	V																																																
		Decamethylcyclopentasiloxane (D5)	541-02-6	N	0.00015361	0.00015361	0.00015361	Chemicals	V																																																
		Dodecamethylcyclohexasiloxane (D6)	540-97-6	N	0.00015361	0.00015361	0.00015361	Chemicals	V																																																
		Hydrogenated castor oil	8001-78-3	N	1.4549	1.4549	1.4549	Chemicals	V																																																
		Octadecanoic acid, 12-hydroxy-, reaction products with ethylenediamine	100545-48-0	N	0.48498	0.48498	0.48498	Chemicals	P																																																
Titanium dioxide	13463-67-7	N	3.7797	3.7797	3.7797	Pigments, Inorganic	P																																																		
Silicon dioxide	7631-86-9	N	0.039578	0.039578	0.039578	Pigments, Inorganic	P																																																		
Aluminium hydroxide	21645-51-2	N	0.098945	0.098945	0.098945	Pigments, Inorganic	P																																																		
Zirconium dioxide	1314-23-4	N	0.039578	0.039578	0.039578	Pigments, Inorganic	P																																																		
Talc (non-asbestiform)	14807-96-6	N	10.679	10.679	10.679	Pigments, Inorganic	P																																																		
Respirable quartz	14808-60-7	N	0.10785	0.10785	0.10785	Pigments, Inorganic	P																																																		
3-(2,3-Epoxypropoxy) propyl trimethoxy silane	2530-83-8	N	0.7727	0.7727	0.7727	Chemicals	V																																																		
Methanol + Methanol (formed by reaction)	67-56-1	Y	0.3204074	0.3204074	0.3204074	Solvents	V																																																		
Allyl glycidyl ether	106-92-3	N	0.00076804	0.00076804	0.00076804	Solvents	V																																																		
Glass beads	65997-17-3	N	10.088	10.088	10.088	Pigments, Inorganic	P																																																		
Benzaldehyde	100-52-7	N	0.011788	0.011788	0.011788	Solvents	V																																																		
Benzyl alcohol	100-51-6	N	6.1827	6.1827	6.1827	Solvents, Coalscent	V																																																		
Dibenzyl ether	103-50-4	N	0.0061385	0.0061385	0.0061385	Solvents	V																																																		
Benzyl chloride	100-44-7	Y	0.00061348	0.00061348	0.00061348	Solvents	V																																																		
m-Xylylene-diamine (Xylene Diamine, Meta-)	1477-55-0	N	0.32912	0.32912	0.32912	Binders, Monomers	V																																																		
Polyoxypropylenediamine	9046-10-0	N	7.0396	7.0396	7.0396	Binders	V																																																		
Polymer of: m-Xylylene-diamine, (versatic acid) monoglycidylester and bisphenol A-(epichlorohydrin) epoxy	None	N	9.5263	9.5263	9.5263	Binders	P																																																		
bis[(Dimethylamino)methyl]phenol	71074-89-0	N	0.19822	0.19822	0.19822	Chemicals	V																																																		
2,4,6-tris(Dimethylaminomethyl)phenol	90-72-2	N	1.1232	1.1232	1.1232	Chemicals	V																																																		
Paint Spray Booth	Thinner 08450	Xylene	1330-20-7	Y	50	75	62.5	Solvents	V	7.15	7.15	0.0	94.3	77.2	215	0.037	0	0	0	0	0.26330167	1537.68177	0.24829348	1186.32149	0	0	0	0	0.02633017	153.768177	0.02482935	118.632149																									
		n-Butanol (N-Butyl Alcohol)	71-36-3	N	10	25	17.5	Solvents	V																																																
		Ethylbenzene	100-41-4	Y	10	19	14.5	Solvents	V																																																
		Solvent naphtha (petroleum), light arom. (Naphtha Light Aromatic)	64742-95-6	N	3	5	4.0	Solvents	V																																																
		1,2,4-Trimethylbenzene	95-63-6	N	3	4.8	3.9	Solvents	V																																																
		1,2,3-Trimethylbenzene	526-73-8	N	1	3	2.0	Solvents	V																																																
		Cumene	98-82-8	Y	0	0.3	0.15	Solvents	V																																																
		Paint Spray Booths (Towers+Transitions)	Hemphathane 55610 (Both)	Acrylic resin	None	N	24.526	24.526	24.526																								Binders	P	12.02	2.79	76.8	0.5	0.5	14100	19.00	42.0950016	31238.9222	40.560288	30100.0032	52.975768	39313.5962	1.14427447	849.172104	0.042095	31.2389222	0.04056029	30.1000032	2.6487884	1965.67981	0.05705983	42.3443974
				Solvent naphtha (petroleum), light arom. (Naphtha Light Aromatic)	64742-95-6	N	12.116	12.116	12.116																								Solvents	V																							
				n-Butyl acetate	123-86-4	N	6.2178	6.2178	6.2178																								Solvents	V																							
Lecithin	8002-43-5			N	0.13981	0.13981	0.13981	Chemicals	P																																																
Block copolymer	None			N	0.20999	0.20999	0.20999	Chemicals	P																																																
Polyolefins	None			N	0.014071	0.014071	0.014071	Chemicals	P																																																
White spirit (Naphtha Medium Aliphatic)	64742-88-7			N	0.056285	0.056285	0.056285	Solvents	V																																																
1,3-bis(12-Hydroxyocta-decanamide-N-methyle) benzene	None			N	0.58846	0.58846	0.58846	Chemicals	V																																																
Reaction mass of N, N'-hexane-1,6-diybis(12-Hydroxyoctadecanamide) and 12-hydroxy-N-[6-[1-oxoalkyl]	None			N	0.2522	0.2522	0.2522	Chemicals	V																																																
Titanium dioxide	13463-67-7			N	20.074	20.074	20.074	Pigments, Inorganic	P																																																
Silicon dioxide	7631-86-9			N	0.22424	0.22424	0.22424	Pigments, Inorganic	P																																																
Aluminium hydroxide	21645-51-2			N	0.67271	0.67271	0.67271	Pigments, Inorganic	P																																																
Aluminium oxide	1344-28-1			N	0.67271	0.67271	0.67271	Pigments, Inorganic	P																																																
Zirconium dioxide	1314-23-4			N	0.22424	0.22424	0.22424	Pigments, Inorganic	P																																																
Dipotassium oxide	12136-45-7			N	0.11212	0.11212	0.11212	Chemicals	P																																																
Phosphorus pentoxide	1314-56-3			N	0.22199	0.22199	0.22199	Chemicals	V																																																
Trimethylolpropane	77-99-6			N	0.22199	0.22199	0.22199	Binders, Monomers	V																																																
Barium sulfate	7727-43-7			N	10.507	10.507	10.507	Pigments, Inorganic	P																																																
Respirable quartz	14808-60-7			N	0.2915	0.2915	0.2915	Pigments, Inorganic	P																																																
Limestone	1317-65-3			N	7.246	7.246	7.246	Pigments, Inorganic	P																																																
Stearic acid	57-11-4			N	0.38542	0.38542	0.38542	Chemicals	V																																																
Lead powder (particle diameter < 1mm)	7439-92-1			Y	0.0003142	0.0003142	0.0003142	Pigments, Metallic	P																																																
Lead compounds (Lead Tetraoxide)	1314-41-6			Y	0.0010403	0.0010403	0.0010403	Pigments, Inorganic	P																																																
Zinc oxide	1314-13-2			N	0.031525	0.031525	0.031525	Pigments, Inorganic	P																																																
Trizinc bis(orthophosphate)	7779-90-0			N	1.0179	1.0179	1.0179	Pigments, Inorganic	P																																																
1,2,4-Trimethylbenzene	95-63-6			N	3.0047	3.0047	3.0047	Solvents	V																																																
Xylene	1330-20-7			Y	0.28169	0.28169	0.28169	Solvents	V																																																
Ethylbenzene	100-41-4			Y	0.023475	0.023475	0.023475	Solvents	V																																																
Cumene	98-82-8			Y	0.14085	0.14085	0.14085	Solvents	V																																																

Process Equipment	Coating Product Name	Chemical Name	CAS No.	HAP?	Min Wt %	Max Wt %	Avg Wt %	Type	Physical Phase	Coating Density (lbs/gal)	VOC Content Less Exempt (lbs/gal)	Solids Wt %	Max HAP Wt %	Avg HAP Wt %	Max Yearly Usage (gal/yr)	Max Hourly Usage (gal/hr) ⁽¹⁾	Uncontrolled PM10		Uncontrolled PM2.5		Uncontrolled VOC		Uncontrolled HAP		PM10 After Control		PM2.5 After Control		VOC After Control		HAP After Control		
																	ERP (lbs/hr)	PTE (lbs/yr)	ERP (lbs/hr)	PTE (lbs/yr)	ERP (lbs/hr)	PTE (lbs/yr)	ERP (lbs/hr)	PTE (lbs/yr)	PTE (lbs/hr)	PTE (lbs/yr)	PTE (lbs/hr)	PTE (lbs/yr)	PTE (lbs/hr)	PTE (lbs/yr)			
Paint Spray Booths (Transitions)	Hempaprim Multi 500 (Transitions)	Water	7732-18-5	N	0.005115	0.005115	0.005115	Solvents, Water	V																								
		n-Butanol (N-Butyl Alcohol)	71-36-3	N	3.7367	3.7367	3.7367	Solvents	V																								
		Xylene	1330-20-7	Y	0.0089759	0.0089759	0.0089759	Solvents	V																								
		Ethylbenzene	100-41-4	Y	0.0019703	0.0019703	0.0019703	Solvents	V																								
		Alkyd resin	None	N	0.24921	0.24921	0.24921	Binders	P																								
		Nonane	111-84-2	N	0.010946	0.010946	0.010946	Chemicals	V																								
		C10-C13 hydrocarbons (n-alkanes, isoalkanes, cyclics) <2% aromatics (Naphtha Hydrotreated Heavy)	64742-48-9	N	0.093777	0.093777	0.093777	Solvents	V																								
		1,3-bis[12-hydroxyocta-decanamide-N-methyl] benzene	None	N	0.55948	0.55948	0.55948	Chemicals	V																								
		Reaction mass of N, N'-hexane-1,6-diybis[12-Hydroxyoctadecanamide] and 12-hydroxy-N-[6-[1-oxoalkyl]a	None	N	0.23978	0.23978	0.23978	Chemicals	V																								
		Titanium dioxide	13463-67-7	N	4.3217	4.3217	4.3217	Pigments, Inorganic	P																								
		Silicon dioxide	7631-86-9	N	0.045253	0.045253	0.045253	Pigments, Inorganic	P																								
		Aluminium hydroxide	21645-51-2	N	0.11313	0.11313	0.11313	Pigments, Inorganic	P																								
		Zirconium dioxide	1314-23-4	N	0.045253	0.045253	0.045253	Pigments, Inorganic	P																								
		Carbon black	1333-86-4	N	0.02085	0.02085	0.02085	Pigments, Organic	P																								
		Iron hydroxide oxide	20344-49-4	N	0.047781	0.047781	0.047781	Pigments, Inorganic	P																								
		Respirable quartz	14808-60-7	N	1.0401	1.0401	1.0401	Pigments, Inorganic	P																								
		Nepheline syenite	37244-96-5	N	28.731	28.731	28.731	Pigments, Inorganic	P																								
		Middle molecular epoxy resin MMW 700-1200	25068-38-6	N	3.5132	3.5132	3.5132	Binders	P																								
		Heptan-2-one (Methyl Amyl Ketone)	110-43-0	N	1.1711	1.1711	1.1711	Solvents	V																								
		Polyolefins	None	N	0.041353	0.041353	0.041353	Chemicals	P																								
		White spirit (Naphtha Medium Aliphatic)	64742-88-7	N	0.16541	0.16541	0.16541	Solvents	V																								
		3-(2,3-Epoxypropoxy) propyl trimethoxy silane	2530-83-8	N	0.28814	0.28814	0.28814	Chemicals	V																								
		Methanol + Methanol (formed by reaction)	67-56-1	Y	0.11947788	0.11947788	0.11947788	Solvents	V																								
		Allyl glycidyl ether	106-92-3	N	0.0002864	0.0002864	0.0002864	Solvents	V																								
Talc (non-asbestiform)	14807-96-6	N	15.003	15.003	15.003	Pigments, Inorganic	P																										
Fatty acids, c18-unsatd., dimers, polymers with triethylenetetramine, reaction products with poly (bispher	68424-41-9	N	7.3801	7.3801	7.3801	Binders	V																										
3,6-Diazoctanethylenediamin (Triethylenetetramine)	112-24-3	N	0.29422	0.29422	0.29422	Binders, Monomers	V																										
bis[Dimethylamino)methyl]phenol	71074-89-0	N	0.15852	0.15852	0.15852	Chemicals	V																										
2,4,6-tris[Dimethylaminomethyl]phenol	90-72-2	N	0.89828	0.89828	0.89828	Chemicals	V																										
2-Methoxypropanol	1589-47-5	N	0.0017684	0.0017684	0.0017684	Solvents	V																										
1-Methoxy-2-propanol (Propylene Glycol 1-Methyl Ether)	107-98-2	N	0.58789	0.58789	0.58789	Solvents	V																										
2-Methoxypropyl acetate	70657-70-4	N	0.000563	0.000563	0.000563	Solvents	V																										
2-Methoxy-1-methylethyl acetate (Methoxypropylacetate)	108-65-6	N	0.18711	0.18711	0.18711	Solvents	V																										
Paint Spray Booth	Methyl Ethyl Ketone	Methyl Ethyl Ketone	78-93-3	N	100	100	100	Solvents	V	6.71	6.71	0.0	0.0	0.0	6000	1.03	0	0	0	0	6.89763699	40282.2	0	0	0	0	0	0	0	0	0		
Metal Spray Booth	Zinc Wire	Zinc	7440-66-6	N	99.9	99.9	99.9	Pigments, Inorganic	P																								
		Zinc oxide	1314-13-2	N	0	0	0	Pigments, Inorganic	P																								
		Lead	7439-92-1	Y	0.0014	0.0014	0.0014	Pigments, Inorganic	P																								
		Cadmium	7440-43-9	Y	0.0001	0.0001	0.0001	Pigments, Inorganic	P																								
Tower Blast (BLDG C)	Steel Shot	Manganese	7439-96-5	Y	0	1.2	0.6	Abrasives	P																								
		Chromium	7440-47-3	Y	0	0.1	0.05	Abrasives	P																								
		Nickel	7440-02-0	Y	0	0.1	0.05	Abrasives	P																								
		Copper	7440-50-8	N	0	0.1	0.05	Abrasives	P																								
Plate Blast (BLDG A)	Steel Shot	Manganese	7439-96-5	Y	0	1.2	0.6	Abrasives	P																								
		Chromium	7440-47-3	Y	0	0.1	0.05	Abrasives	P																								
		Nickel	7440-02-0	Y	0	0.1	0.05	Abrasives	P																								
		Copper	7440-50-8	N	0	0.1	0.05	Abrasives	P																								

Table Notes:

Y = Hazardous Air Pollutant (HAP)

V For contaminants released in vapor form which are not identified as regulated VOC, we assume no credit for add-on control (no VOC control, no fabric filter control) unless otherwise specified.

(1) Maximum hourly coating usage rate per coating based upon sequence of parts to be sprayed and coating application rate data provided by Marmen. Coatings may be applied simultaneously in Booths #1 and 2 ("Large Booth", "Small Booth").

- Thinner not included in PTE calculations since thinner is already accounted for in "as-mixed" paint coating formulations, per coating air quality data sheets.

Equipment	Coating Product Name	Chemical Name	CAS No.	HAP?	Min Wt %	Max Wt %	Avg Wt %	Type	Physical Phase (Vapor or Particulate)	Regulated VOC?	Exempted from Part 212 Review Pursuant to 212-1.4(f)(1)?	Coating Density (lbs/gal)	VOC Content Less Exempt (lbs/gal)	Solids Wt %	Max Yearly Usage (gal)	Max Hourly Usage (gal/hr)	Fractional Transfer Loss	ERP (lbs/hr)	Uncontrolled Yearly Emissions (lbs/yr)		
Paint Spray Booths (Towers)	Hempadur Zinc 1736/G (Avantguard 750)	Middle molecular epoxy resin MMW 700-1200	25068-38-6	N	8.6974	8.6974	8.6974	Binders	P	N	N	18.92	2.75	85.2	25000	21.00	0.25	8.6391	10284.6755		
		Xylene	1330-20-7	Y	9.1886	9.1886	9.1886	Solvents	V	Y	Y	18.92	2.75	85.2	25000	21.00	1.00	36.5081	43462.078		
		Ethylbenzene	100-41-4	Y	2.0443	2.0443	2.0443	Solvents	V	Y	Y	18.92	2.75	85.2	25000	21.00	1.00	8.1224	9669.539		
		1-Chloro-2,3-epoxypropane (Epichlorohydrin)	106-89-8	Y	0.0016373	0.0016373	0.0016373	Binders, Monomers	V	Y	Y	18.92	2.75	85.2	25000	21.00	1.00	0.0065	7.744429		
		Toluene	108-88-3	Y	0.10548	0.10548	0.10548	Solvents	V	Y	Y	18.92	2.75	85.2	25000	21.00	1.00	0.4191	498.9204		
		4,4'-Isopropylidenediphenol	80-05-7	N	0.0017459	0.0017459	0.0017459	Binders, Monomers	P	N	N	18.92	2.75	85.2	25000	21.00	0.25	0.0017	2.06452675		
		Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	68609-97-2	N	0.94899	0.94899	0.94899	Binders	V	N	N	18.92	2.75	85.2	25000	21.00	1.00	3.7705	4488.7227		
		C12-14 Alcohols	80206-82-2	N	0.019397	0.019397	0.019397	Chemicals	V	N	N	18.92	2.75	85.2	25000	21.00	1.00	0.0771	91.74781		
		Benzene	71-43-2	Y	0.0075039	0.0075039	0.0075039	Solvents	V	Y	N	18.92	2.75	85.2	25000	21.00	1.00	0.0298	35.493447		
		Respirable quartz	14808-60-7	N	0.010911	0.010911	0.010911	Pigments, Inorganic	P	N	N	18.92	2.75	85.2	25000	21.00	0.25	0.0108	12.9022575		
		Quaternary ammonium compounds, benzyl(hydrogenated tallow alkyl)dimethyl, chlorides, compds. with n-Butanol (N-Butyl Alcohol)	71011-25-1	N	1.0912	1.0912	1.0912	Pigments, Inorganic	P	N	N	18.92	2.75	85.2	25000	21.00	0.25	1.0839	1290.344		
		n-Butanol (N-Butyl Alcohol)	71-36-3	N	2.6424	2.6424	2.6424	Solvents	V	Y	Y	18.92	2.75	85.2	25000	21.00	1.00	10.4988	12498.552		
		Water	7732-18-5	N	0.002645	0.002645	0.002645	Solvents, Water	V	Y	N	18.92	2.75	85.2	25000	21.00	1.00	0.0105	12.51085		
		2-Methylpropan-1-ol (Isobutyl Alcohol)	78-83-1	N	0.013225	0.013225	0.013225	Solvents	V	Y	Y	18.92	2.75	85.2	25000	21.00	1.00	0.0525	62.55425		
		Propylene glycol (Propanediol, 1,2-)	57-55-6	N	0.013225	0.013225	0.013225	Solvents	V	Y	Y	18.92	2.75	85.2	25000	21.00	1.00	0.0525	62.55425		
		Polyamineamide salt	None	N	0.13225	0.13225	0.13225	Chemicals	P	N	N	18.92	2.75	85.2	25000	21.00	0.25	0.1314	156.385625		
		Zeolites	1318-02-1	N	0.13225	0.13225	0.13225	Pigments, Inorganic	P	N	N	18.92	2.75	85.2	25000	21.00	0.25	0.1314	156.385625		
		Pigment black 10, 77265 (Graphite)	7782-42-5	N	0.96984	0.96984	0.96984	Pigments, Inorganic	P	N	N	18.92	2.75	85.2	25000	21.00	0.25	0.9633	1146.8358		
		Zinc powder - zinc dust (stabilized)	7440-66-6	N	64.453	64.453	64.453	Pigments, Metallic	P	N	N	18.92	2.75	85.2	25000	21.00	0.25	64.0212	76215.6725		
		Zinc oxide	1314-13-2	N	4.1067	4.1067	4.1067	Pigments, Inorganic	P	N	N	18.92	2.75	85.2	25000	21.00	0.25	4.0792	4856.17275		
		3-(2,3-Epoxypropoxy) propyl trimethoxy silane	2530-83-8	N	0.43907	0.43907	0.43907	Chemicals	V	N	N	18.92	2.75	85.2	25000	21.00	1.00	1.7445	2076.8011		
		Methanol + Methanol (formed by reaction)	67-56-1	Y	0.1820625	0.1820625	0.1820625	Solvents	V	Y	Y	18.92	2.75	85.2	25000	21.00	1.00	0.7234	861.155625		
		Allyl glycidyl ether	106-92-3	N	0.00043643	0.00043643	0.00043643	Solvents	V	Y	Y	18.92	2.75	85.2	25000	21.00	1.00	0.0017	2.0643139		
		Glass beads	65997-17-3	N	1.4113	1.4113	1.4113	Pigments, Inorganic	P	N	N	18.92	2.75	85.2	25000	21.00	0.25	1.4018	1668.86225		
		Precipitated silica	112926-00-8	N	0.043497	0.043497	0.043497	Pigments, Inorganic	P	N	N	18.92	2.75	85.2	25000	21.00	0.25	0.0432	51.4352025		
		2-Methoxypropanol	1589-47-5	N	0.0018376	0.0018376	0.0018376	Solvents	V	Y	Y	18.92	2.75	85.2	25000	21.00	1.00	0.0073	8.691848		
		1-Methoxy-2-propanol (Propylene Glycol 1-Methyl Ether)	107-98-2	N	0.61094	0.61094	0.61094	Solvents	V	Y	Y	18.92	2.75	85.2	25000	21.00	1.00	2.4274	2889.7462		
		3,6-Diazoactanethylenediamin (Triethylenetetramine)	112-24-3	N	0.085172	0.085172	0.085172	Binders, Monomers	V	N	N	18.92	2.75	85.2	25000	21.00	1.00	0.3384	402.86356		
		Polymer of: triethylenetetramine, polyaminoamide and bisphenol A-(epichlorohydrin) epoxy resin	None	N	2.4353	2.4353	2.4353	Binders	P	N	N	18.92	2.75	85.2	25000	21.00	0.25	2.4190	2879.74225		
		bis[(Dimethylamino)methyl]phenol	71074-89-0	N	0.058181	0.058181	0.058181	Chemicals	V	N	N	18.92	2.75	85.2	25000	21.00	1.00	0.2312	275.19613		
		2,4,6-tris(Dimethylaminomethyl)phenol	90-72-2	N	0.32969	0.32969	0.32969	Chemicals	V	N	N	18.92	2.75	85.2	25000	21.00	1.00	1.3099	1559.4337		
		Paint Spray Booths (Transitions)	Hempadur Multi-Strength 35842 (Transitions)	Bisphenol A-(epichlorohydrin) epoxy resin MW <= 700	25068-38-6	N	37.211	37.211	37.211	Binders	P	N	N	10.76	0.185	93.3	25000	26.00	0.25	26.0253734	25024.3975
				1-Chloro-2,3-epoxypropane (Epichlorohydrin)	106-89-8	Y	0.00095748	0.00095748	0.00095748	Binders, Monomers	V	Y	Y	10.76	0.185	93.3	25000	26.00	1.00	0.002678646	2.5756212
				4,4'-Isopropylidenediphenol	80-05-7	N	0.036876	0.036876	0.036876	Binders, Monomers	P	N	N	10.76	0.185	93.3	25000	26.00	0.25	0.025791074	24.79911
				1,6-Hexanediol diglycidylether	16096-31-4	N	10.631	10.631	10.631	Binders	P	N	N	10.76	0.185	93.3	25000	26.00	0.25	7.4353214	7149.3475
				2,6-Dimethylheptan-4-one (Diisobutyl Ketone)	108-83-8	N	0.11156	0.11156	0.11156	Solvents	V	Y	Y	10.76	0.185	93.3	25000	26.00	1.00	0.312100256	300.0964
				4,6-Dimethyl-2-heptanone	19549-80-5	N	0.041816	0.041816	0.041816	Solvents	V	Y	Y	10.76	0.185	93.3	25000	26.00	1.00	0.116984442	112.48504
				Fluoro polysiloxane	None	N	0.0013189	0.0013189	0.0013189	Chemicals	P	N	Y	10.76	0.185	93.3	25000	26.00	0.25	0.000922439	0.88696025
				Octamethylcyclotetrasiloxane (D4)	556-67-2	N	0.00015361	0.00015361	0.00015361	Chemicals	V	Exempt	Y	10.76	0.185	93.3	25000	26.00	1.00	0.000429739	0.4132109
				Decamethylcyclopentasiloxane (D5)	541-02-6	N	0.00015361	0.00015361	0.00015361	Chemicals	V	Exempt	Y	10.76	0.185	93.3	25000	26.00	1.00	0.000429739	0.4132109
				Dodecamethylcyclohexasiloxane (D6)	540-97-6	N	0.00015361	0.00015361	0.00015361	Chemicals	V	Exempt	Y	10.76	0.185	93.3	25000	26.00	1.00	0.000429739	0.4132109
				Hydrogenated castor oil	8001-78-3	N	1.4549	1.4549	1.4549	Chemicals	V	N	Y	10.76	0.185	93.3	25000	26.00	1.00	4.07022824	3913.681
				Octadecanoic acid, 12-hydroxy-, reaction products with ethylenediamine	100545-48-0	N	0.48498	0.48498	0.48498	Chemicals	P	N	Y	10.76	0.185	93.3	25000	26.00	0.25	0.339195012	326.14905
				Titanium dioxide	13463-67-7	N	3.7797	3.7797	3.7797	Pigments, Inorganic	P	N	N	10.76	0.185	93.3	25000	26.00	0.25	2.64352218	2541.84825
				Silicon dioxide	7631-86-9	N	0.039578	0.039578	0.039578	Pigments, Inorganic	P	N	N	10.76	0.185	93.3	25000	26.00	0.25	0.027680853	26.616205
				Aluminium hydroxide	21645-51-2	N	0.098945	0.098945	0.098945	Pigments, Inorganic	P	N	N	10.76	0.185	93.3	25000	26.00	0.25	0.069202133	66.5405125
				Zirconium dioxide	1314-23-4	N	0.039578	0.039578	0.039578	Pigments, Inorganic	P	N	N	10.76	0.185	93.3	25000	26.00	0.25	0.027680853	26.616205
				Talc (non-asbestiform)	14807-96-6	N	10.679	10.679	10.679	Pigments, Inorganic	P	N	N	10.76	0.185	93.3	25000	26.00	0.25	7.4688926	7181.6275
Respirable quartz	14808-60-7			N	0.10785	0.10785	0.10785	Pigments, Inorganic	P	N	N	10.76	0.185	93.3	25000	26.00	0.25	0.07543029	72.529125		
3-(2,3-Epoxypropoxy) propyl trimethoxy silane	2530-83-8			N	0.7727	0.7727	0.7727	Chemicals	V	N	N	10.76	0.185	93.3	25000	26.00	1.00	2.16170552	2078.563		
Methanol + Methanol (formed by reaction)	67-56-1			Y	0.3204074	0.3204074	0.3204074	Solvents	V	Y	Y	10.76	0.185	93.3	25000	26.00	1.00	0.896371742	861.895906		
Allyl glycidyl ether	106-92-3			N	0.00076804	0.00076804	0.00076804	Solvents	V	Y	Y	10.76	0.185	93.3	25000	26.00	1.00	0.002148669	2.0660276		
Glass beads	65997-17-3			N	10.088	10.088	10.088	Pigments, Inorganic	P	N	N	10.76	0.185	93.3	25000	26.00	0.25	7.0555472	6784.18		
Benzaldehyde	100-52-7			N	0.011788	0.011788	0.011788	Solvents	V	Y	Y	10.76	0.185	93.3	25000	26.00	1.00	0.032978109	31.70972		
Benzyl alcohol	100-51-6			N	6.1827	6.1827	6.1827	Solvents, Coalscent	V	Y	Y	10.76	0.185	93.3	25000	26.00	1.00	17.29672152	16631.463		
Dibenzyl ether	103-50-4			N	0.0061385	0.0061385	0.0061385	Solvents	V	N	Y	10.76	0.185	93.3	25000	26.00	1.00	0.017173068	16.512565		
Benzyl chloride	100-44-7			Y	0.00061348	0.00061348	0.00061348	Solvents	V	Y	N	10.76	0.185	93.3	25000	26.00	1.00	0.001716272	1.6502612		
m-Xylylene-diamine (Xylene Diamine, Meta-)	1477-55-0			N	0.32912	0.32912	0.32912	Binders, Monomers	V	Y	Y	10.76	0.185	93.3	25000	26.00	1.00	0.920746112	885.3328		
Polyoxypropylenediamine	9046-10-0			N	7.0396	7.0396	7.0396	Binders	V	N	N	10.76	0.185	93.3	25000	26.00	1.00	19.69398496	18936.524		
Polymer of: m-Xylylene-diamine, (versatic acid) monoglycidylester and bisphenol A-(epichlorohydrin) epoxy resin	None			N	9.5263	9.5263	9.5263	Binders	P	N	N	10.76	0.185	93.3	25000	26.00	0.25	6.66269422	6406.43675		
bis[(Dimethylamino)methyl]phenol	71074-89-0			N	0.19822	0.19822	0.19822	Chemicals	V	N	N	10.76	0.185	93.3	25000	26.00	1.00	0.554540272	533.2118		
2,4,6-tris(Dimethylaminomethyl)phenol	90-72-2			N	1.1232	1.1232	1.1232	Chemicals	V	N	N	10.76	0.185	93.3	25000	26.00	1.00	3.14226432	3021.408		
Paint Spray Booth	Thinner 08450			Xylene	1330-20-7	Y	50	75	62.5	Solvents	V	Y	Y	7.15	7.15	0.0	215	0.037	1.00	0.197476255	961.0511079
				n-Butanol (N-Butyl Alcohol)	71-36-3	N	10	25	17.5	Solvents	V	Y	Y	7.15	7.15	0.0	215	0.037	1.00	0.065825418	269.0943102
				Ethylbenzene	100-41-4	Y	10	19	14.5	Solvents	V	Y	Y	7.15	7.15	0.0	215	0.037	1.00	0.050027318	222.963857
				Solvent naphtha (petroleum), light arom. (Naphtha Light Aromatic)	64742-95-6	N	3	5	4.0	S											

Equipment	Coating Product Name	Chemical Name	CAS No.	HAP?	Min Wt %	Max Wt %	Avg Wt %	Type	Physical Phase (Vapor or Particulate)	Regulated VOC?	Exempt from Part 212 Review Pursuant to 212-1.4(f)(1)?	Coating Density (lbs/gal)	VOC Content Less Exempt (lbs/gal)	Solids Wt %	Max Yearly Usage (gal)	Max Hourly Usage (gal/hr)	Fractional Transfer Loss	ERP (lbs/hr)	Uncontrolled Yearly Emissions (lbs/yr)
Paint Spray Booths (Towers+Transitions)	Hempathane 55610 (Both)	Lecithin	8002-43-5	N	0.13981	0.13981	0.13981	Chemicals	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.07982452	59.23819605
		Block copolymer	None	N	0.20999	0.20999	0.20999	Chemicals	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.119893791	88.97381295
		Polyolefins	None	N	0.014071	0.014071	0.014071	Chemicals	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.008033837	5.961953055
		White spirit (Naphtha Medium Aliphatic)	64742-88-7	N	0.056285	0.056285	0.056285	Solvents	V	Y	N	12.02	2.79	76.8	14100	19.00	1.00	0.128543683	95.3929437
		1,3-bis(12-Hydroxyocta-decanamide-N-methyl) benzene	None	N	0.58846	0.58846	0.58846	Chemicals	V	N	N	12.02	2.79	76.8	14100	19.00	1.00	1.343924948	997.3337772
		Reaction mass of N, N'-hexane-1,6-diylbis[12-Hydroxyoctadecanamide] and 12-hydroxy-N-[6-(1-oxoalkyl)]	None	N	0.2522	0.2522	0.2522	Chemicals	V	N	N	12.02	2.79	76.8	14100	19.00	1.00	0.57597436	427.433604
		Titanium dioxide	13463-67-7	N	20.074	20.074	20.074	Pigments, Inorganic	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	11.4612503	8505.45417
		Silicon dioxide	7631-86-9	N	0.22424	0.22424	0.22424	Pigments, Inorganic	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.128029828	95.0116092
		Aluminium hydroxide	21645-51-2	N	0.67271	0.67271	0.67271	Pigments, Inorganic	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.384083775	285.0305906
		Aluminium oxide	1344-28-1	N	0.67271	0.67271	0.67271	Pigments, Inorganic	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.384083775	285.0305906
		Zirconium dioxide	1314-23-4	N	0.22424	0.22424	0.22424	Pigments, Inorganic	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.128029828	95.0116092
		Dipotassium oxide	12136-45-7	N	0.11212	0.11212	0.11212	Chemicals	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.064014914	47.5058046
		Phosphorus pentoxide	1314-56-3	N	0.22199	0.22199	0.22199	Chemicals	V	N	N	12.02	2.79	76.8	14100	19.00	1.00	0.506980762	376.2330918
		Trimethylolpropane	77-99-6	N	0.22199	0.22199	0.22199	Binders, Monomers	V	N	N	12.02	2.79	76.8	14100	19.00	1.00	0.506980762	376.2330918
		Barium sulfate	7727-43-7	N	10.507	10.507	10.507	Pigments, Inorganic	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	5.99897165	4451.868435
		Respirable quartz	14808-60-7	N	0.2915	0.2915	0.2915	Pigments, Inorganic	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.166431925	123.5100075
		Limestone	1317-65-3	N	7.246	7.246	7.246	Pigments, Inorganic	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	4.1371037	3070.16643
		Stearic acid	57-11-4	N	0.38542	0.38542	0.38542	Chemicals	V	N	N	12.02	2.79	76.8	14100	19.00	1.00	0.880222196	653.2175244
		Lead powder (particle diameter < 1mm)	7439-92-1	Y	0.0003142	0.0003142	0.0003142	Pigments, Metallic	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.000179392	0.133128111
		Lead compounds (Lead Tetraoxide)	1314-41-6	Y	0.0010403	0.0010403	0.0010403	Pigments, Inorganic	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.000593959	0.440780312
		Zinc oxide	1314-13-2	N	0.031525	0.031525	0.031525	Pigments, Inorganic	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.017999199	13.35730013
		Trizinc bis(orthophosphate)	7779-90-0	N	1.0179	1.0179	1.0179	Pigments, Inorganic	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.581170005	431.2893195
		1,2,4-Trimethylbenzene	95-63-6	N	3.0047	3.0047	3.0047	Solvents	V	Y	Y	12.02	2.79	76.8	14100	19.00	1.00	6.86213386	5092.425654
		Xylene	1330-20-7	Y	0.28169	0.28169	0.28169	Solvents	V	Y	Y	12.02	2.79	76.8	14100	19.00	1.00	0.643323622	477.4138458
		Ethylbenzene	100-41-4	Y	0.023475	0.023475	0.023475	Solvents	V	Y	Y	12.02	2.79	76.8	14100	19.00	1.00	0.053612205	39.7858995
		Cumene	98-82-8	Y	0.14085	0.14085	0.14085	Solvents	V	Y	Y	12.02	2.79	76.8	14100	19.00	1.00	0.32167323	238.715397
		1,2,3-Trimethylbenzene	526-73-8	N	1.0329	1.0329	1.0329	Solvents	V	Y	Y	12.02	2.79	76.8	14100	19.00	1.00	2.35893702	1750.579578
		1-Ethyl-2-methylbenzene	611-14-3	N	0.277	0.277	0.277	Solvents	V	Y	Y	12.02	2.79	76.8	14100	19.00	1.00	0.6326126	469.46514
		Benzene	71-43-2	Y	0.014486	0.014486	0.014486	Solvents	V	Y	N	12.02	2.79	76.8	14100	19.00	1.00	0.033083127	24.55116252
		bis (1,2,2,6,6-Pentamethyl-4-piperidyl) sebacate	41556-26-7	N	0.27998	0.27998	0.27998	Chemicals	V	N	N	12.02	2.79	76.8	14100	19.00	1.00	0.639418324	474.5157036
		Methyl-1,2,2,6,6-pentamethyl-4-piperidylsebacate	82919-37-7	N	0.069995	0.069995	0.069995	Chemicals	V	N	N	12.02	2.79	76.8	14100	19.00	1.00	0.159854581	118.6289259
		Water	7732-18-5	N	0.0010478	0.0010478	0.0010478	Solvents, Water	V	Y	Y	12.02	2.79	76.8	14100	19.00	1.00	0.002392966	1.775832396
n-Butanol (N-Butyl Alcohol)	71-36-3	N	0.010478	0.010478	0.010478	Solvents	V	Y	Y	12.02	2.79	76.8	14100	19.00	1.00	0.023929656	17.75832396		
Dibutyltin dilaurate	77-58-7	N	0.021441	0.021441	0.021441	Chemicals	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	0.012241739	9.084658905		
Hexamethylene-di-isocyanate (HDI)	822-06-0	Y	0.029393	0.029393	0.029393	Binders, Monomers	V	Y	N	12.02	2.79	76.8	14100	19.00	1.00	0.067127733	49.81584426		
Naphthalene	91-20-3	Y	0.0097912	0.0097912	0.0097912	Solvents	V	Y	Y	12.02	2.79	76.8	14100	19.00	1.00	0.022361143	16.59432158		
Hexamethylene-1,6-diisocyanate homopolymer (HDI Homopolymer)	28182-81-2	N	8.7778	8.7778	8.7778	Binders	P	N	N	12.02	2.79	76.8	14100	19.00	0.25	5.01168491	3719.197749		
Paint Spray Booth	Thinner 08080	Xylene	1330-20-7	Y	75	90	82.5	Solvents	V	Y	Y	7.26	7.26	0.0	100	0.01712329	1.00	0.111891243	598.9911222
		Ethylbenzene	100-41-4	Y	10	25	17.5	Solvents	V	Y	Y	7.26	7.26	0.0	100	0.01712329	1.00	0.031080901	127.0587229
		Toluene	108-88-3	Y	1	3	2	Solvents	V	Y	Y	7.26	7.26	0.0	100	0.01712329	1.00	0.003729708	14.5209969
Paint Spray Booth	Thinner 08740	2-Methoxypropanol	1589-47-5	N	0.15895	0.15895	0.15895	Solvents	V	Y	Y	7.48	7.48	0.0	2000	0.34	1.00	0.004071733	23.77892
		1-Methoxy-2-propanol (Propylene Glycol 1-Methyl Ether)	107-98-2	N	52.841	52.841	52.841	Solvents	V	Y	Y	7.48	7.48	0.0	2000	0.34	1.00	1.353598219	7905.0136
		Solvent naphtha (petroleum), light arom. (Naphtha Light Aromatic)	64742-95-6	N	23.148	23.148	23.148	Solvents	V	Y	Y	7.48	7.48	0.0	2000	0.34	1.00	0.592969315	3462.9408
		1,2,4-Trimethylbenzene	95-63-6	N	15.04	15.04	15.04	Solvents	V	Y	Y	7.48	7.48	0.0	2000	0.34	1.00	0.385271233	2249.984
		Xylene	1330-20-7	Y	1.41	1.41	1.41	Solvents	V	Y	Y	7.48	7.48	0.0	2000	0.34	1.00	0.036119178	210.936
		Ethylbenzene	100-41-4	Y	0.1175	0.1175	0.1175	Solvents	V	Y	Y	7.48	7.48	0.0	2000	0.34	1.00	0.003009932	17.578
		Cumene	98-82-8	Y	0.705	0.705	0.705	Solvents	V	Y	Y	7.48	7.48	0.0	2000	0.34	1.00	0.018059589	105.468
		1,2,3-Trimethylbenzene	526-73-8	N	5.17	5.17	5.17	Solvents	V	Y	Y	7.48	7.48	0.0	2000	0.34	1.00	0.132436986	773.432
		1-Ethyl-2-methylbenzene	611-14-3	N	1.3865	1.3865	1.3865	Solvents	V	Y	Y	7.48	7.48	0.0	2000	0.34	1.00	0.035517192	207.4204
Benzene	71-43-2	Y	0.0235	0.0235	0.0235	Solvents	V	Y	N	7.48	7.48	0.0	2000	0.34	1.00	0.000601986	3.5156		
Paint Spray Booths (Transitions)	Galvosil 15700 (Transitions)	Xylene	1330-20-7	Y	3.7	3.7	3.7	Solvents	V	Y	Y	22.21	3.62	75.8	2000	26.00	1.00	21.36602	1643.54
		Ethylbenzene	100-41-4	Y	0.8257	0.8257	0.8257	Solvents	V	Y	Y	22.21	3.62	75.8	2000	26.00	1.00	4.76808722	366.77594
		Toluene	108-88-3	Y	0.043951	0.043951	0.043951	Solvents	V	Y	Y	22.21	3.62	75.8	2000	26.00	1.00	0.253799445	19.5230342
		Benzene	71-43-2	Y	0.0052528	0.0052528	0.0052528	Solvents	V	Y	N	22.21	3.62	75.8	2000	26.00	1.00	0.030332819	2.33329376
		Respirable quartz	14808-60-7	N	0.087898	0.087898	0.087898	Pigments, Inorganic	P	N	N	22.21	3.62	75.8	2000	26.00	0.25	0.126893948	9.7610729
		Quaternary ammonium modified bentonite	121888-68-4	N	0.29161	0.29161	0.29161	Pigments, Inorganic	P	N	N	22.21	3.62	75.8	2000	26.00	0.25	0.420982777	32.3832905
		2-Methylpropan-1-ol (Isobutyl Alcohol)	78-83-1	N	0.015031	0.015031	0.015031	Solvents	V	Y	Y	22.21	3.62	75.8	2000	26.00	1.00	0.086798013	6.6767702
		Propyleneglycol (Propanediol, 1,2-)	57-55-6	N	0.015031	0.015031	0.015031	Solvents	V	Y	Y	22.21	3.62	75.8	2000	26.00	1.00	0.086798013	6.6767702
		Polyamineamide salt	None	N	0.15031	0.15031	0.15031	Chemicals	P	N	N	22.21	3.62	75.8	2000	26.00	0.25	0.216995032	16.6919255
		Ethanol + Ethanol (formed by reaction)	64-17-5	N	5.4218	5.4218	5.4218	Solvents	V										

Equipment	Coating Product Name	Chemical Name	CAS No.	HAP?	Min Wt %	Max Wt %	Avg Wt %	Type	Physical Phase (Vapor or Particulate)	Regulated VOC?	Exempt from Part 212 Review Pursuant to 212-1.4(f)(1)?	Coating Density (lbs/gal)	VOC Content Less Exempt (lbs/gal)	Solids Wt %	Max Yearly Usage (gal)	Max Hourly Usage (gal/hr)	Fractional Transfer Loss	ERP (lbs/hr)	Uncontrolled Yearly Emissions (lbs/yr)	
		White spirit (Naphtha Medium Aliphatic)	64742-88-7	N	0.16541	0.16541	0.16541	Solvents	V	Y	Y	12.12	1.61	86.8	8000	26.00	1.00	0.521239992	160.381536	
		3-(2,3-Epoxypropoxy) propyl trimethoxy silane	2530-83-8	N	0.28814	0.28814	0.28814	Chemicals	V	N	N	12.12	1.61	86.8	8000	26.00	1.00	0.907986768	279.380544	
		Methanol + Methanol (formed by reaction)	67-56-1	Y	0.11947788	0.11947788	0.11947788	Solvents	V	Y	Y	12.12	1.61	86.8	8000	26.00	1.00	0.376498695	115.8457524	
		Allyl glycidyl ether	106-92-3	N	0.0002864	0.0002864	0.0002864	Solvents	V	Y	Y	12.12	1.61	86.8	8000	26.00	1.00	0.000902504	0.27769344	
		Talc (non-asbestiform)	14807-96-6	N	15.003	15.003	15.003	Pigments, Inorganic	P	N	N	12.12	1.61	86.8	8000	26.00	0.25	11.8193634	3636.7272	
		Fatty acids, c18-unsatd., dimers, polymers with triethylenetetramine, reaction products with poly (bisphenol A)	68424-41-9	N	7.3801	7.3801	7.3801	Binders	V	N	N	12.12	1.61	86.8	8000	26.00	1.00	23.25617112	7155.74496	
		3,6-Diazaoctanethylenediamin (Triethylenetetramine)	112-24-3	N	0.29422	0.29422	0.29422	Binders, Monomers	V	N	N	12.12	1.61	86.8	8000	26.00	1.00	0.927146064	285.275712	
		bis[(Dimethylamino)methyl]phenol	71074-89-0	N	0.15852	0.15852	0.15852	Chemicals	V	N	N	12.12	1.61	86.8	8000	26.00	1.00	0.499528224	153.700992	
		2,4,6-tris(Dimethylaminomethyl)phenol	90-72-2	N	0.89828	0.89828	0.89828	Chemicals	V	N	N	12.12	1.61	86.8	8000	26.00	1.00	2.830659936	870.972288	
		2-Methoxypropanol	1589-47-5	N	0.0017684	0.0017684	0.0017684	Solvents	V	Y	Y	12.12	1.61	86.8	8000	26.00	1.00	0.005572582	1.71464064	
		1-Methoxy-2-propanol (Propylene Glycol 1-Methyl Ether)	107-98-2	N	0.58789	0.58789	0.58789	Solvents	V	Y	Y	12.12	1.61	86.8	8000	26.00	1.00	1.852558968	570.018144	
		2-Methoxypropyl acetate	70657-70-4	N	0.000563	0.000563	0.000563	Solvents	V	Y	Y	12.12	1.61	86.8	8000	26.00	1.00	0.001774126	0.5458848	
		2-Methoxy-1-methylethyl acetate (Methoxypropylacetate)	108-65-6	N	0.18711	0.18711	0.18711	Solvents	V	Y	Y	12.12	1.61	86.8	8000	26.00	1.00	0.589621032	181.421856	
Paint Spray Booth	Methyl Ethyl	Methyl Ethyl Ketone	78-93-3	N	100	100	100	Solvents	V	Y	Y	6.71	6.71	0.0	6000	1.03	1.00	6.897636986	40282.2	
Metal Spray Booth	Zinc Wire	Zinc	7440-66-6	N	99.9	99.9	99.9	Pigments, Inorganic	P	N	N	Zinc Wire	0	100	3504000 lbs	400.0 lbs/hr	0.30	119.88	1050148.8	
		Zinc oxide	1314-13-2	N	0	0	0	Pigments, Inorganic	P	N	N	Zinc Wire	0	100	3504000 lbs	400.0 lbs/hr	0.30	0	0	
		Lead	7439-92-1	Y	0.0014	0.0014	0.0014	Pigments, Inorganic	P	N	N	Zinc Wire	0	100	3504000 lbs	400.0 lbs/hr	0.30	0.00168	14.7168	
		Cadmium	7440-43-9	Y	0.0001	0.0001	0.0001	Pigments, Inorganic	P	N	N	Zinc Wire	0	100	3504000 lbs	400.0 lbs/hr	0.30	0.00012	1.0512	
Tower Blast (BLDG C)	Steel Shot	Manganese	7439-96-5	Y	0	1.2	0.6	Abrasives	P	N	N								0.882	3863.16
		Chromium	7440-47-3	Y	0	0.1	0.05	Abrasives	P	N	N								0.0735	321.93
		Nickel	7440-02-0	Y	0	0.1	0.05	Abrasives	P	N	N								0.0735	321.93
		Copper	7440-50-8	N	0	0.1	0.05	Abrasives	P	N	N								0.0735	321.93
Plate Blast (BLDG A)	Steel Shot	Manganese	7439-96-5	Y	0	1.2	0.6	Abrasives	P	N	N								0.335916	1471.31208
		Chromium	7440-47-3	Y	0	0.1	0.05	Abrasives	P	N	N								0.027993	122.60934
		Nickel	7440-02-0	Y	0	0.1	0.05	Abrasives	P	N	N								0.027993	122.60934
		Copper	7440-50-8	N	0	0.1	0.05	Abrasives	P	N	N								0.027993	122.60934

Table Notes:

= Hazardous Air Pollutant (HAP)

V For contaminants released in vapor form which are not identified as regulated VOC, we assume no credit for add-on control (no VOC control, no fabric filter control) unless otherwise specified.

(1) From DAR-1 AGC/SGC Tables: H = High, M = Moderate, L = Low. In accordance with DAR-1 procedures, when assigning an initial Environmental Rating (ER) for each contaminant, an ER of "A" should be assigned to high toxicity contaminants; an ER of "B" should be assigned to moderate toxicity contaminants; an ER of "C" should be assigned to low toxicity contaminants; and, an ER of "D" should only be initially assigned to contaminants identified as simple asphyxiants.

(2) Per DAR-1 procedures, those air contaminants without a toxicity classification should be assigned a moderate (M) toxicity classification. Thus, where a toxicity value has not been assigned in the AGC/SGC Tables, a moderate toxicity rating, denoted as "(M)", is shown.

(3) Per DAR-1 procedures, air contaminants that currently do not have an AGC assigned to the m should be evaluated based upon a de minimus concentration of 0.1 µg/m³ predicted at the fence line. The 0.1 µg/m³ concentration is to be used as a first-time conservative approach to evaluate the dispersion of the air contaminant. (If this occurs, the permit writer should forward the air contaminant's CAS registry number to the Air Toxics Section (ATS), within DAR, for the development of an AGC).

= Thinner not included in PTE calculations since thinner is already accounted for in "as-mixed" paint coating formulations, as presented in coating air quality data sheets.

Potential Emissions From Natural Gas-Fired Curing Ovens A and B ⁽¹⁾

Emission Unit ID: U-PBTH1
 Emission Source: OVEN_A, OVEN_B
 Description: Two (2) identical curing ovens firing natural gas with design maximum heat input ratings equal to 16 million British thermal units per hour each.
 Location: Building C
 Maximum Heat Input (Combined): 32,000,000 Btu/hr
 32.0 MMBtu/hr
 Fuel Type: Natural Gas
 HHV Natural Gas: 1,050 Btu/scf
 Hourly Fuel Consumption: 30,476 scf/hr 0.03047619
 Annual Operation: 8,760 hrs/yr
 Annual Fuel Cap: 267.0 MMscf/yr

Pollutant Name	Pollutant CAS No.	AP-42 Factors (lb/MMscf) ^{(2), (3)}	Emission Rate (lb/hr)	Emission Rate (lb/MMBtu)	Annual Emissions (tpy)
NO _x	NY210-00-0	100	3.05	0.095	13.3
CO	630-08-0	84	2.56E+00	0.080	11.2
PM ₁₀	NY075-00-5	7.6	2.32E-01	7.24E-03	1.01E+00
PM _{2.5}	NY750-02-5	7.6	2.32E-01	7.24E-03	1.01E+00
SO ₂	7446-09-5	0.6	1.83E-02	5.71E-04	8.01E-02
VOC	NY998-00-0	5.5	1.68E-01	5.24E-03	7.34E-01
Pb	7439-92-1	0.0005	1.52E-05	4.76E-07	6.67E-05
CO ₂	124-38-9	120,000	3,657	114	16,018
N ₂ O	10024-97-2	0.64	1.95E-02	6.10E-04	8.54E-02
CH ₄	74-82-8	2.30	7.01E-02	2.19E-03	3.07E-01
CO ₂ e ⁽⁴⁾	NY750-00-0	120,247	3,665	115	16,051
NH ₃	7664-41-7	3.2	9.75E-02	3.05E-03	4.27E-01
Total HAPs	NY100-00-0	1.89	5.75E-02	1.80E-03	2.52E-01
2-Methylnaphthalene	91-57-6	2.4E-05	7.31E-07	2.29E-08	3.20E-06
3-Methylchloranthrene	56-49-5	1.8E-06	5.49E-08	1.71E-09	2.40E-07
7,12-Dimethylbenz(a)anthracene	57-97-6	1.6E-05	4.88E-07	1.52E-08	2.14E-06
Acenaphthene	83-32-9	1.8E-06	5.49E-08	1.71E-09	2.40E-07
Acenaphthylene	203-96-8	1.8E-06	5.49E-08	1.71E-09	2.40E-07
Anthracene	120-12-7	2.4E-06	7.31E-08	2.29E-09	3.20E-07
Benz(a)anthracene	56-55-3	1.8E-06	5.49E-08	1.71E-09	2.40E-07
Benzene	71-43-2	2.1E-03	6.40E-05	2.00E-06	2.80E-04
Benzo(a)pyrene	50-32-8	1.2E-06	3.66E-08	1.14E-09	1.60E-07
Benzo(b)fluoranthene	205-99-2	1.8E-06	5.49E-08	1.71E-09	2.40E-07
Benzo(g,h,i)perylene	191-24-2	1.2E-06	3.66E-08	1.14E-09	1.60E-07
Benzo(k)fluoranthene	205-82-3	1.8E-06	5.49E-08	1.71E-09	2.40E-07
Chrysene	218-01-9	1.8E-06	5.49E-08	1.71E-09	2.40E-07
Dibenzo(a,h)anthracene	53-70-3	1.2E-06	3.66E-08	1.14E-09	1.60E-07
Dichlorobenzene	25321-22-6	1.2E-03	3.66E-05	1.14E-06	1.60E-04
Fluoranthene	206-44-0	3.0E-06	9.14E-08	2.86E-09	4.00E-07
Fluorene	86-73-7	2.8E-06	8.53E-08	2.67E-09	3.74E-07
Formaldehyde	50-00-0	7.5E-02	2.29E-03	7.14E-05	1.00E-02
Hexane	110-54-3	1.80	5.49E-02	1.71E-03	2.40E-01
Indeno(1,2,3-cd)pyrene	193-39-5	1.8E-06	5.49E-08	1.71E-09	2.40E-07

Potential Emissions From Natural Gas-Fired Curing Ovens A and B ⁽¹⁾

<i>Naphthalene</i>	91-20-3	6.1E-04	1.86E-05	5.81E-07	8.14E-05
<i>Phenanthrene</i>	85-01-8	1.7E-05	5.18E-07	1.62E-08	2.27E-06
<i>Pyrene</i>	129-00-0	5.0E-06	1.52E-07	4.76E-09	6.67E-07
<i>Toluene</i>	108-88-3	3.4E-03	1.04E-04	3.24E-06	4.54E-04
<i>Arsenic</i>	7440-38-2	2.0E-04	6.10E-06	1.90E-07	2.67E-05
<i>Beryllium</i>	7440-41-7	1.2E-05	3.66E-07	1.14E-08	1.60E-06
<i>Cadmium</i>	7440-43-9	1.1E-03	3.35E-05	1.05E-06	1.47E-04
<i>Chromium</i>	7440-47-3	1.4E-03	4.27E-05	1.33E-06	1.87E-04
<i>Cobalt</i>	7440-48-4	8.4E-05	2.56E-06	8.00E-08	1.12E-05
<i>Manganese</i>	7439-96-5	3.8E-04	1.16E-05	3.62E-07	5.07E-05
<i>Mercury</i>	7439-97-6	2.6E-04	7.92E-06	2.48E-07	3.47E-05
<i>Nickel</i>	7440-02-0	2.1E-03	6.40E-05	2.00E-06	2.80E-04
<i>Selenium</i>	7782-49-2	2.4E-05	7.31E-07	2.29E-08	3.20E-06

Notes:

- (1) Emissions from paint booth curing ovens include combustion-related emissions only since evaporative emissions from the paints are fully accounted for in the material balance calculations, based on material usage.
- (2) AP-42 factors from Tables 1.4.2 & Table 1.4-3, unless otherwise noted.
- (3) Emission factor for Ammonia was taken from EPA's FIRE database for SCC code 10100602 (Natural Gas Boilers <100 MMBtu, uncontrolled).
- (4) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.

Potential Emissions From Natural Gas-Fired Recuperative Thermal Oxidizer No. 1

Emission Unit ID: U-PBTH1
 Emission Control: RTO_1
 Description: Recuperative thermal oxidizer (RTO) with 95% minimum overall VOC destruction efficiency.
 Location: Building C
 Maximum Heat Input: 3,730,000 Btu/hr
 3.73 MMBtu/hr
 Fuel Type: Natural Gas
 HHV Natural Gas: 1,050 Btu/scf
 Hourly Fuel Consumption: 3,552 scf/hr
 Annual Operation: 8,760 hrs/yr
 Annual Fuel Cap: 31.1 MMscf/yr

Pollutant Name	Pollutant CAS No.	AP-42 Factors (lb/MMscf) ^{(1), (2)}	Emission Rate (lb/hr)	Emission Rate (lb/MMBtu)	Annual Emissions (tpy)
NO _x	NY210-00-0	100	0.36	0.095	1.56
CO	630-08-0	84	2.98E-01	0.080	1.31
PM ₁₀	NY075-00-5	7.6	2.70E-02	7.24E-03	1.18E-01
PM _{2.5}	NY750-02-5	7.6	2.70E-02	7.24E-03	1.18E-01
SO ₂	7446-09-5	0.6	2.13E-03	5.71E-04	9.34E-03
VOC	NY998-00-0	5.5	1.95E-02	5.24E-03	8.56E-02
Pb	7439-92-1	0.0005	1.78E-06	4.76E-07	7.78E-06
CO ₂	124-38-9	120,000	426	114	1,867
N ₂ O	10024-97-2	0.64	2.27E-03	6.10E-04	9.96E-03
CH ₄	74-82-8	2.30	8.17E-03	2.19E-03	3.58E-02
CO ₂ e ⁽³⁾	NY750-00-0	120,247	427	115	1,871
NH ₃	7664-41-7	3.2	1.14E-02	3.05E-03	4.98E-02
Total HAPs	NY100-00-0	1.89	6.71E-03	1.80E-03	2.94E-02
<i>2-Methylnaphthalene</i>	91-57-6	2.4E-05	8.53E-08	2.29E-08	3.73E-07
<i>3-Methylchloranthrene</i>	56-49-5	1.8E-06	6.39E-09	1.71E-09	2.80E-08
<i>7,12-Dimethylbenz(a)anthracene</i>	57-97-6	1.6E-05	5.68E-08	1.52E-08	2.49E-07
<i>Acenaphthene</i>	83-32-9	1.8E-06	6.39E-09	1.71E-09	2.80E-08
<i>Acenaphthylene</i>	203-96-8	1.8E-06	6.39E-09	1.71E-09	2.80E-08
<i>Anthracene</i>	120-12-7	2.4E-06	8.53E-09	2.29E-09	3.73E-08
<i>Benz(a)anthracene</i>	56-55-3	1.8E-06	6.39E-09	1.71E-09	2.80E-08
<i>Benzene</i>	71-43-2	2.1E-03	7.46E-06	2.00E-06	3.27E-05
<i>Benzo(a)pyrene</i>	50-32-8	1.2E-06	4.26E-09	1.14E-09	1.87E-08
<i>Benzo(b)fluoranthene</i>	205-99-2	1.8E-06	6.39E-09	1.71E-09	2.80E-08
<i>Benzo(g,h,i)perylene</i>	191-24-2	1.2E-06	4.26E-09	1.14E-09	1.87E-08
<i>Benzo(k)fluoranthene</i>	205-82-3	1.8E-06	6.39E-09	1.71E-09	2.80E-08
<i>Chrysene</i>	218-01-9	1.8E-06	6.39E-09	1.71E-09	2.80E-08
<i>Dibenzo(a,h)anthracene</i>	53-70-3	1.2E-06	4.26E-09	1.14E-09	1.87E-08
<i>Dichlorobenzene</i>	25321-22-6	1.2E-03	4.26E-06	1.14E-06	1.87E-05
<i>Fluoranthene</i>	206-44-0	3.0E-06	1.07E-08	2.86E-09	4.67E-08
<i>Fluorene</i>	86-73-7	2.8E-06	9.95E-09	2.67E-09	4.36E-08
<i>Formaldehyde</i>	50-00-0	7.5E-02	2.66E-04	7.14E-05	1.17E-03
<i>Hexane</i>	110-54-3	1.80	6.39E-03	1.71E-03	2.80E-02
<i>Indeno(1,2,3-cd)pyrene</i>	193-39-5	1.8E-06	6.39E-09	1.71E-09	2.80E-08

Potential Emissions From Natural Gas-Fired Recuperative Thermal Oxidizer No. 1

<i>Naphthalene</i>	91-20-3	6.1E-04	2.17E-06	5.81E-07	9.49E-06
<i>Phenanthrene</i>	85-01-8	1.7E-05	6.04E-08	1.62E-08	2.65E-07
<i>Pyrene</i>	129-00-0	5.0E-06	1.78E-08	4.76E-09	7.78E-08
<i>Toluene</i>	108-88-3	3.4E-03	1.21E-05	3.24E-06	5.29E-05
<i>Arsenic</i>	7440-38-2	2.0E-04	7.10E-07	1.90E-07	3.11E-06
<i>Beryllium</i>	7440-41-7	1.2E-05	4.26E-08	1.14E-08	1.87E-07
<i>Cadmium</i>	7440-43-9	1.1E-03	3.91E-06	1.05E-06	1.71E-05
<i>Chromium</i>	7440-47-3	1.4E-03	4.97E-06	1.33E-06	2.18E-05
<i>Cobalt</i>	7440-48-4	8.4E-05	2.98E-07	8.00E-08	1.31E-06
<i>Manganese</i>	7439-96-5	3.8E-04	1.35E-06	3.62E-07	5.91E-06
<i>Mercury</i>	7439-97-6	2.6E-04	9.24E-07	2.48E-07	4.05E-06
<i>Nickel</i>	7440-02-0	2.1E-03	7.46E-06	2.00E-06	3.27E-05
<i>Selenium</i>	7782-49-2	2.4E-05	8.53E-08	2.29E-08	3.73E-07

Notes:

(1) AP-42 factors from Tables 1.4.2 & Table 1.4-3, unless otherwise noted.

(2) Emission factor for Ammonia was taken from EPA's FIRE database for SCC code 10100602 (Natural Gas Boilers <100 MMBtu, uncontrolled).

(3) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.

Potential Emissions From Natural Gas-Fired Curing Ovens C and D

Emission Unit ID: U-PBTH2
 Emission Source: OVEN_C, OVEN_D
 Description: Two (2) identical curing ovens firing natural gas with design maximum heat input ratings equal to 16 million British thermal units per hour each.
 Location: Building C
 Maximum Heat Input (Combined): 32,000,000 Btu/hr
 32.0 MMBtu/hr
 Fuel Type: Natural Gas
 HHV Natural Gas: 1,050 Btu/scf
 Hourly Fuel Consumption: 30,476 scf/hr
 Annual Operation: 8,760 hrs/yr
 Annual Fuel Cap: 267.0 MMscf/yr

Pollutant Name	Pollutant CAS No.	AP-42 Factors (lb/MMscf) ^{(1), (2)}	Emission Rate (lb/hr)	Emission Rate (lb/MMBtu)	Annual Emissions (tpy)
NO _x	NY210-00-0	100	3.05	0.095	13.3
CO	630-08-0	84	2.56E+00	0.080	11.2
PM ₁₀	NY075-00-5	7.6	2.32E-01	7.24E-03	1.01E+00
PM _{2.5}	NY750-02-5	7.6	2.32E-01	7.24E-03	1.01E+00
SO ₂	7446-09-5	0.6	1.83E-02	5.71E-04	8.01E-02
VOC	NY998-00-0	5.5	1.68E-01	5.24E-03	7.34E-01
Pb	7439-92-1	0.0005	1.52E-05	4.76E-07	6.67E-05
CO ₂	124-38-9	120,000	3,657	114	16,018
N ₂ O	10024-97-2	0.64	1.95E-02	6.10E-04	8.54E-02
CH ₄	74-82-8	2.30	7.01E-02	2.19E-03	3.07E-01
CO ₂ e ⁽³⁾	NY750-00-0	120,247	3,665	115	16,051
NH ₃	7664-41-7	3.2	9.75E-02	3.05E-03	4.27E-01
Total HAPs	NY100-00-0	1.89	5.75E-02	1.80E-03	2.52E-01
<i>2-Methylnaphthalene</i>	91-57-6	2.4E-05	7.31E-07	2.29E-08	3.20E-06
<i>3-Methylchloranthrene</i>	56-49-5	1.8E-06	5.49E-08	1.71E-09	2.40E-07
<i>7,12-Dimethylbenz(a)anthracene</i>	57-97-6	1.6E-05	4.88E-07	1.52E-08	2.14E-06
<i>Acenaphthene</i>	83-32-9	1.8E-06	5.49E-08	1.71E-09	2.40E-07
<i>Acenaphthylene</i>	203-96-8	1.8E-06	5.49E-08	1.71E-09	2.40E-07
<i>Anthracene</i>	120-12-7	2.4E-06	7.31E-08	2.29E-09	3.20E-07
<i>Benz(a)anthracene</i>	56-55-3	1.8E-06	5.49E-08	1.71E-09	2.40E-07
<i>Benzene</i>	71-43-2	2.1E-03	6.40E-05	2.00E-06	2.80E-04
<i>Benzo(a)pyrene</i>	50-32-8	1.2E-06	3.66E-08	1.14E-09	1.60E-07
<i>Benzo(b)fluoranthene</i>	205-99-2	1.8E-06	5.49E-08	1.71E-09	2.40E-07
<i>Benzo(g,h,i)perylene</i>	191-24-2	1.2E-06	3.66E-08	1.14E-09	1.60E-07
<i>Benzo(k)fluoranthene</i>	205-82-3	1.8E-06	5.49E-08	1.71E-09	2.40E-07
<i>Chrysene</i>	218-01-9	1.8E-06	5.49E-08	1.71E-09	2.40E-07
<i>Dibenzo(a,h)anthracene</i>	53-70-3	1.2E-06	3.66E-08	1.14E-09	1.60E-07
<i>Dichlorobenzene</i>	25321-22-6	1.2E-03	3.66E-05	1.14E-06	1.60E-04
<i>Fluoranthene</i>	206-44-0	3.0E-06	9.14E-08	2.86E-09	4.00E-07
<i>Fluorene</i>	86-73-7	2.8E-06	8.53E-08	2.67E-09	3.74E-07
<i>Formaldehyde</i>	50-00-0	7.5E-02	2.29E-03	7.14E-05	1.00E-02
<i>Hexane</i>	110-54-3	1.80	5.49E-02	1.71E-03	2.40E-01
<i>Indeno(1,2,3-cd)pyrene</i>	193-39-5	1.8E-06	5.49E-08	1.71E-09	2.40E-07

Potential Emissions From Natural Gas-Fired Curing Ovens C and D

<i>Naphthalene</i>	91-20-3	6.1E-04	1.86E-05	5.81E-07	8.14E-05
<i>Phenanthrene</i>	85-01-8	1.7E-05	5.18E-07	1.62E-08	2.27E-06
<i>Pyrene</i>	129-00-0	5.0E-06	1.52E-07	4.76E-09	6.67E-07
<i>Toluene</i>	108-88-3	3.4E-03	1.04E-04	3.24E-06	4.54E-04
<i>Arsenic</i>	7440-38-2	2.0E-04	6.10E-06	1.90E-07	2.67E-05
<i>Beryllium</i>	7440-41-7	1.2E-05	3.66E-07	1.14E-08	1.60E-06
<i>Cadmium</i>	7440-43-9	1.1E-03	3.35E-05	1.05E-06	1.47E-04
<i>Chromium</i>	7440-47-3	1.4E-03	4.27E-05	1.33E-06	1.87E-04
<i>Cobalt</i>	7440-48-4	8.4E-05	2.56E-06	8.00E-08	1.12E-05
<i>Manganese</i>	7439-96-5	3.8E-04	1.16E-05	3.62E-07	5.07E-05
<i>Mercury</i>	7439-97-6	2.6E-04	7.92E-06	2.48E-07	3.47E-05
<i>Nickel</i>	7440-02-0	2.1E-03	6.40E-05	2.00E-06	2.80E-04
<i>Selenium</i>	7782-49-2	2.4E-05	7.31E-07	2.29E-08	3.20E-06

Notes:

(1) AP-42 factors from Tables 1.4.2 & Table 1.4-3, unless otherwise noted.

(2) Emission factor for Ammonia was taken from EPA's FIRE database for SCC code 10100602 (Natural Gas Boilers <100 MMBtu, uncontrolled).

(3) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.

Potential Emissions From Natural Gas-Fired Recuperative Thermal Oxidizer No. 2

Emission Unit ID: U-PBTH2
 Emission Control: RTO_2
 Description: Recuperative thermal oxidizer (RTO) with 95% minimum overall VOC destruction efficiency.
 Location: Building C
 Maximum Combined Heat Input: 3,730,000 Btu/hr
 3.7 MMBtu/hr
 Fuel Type: Natural Gas
 HHV Natural Gas: 1,050 Btu/scf
 Hourly Fuel Consumption: 3,552 scf/hr
 Annual Operation: 8,760 hrs/yr
 Annual Fuel Cap: 31.1 MMscf/yr

Pollutant Name	Pollutant CAS No.	AP-42 Factors (lb/MMscf) ^{(1), (2)}	Emission Rate (lb/hr)	Emission Rate (lb/MMBtu)	Annual Emissions (tpy)
NO _x	NY210-00-0	100	0.36	0.095	1.56
CO	630-08-0	84	2.98E-01	0.080	1.31
PM ₁₀	NY075-00-5	7.6	2.70E-02	7.24E-03	1.18E-01
PM _{2.5}	NY750-02-5	7.6	2.70E-02	7.24E-03	1.18E-01
SO ₂	7446-09-5	0.6	2.13E-03	5.71E-04	9.34E-03
VOC	NY998-00-0	5.5	1.95E-02	5.24E-03	8.56E-02
Pb	7439-92-1	0.0005	1.78E-06	4.76E-07	7.78E-06
CO ₂	124-38-9	120,000	426	114	1,867
N ₂ O	10024-97-2	0.64	2.27E-03	6.10E-04	9.96E-03
CH ₄	74-82-8	2.30	8.17E-03	2.19E-03	3.58E-02
CO ₂ e ⁽³⁾	NY750-00-0	120,247	427	115	1,871
NH ₃	7664-41-7	3.2	1.14E-02	3.05E-03	4.98E-02
Total HAPs	NY100-00-0	1.89	6.71E-03	1.80E-03	2.94E-02
2-Methylnaphthalene	91-57-6	2.4E-05	8.53E-08	2.29E-08	3.73E-07
3-Methylchloranthrene	56-49-5	1.8E-06	6.39E-09	1.71E-09	2.80E-08
7,12-Dimethylbenz(a)anthracene	57-97-6	1.6E-05	5.68E-08	1.52E-08	2.49E-07
Acenaphthene	83-32-9	1.8E-06	6.39E-09	1.71E-09	2.80E-08
Acenaphthylene	203-96-8	1.8E-06	6.39E-09	1.71E-09	2.80E-08
Anthracene	120-12-7	2.4E-06	8.53E-09	2.29E-09	3.73E-08
Benz(a)anthracene	56-55-3	1.8E-06	6.39E-09	1.71E-09	2.80E-08
Benzene	71-43-2	2.1E-03	7.46E-06	2.00E-06	3.27E-05
Benzo(a)pyrene	50-32-8	1.2E-06	4.26E-09	1.14E-09	1.87E-08
Benzo(b)fluoranthene	205-99-2	1.8E-06	6.39E-09	1.71E-09	2.80E-08
Benzo(g,h,i)perylene	191-24-2	1.2E-06	4.26E-09	1.14E-09	1.87E-08
Benzo(k)fluoranthene	205-82-3	1.8E-06	6.39E-09	1.71E-09	2.80E-08
Chrysene	218-01-9	1.8E-06	6.39E-09	1.71E-09	2.80E-08
Dibenzo(a,h)anthracene	53-70-3	1.2E-06	4.26E-09	1.14E-09	1.87E-08
Dichlorobenzene	25321-22-6	1.2E-03	4.26E-06	1.14E-06	1.87E-05
Fluoranthene	206-44-0	3.0E-06	1.07E-08	2.86E-09	4.67E-08
Fluorene	86-73-7	2.8E-06	9.95E-09	2.67E-09	4.36E-08
Formaldehyde	50-00-0	7.5E-02	2.66E-04	7.14E-05	1.17E-03
Hexane	110-54-3	1.80	6.39E-03	1.71E-03	2.80E-02
Indeno(1,2,3-cd)pyrene	193-39-5	1.8E-06	6.39E-09	1.71E-09	2.80E-08

Potential Emissions From Natural Gas-Fired Recuperative Thermal Oxidizer No. 2

<i>Naphthalene</i>	91-20-3	6.1E-04	2.17E-06	5.81E-07	9.49E-06
<i>Phenanthrene</i>	85-01-8	1.7E-05	6.04E-08	1.62E-08	2.65E-07
<i>Pyrene</i>	129-00-0	5.0E-06	1.78E-08	4.76E-09	7.78E-08
<i>Toluene</i>	108-88-3	3.4E-03	1.21E-05	3.24E-06	5.29E-05
<i>Arsenic</i>	7440-38-2	2.0E-04	7.10E-07	1.90E-07	3.11E-06
<i>Beryllium</i>	7440-41-7	1.2E-05	4.26E-08	1.14E-08	1.87E-07
<i>Cadmium</i>	7440-43-9	1.1E-03	3.91E-06	1.05E-06	1.71E-05
<i>Chromium</i>	7440-47-3	1.4E-03	4.97E-06	1.33E-06	2.18E-05
<i>Cobalt</i>	7440-48-4	8.4E-05	2.98E-07	8.00E-08	1.31E-06
<i>Manganese</i>	7439-96-5	3.8E-04	1.35E-06	3.62E-07	5.91E-06
<i>Mercury</i>	7439-97-6	2.6E-04	9.24E-07	2.48E-07	4.05E-06
<i>Nickel</i>	7440-02-0	2.1E-03	7.46E-06	2.00E-06	3.27E-05
<i>Selenium</i>	7782-49-2	2.4E-05	8.53E-08	2.29E-08	3.73E-07

Notes:

(1) AP-42 factors from Tables 1.4.2 & Table 1.4-3, unless otherwise noted.

(2) Emission factor for Ammonia was taken from EPA's FIRE database for SCC code 10100602 (Natural Gas Boilers <100 MMBtu, uncontrolled).

(3) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.

Potential Emissions From Paint Booth Air Makeup Units ⁽¹⁾

Emission Unit ID: U-AMU01, U-AMU02 ⁽¹⁾
 Emission Source: BTH1_AMU, BTH2_AMU ⁽¹⁾
 Description: Two (2) natural gas-fired air makeup units (AMUs) connected to Paint Booth Nos. 1 and 2. The AMU serving the large paint spray booth has a design maximum heat input rating equal to 12.18 mmBtu/hr. The AMU serving the small paint spray booth has a design maximum heat input rating
 Location: Building C
 Maximum Combined Heat Input: 20,790,000 Btu/hr
 20.8 MMBtu/hr
 Fuel Type: Natural Gas
 HHV Natural Gas: 1,050 Btu/scf
 Hourly Fuel Consumption: 19,800 scf/hr
 Annual Operation: 8,760 hrs/yr
 Annual Fuel Cap: 173 MMscf/yr

Pollutant Name	Pollutant CAS No.	AP-42 Factors (lb/MMscf) ⁽²⁾	Emission Rate (lb/hr)	Emission Rate (lb/MMBtu)	Annual Emissions (tpy)
NO _x	NY210-00-0	100	1.98	9.52E-02	8.67
CO	630-08-0	84	1.66	8.00E-02	7.28
PM ₁₀	NY075-00-5	7.6	0.150	7.24E-03	0.659
PM _{2.5}	NY750-02-5	7.6	0.150	7.24E-03	0.659
SO ₂	7446-09-5	0.6	1.19E-02	5.71E-04	5.20E-02
VOC	NY998-00-0	5.5	0.109	5.24E-03	0.477
Pb	7439-92-1	0.0005	9.90E-06	4.76E-07	4.34E-05
CO ₂	124-38-9	120,000	2,376	114	10,407
N ₂ O	10024-97-2	0.64	1.27E-02	6.10E-04	5.55E-02
CH ₄	74-82-8	2.30	4.55E-02	2.19E-03	0.199
CO ₂ e ⁽³⁾	NY750-00-0	120,247	2,381	115	10,428
NH ₃	7664-41-7	3.2	6.34E-02	3.05E-03	0.278
Total HAPs	NY100-00-0	1.89	3.74E-02	1.80E-03	0.164

Notes:

(1) Stationary combustion installations with maximum rated heat input capacities less than 10 million British thermal units per hour (mmBtu/hr) firing natural gas are exempt from air permitting pursuant to 6 NYCRR 201-3.2(c)(1)(i). Since the AMU serving the small paint spray booth is less than 10 mmBtu/hr, it is exempt from air permitting and details are not included in the NYSDEC Air State Facility Permit Application.

(2) AP-42 factors from Tables 1.4.2 & Table 1.4-3, unless otherwise noted.

(3) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.

(4) Emission factor for Ammonia was taken from EPA's FIRE database for SCC code 10100602 (Natural Gas Boilers <100 MMBtu, uncontrolled).

Site-wide Inventory of Exempt Boilers, Space Heaters, Roof Top Units ⁽¹⁾

Building A

Gas-Fired Unit Heaters				
Unit ID	Location/Department	Make/Model	Fuel Type	Design Heat Input (MMBtu/hr)
MAU-1A	WELDING A010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-2A	WELDING A010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-3A	WELDING A010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-4A	WELDING A010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-5A	WELDING A010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-6A	WELDING A010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-7A	VEHICLE MAINT.	CAMBRIDGE S400	Natural Gas	0.400

Boiler(s)				
Unit ID	Location/Department	Make/Model	Fuel Type	Design Heat Input (MMBtu/hr)
B-1A	TBD	VIESMANN CM2-186	Natural Gas	0.663

Roof Top Units				
Unit ID	Location/Department	Make/Model	Fuel Type	Design Heat Input (MMBtu/hr)
RTU-1A	ANNEX A ROOF	TBD	Natural Gas	0.400
RTU-2A	ANNEX A ROOF	TBD	Natural Gas	0.400

Building B

Gas-Fired Unit Heaters				
Unit ID	Location/Department	Make/Model	Fuel Type	Design Heat Input (MMBtu/hr)
MAU-1B	WELDING B010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-2B	WELDING B010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-3B	WELDING B010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-4B	WELDING B010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-5B	WELDING B010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-6B	WELDING B010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-7B	WELDING B010	CAMBRIDGE S3200	Natural Gas	2.554
MAU-8B	WELDING B010	CAMBRIDGE S3200	Natural Gas	2.554

Boiler(s)				
Unit ID	Location/Department	Make/Model	Fuel Type	Design Heat Input (MMBtu/hr)
B-1B	TBD	VIESMANN CM2-186	Natural Gas	0.663

Roof Top Units				
Unit ID	Location/Department	Make/Model	Fuel Type	Design Heat Input (MMBtu/hr)
RTU-1B	ANNEX B ROOF	YHC120F4RHA	Natural Gas	0.250
RTU-2B	ANNEX B ROOF	YHC067E4RHA	Natural Gas	0.130

Site-wide Inventory of Exempt Boilers, Space Heaters, Roof Top Units ⁽¹⁾

Building C

Gas-Fired Unit Heaters				
Unit ID	Location/Department	Make/Model	Fuel Type	Design Heat Input (MMBtu/hr)
MAU-1C	C010	CAMBRIDGE S1850	Natural Gas	1.757
MAU-2C	C010	CAMBRIDGE S1850	Natural Gas	1.757

Boiler(s)				
Unit ID	Location/Department	Make/Model	Fuel Type	Design Heat Input (MMBtu/hr)
B-1C	TBD	VIESMANN CM2-186	Natural Gas	0.663

Roof Top Unit(s)				
Unit ID	Location/Department	Make/Model	Fuel Type	Design Heat Input (MMBtu/hr)
RTU-1C	ANNEX C ROOF	YHD150G4RHD	Natural Gas	0.250

Building D

Gas-Fired Unit Heater(s)				
Unit ID	Location/Department	Make/Model	Fuel Type	Design Heat Input (MMBtu/hr)
MAU-1D	D010	CAMBRIDGE S1850	Natural Gas	1.757

Boiler(s)				
Unit ID	Location/Department	Make/Model	Fuel Type	Design Heat Input (MMBtu/hr)
B-1D	TBD	VIESMANN CM2-186	Natural Gas	0.663

Roof Top Unit(s)				
Unit ID	Location/Department	Make/Model	Fuel Type	Design Heat Input (MMBtu/hr)
RTU-1D	ANNEX D ROOF	TBD	Natural Gas	0.200

Potential Emissions From Comfort Heating and Cooling Equipment (Exempt) ⁽¹⁾

Maximum Combined Heat Input:	45,709,000 Btu/hr 45.7 MMBtu/hr
Fuel Type:	Natural Gas
HHV Natural Gas:	1,050 Btu/scf
Hourly Fuel Consumption:	43,532 scf/hr
Annual Operation:	8,760 hrs/yr
Annual Fuel Cap:	381 MMscf/yr

Pollutant Name	Pollutant CAS No.	AP-42 Factors (lb/MMscf) ⁽²⁾	Emission Rate (lb/hr)	Emission Rate (lb/MMBtu)	Annual Emissions (tpy)
NO _x	NY210-00-0	100	4.35	9.52E-02	19.1
CO	630-08-0	84	3.66	8.00E-02	16.0
PM ₁₀	NY075-00-5	7.6	0.331	7.24E-03	1.45
PM _{2.5}	NY750-02-5	7.6	0.331	7.24E-03	1.45
SO ₂	7446-09-5	0.6	2.61E-02	5.71E-04	0.114
VOC	NY998-00-0	5.5	0.239	5.24E-03	1.05
Pb	7439-92-1	0.0005	2.18E-05	4.76E-07	9.53E-05
CO ₂	124-38-9	120,000	5,224	114	22,881
N ₂ O	10024-97-2	0.64	2.79E-02	6.10E-04	0.122
CH ₄	74-82-8	2.30	0.100	2.19E-03	0.439
CO ₂ e ⁽³⁾	NY750-00-0	120,247	5,235	115	22,928
NH ₃ ⁽⁴⁾	7664-41-7	3.2	0.139	3.05E-03	0.610
Total HAPs	NY100-00-0	1.89	8.22E-02	1.80E-03	0.360
2-Methylnaphthalene	91-57-6	2.4E-05	1.04E-06	2.29E-08	4.58E-06
3-Methylchloranthrene	56-49-5	1.8E-06	7.84E-08	1.71E-09	3.43E-07
7,12-Dimethylbenz(a)anthracene	57-97-6	1.6E-05	6.97E-07	1.52E-08	3.05E-06
Acenaphthene	83-32-9	1.8E-06	7.84E-08	1.71E-09	3.43E-07
Acenaphthylene	203-96-8	1.8E-06	7.84E-08	1.71E-09	3.43E-07
Anthracene	120-12-7	2.4E-06	1.04E-07	2.29E-09	4.58E-07
Benz(a)anthracene	56-55-3	1.8E-06	7.84E-08	1.71E-09	3.43E-07
Benzene	71-43-2	2.1E-03	9.14E-05	2.00E-06	4.00E-04
Benzo(a)pyrene	50-32-8	1.2E-06	5.22E-08	1.14E-09	2.29E-07
Benzo(b)fluoranthene	205-99-2	1.8E-06	7.84E-08	1.71E-09	3.43E-07
Benzo(g,h,i)perylene	191-24-2	1.2E-06	5.22E-08	1.14E-09	2.29E-07
Benzo(k)fluoranthene	205-82-3	1.8E-06	7.84E-08	1.71E-09	3.43E-07
Chrysene	218-01-9	1.8E-06	7.84E-08	1.71E-09	3.43E-07
Dibenzo(a,h)anthracene	53-70-3	1.2E-06	5.22E-08	1.14E-09	2.29E-07
Dichlorobenzene	25321-22-6	1.2E-03	5.22E-05	1.14E-06	2.29E-04
Fluoranthene	206-44-0	3.0E-06	1.31E-07	2.86E-09	5.72E-07
Fluorene	86-73-7	2.8E-06	1.22E-07	2.67E-09	5.34E-07
Formaldehyde	50-00-0	7.5E-02	3.26E-03	7.14E-05	1.43E-02
Hexane	110-54-3	1.80	7.84E-02	1.71E-03	0.343

Potential Emissions From Comfort Heating and Cooling Equipment (Exempt) ⁽¹⁾

<i>Indeno(1,2,3-cd)pyrene</i>	193-39-5	1.8E-06	7.84E-08	1.71E-09	3.43E-07
<i>Naphthalene</i>	91-20-3	6.1E-04	2.66E-05	5.81E-07	1.16E-04
<i>Phenanathrene</i>	85-01-8	1.7E-05	7.40E-07	1.62E-08	3.24E-06
<i>Pyrene</i>	129-00-0	5.0E-06	2.18E-07	4.76E-09	9.53E-07
<i>Toluene</i>	108-88-3	3.4E-03	1.48E-04	3.24E-06	6.48E-04
<i>Arsenic</i>	7440-38-2	2.0E-04	8.71E-06	1.90E-07	3.81E-05
<i>Beryllium</i>	7440-41-7	1.2E-05	5.22E-07	1.14E-08	2.29E-06
<i>Cadmium</i>	7440-43-9	1.1E-03	4.79E-05	1.05E-06	2.10E-04
<i>Chromium</i>	7440-47-3	1.4E-03	6.09E-05	1.33E-06	2.67E-04
<i>Cobalt</i>	7440-48-4	8.4E-05	3.66E-06	8.00E-08	1.60E-05
<i>Manganese</i>	7439-96-5	3.8E-04	1.65E-05	3.62E-07	7.25E-05
<i>Mercury</i>	7439-97-6	2.6E-04	1.13E-05	2.48E-07	4.96E-05
<i>Nickel</i>	7440-02-0	2.1E-03	9.14E-05	2.00E-06	4.00E-04
<i>Selenium</i>	7782-49-2	2.4E-05	1.04E-06	2.29E-08	4.58E-06

Notes:

- (1) Stationary combustion installations with maximum rated heat input capacities less than 10 million British thermal units per hour firing natural gas are exempt from air permitting pursuant to 6 NYCRR 201-3.2(c)(1)(i).
- (2) AP-42 factors from Tables 1.4-2 & Table 1.4-3, unless otherwise noted.
- (3) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.
- (4) Emission factor for Ammonia was taken from EPA's FIRE database for SCC code 10100602 (Natural Gas Boilers <100 MMBtu, uncontrolled).

Potential Emissions From Bldg A Natural Gas-Fired Emergency Generator (Exempt Source) ⁽¹⁾

Generator Make/Model:	Generac, SG/MG130
Engine Maximum Power Output:	228 HP
Genset Maximum Electrical Output:	130 kW
Fuel Type:	Natural Gas
HHV Natural Gas:	1,050 Btu/scf
Maximum Hourly Fuel Consumption:	1,797 scf @ 100% load standby
Maximum Heat Input:	1,886,850 Btu/hr 1.89 MMBtu/hr
Hourly Fuel Consumption:	1,797 scf/hr
Limit on Annual Operation:	500 hrs/yr
Annual Fuel Cap:	0.90 MMscf/yr

Pollutant Name	Pollutant CAS No.	Emission Factors (lb/MMBtu) ⁽²⁾	Engine	Emission Rate (lb/hr)	Emission Rate (lb/MMBtu)	Annual Emissions (tpy)
			Manufacturer Emissions Data (g/bhp-hr) ⁽³⁾			
NO _x	NY210-00-0	N/A	0.10	5.03E-02	2.66E-02	1.26E-02
CO	630-08-0	N/A	0.74	0.372	0.197	9.30E-02
PM ₁₀	NY075-00-5	9.50E-03	--	1.79E-02	9.50E-03	4.48E-03
PM _{2.5}	NY750-02-5	9.50E-03	--	1.79E-02	9.50E-03	4.48E-03
SO ₂	7446-09-5	5.88E-04	--	1.11E-03	5.88E-04	2.77E-04
VOC	NY998-00-0	2.96E-02	--	5.59E-02	2.96E-02	1.40E-02
Pb	7439-92-1	--	--	--	--	--
CO ₂	124-38-9	117	--	221	117	55.2
N ₂ O	10024-97-2	2.21E-04	--	4.16E-04	2.21E-04	1.04E-04
CH ₄	74-82-8	2.21E-03	--	4.16E-03	2.21E-03	1.04E-03
CO ₂ e ⁽⁴⁾	NY750-00-0	117	--	221	117	55.2
Total HAPs	NY100-00-0	3.23E-02	--	6.10E-02	3.23E-02	1.52E-02
	<i>Acenaphthene</i>	83-32-9	--	--	--	--
	<i>Acenaphthylene</i>	203-96-8	--	--	--	--
	<i>Acetaldehyde</i>	75-07-0	2.8E-03	5.26E-03	2.79E-03	1.32E-03
	<i>Acrolein</i>	107-02-8	2.6E-03	4.96E-03	2.63E-03	1.24E-03
	<i>Anthracene</i>	120-12-7	--	--	--	--
	<i>Benz(a)anthracene</i>	56-55-3	--	--	--	--
	<i>Benzene</i>	71-43-2	1.6E-03	2.98E-03	1.58E-03	7.45E-04
	<i>Benzo(a)pyrene</i>	50-32-8	--	--	--	--
	<i>Benzo(b)fluoranthene</i>	205-99-2	--	--	--	--
	<i>Benzo(g,h,i)perylene</i>	191-24-2	--	--	--	--
	<i>Benzo(k)fluoranthene</i>	205-82-3	--	--	--	--
	<i>Biphenyl</i>	92-52-4	--	--	--	--
	<i>1,3-Butadiene</i>	106-99-0	6.6E-04	1.25E-03	6.63E-04	3.13E-04
	<i>Carbon tetrachloride</i>	56-23-5	1.8E-05	3.34E-05	1.77E-05	8.35E-06
	<i>Chlorobenzene</i>	108-90-7	1.3E-05	2.43E-05	1.29E-05	6.09E-06
	<i>Chloroethane</i>	75-00-3	--	--	--	--
	<i>Chloroform</i>	67-66-3	1.4E-05	2.58E-05	1.37E-05	6.46E-06
	<i>Chrysene</i>	218-01-9	--	--	--	--
	<i>1,2-Dibromomethane</i>	106-93-4	2.13E-05	4.02E-05	2.13E-05	1.00E-05
	<i>1,1-Dichloroethane</i>	75-34-3	1.13E-05	2.13E-05	1.13E-05	5.33E-06
	<i>1,2-Dichloroethane</i>	107-06-2	1.13E-05	2.13E-05	1.13E-05	5.33E-06

<i>Dichloromethane</i>	75-09-2	4.12E-05	--	7.77E-05	4.12E-05	1.94E-05
<i>1,2-Dichloropropane</i>	78-87-5	1.30E-05	--	2.45E-05	1.30E-05	6.13E-06
<i>1,3-Dichloropropene</i>	542-75-6	1.27E-05	--	2.40E-05	1.27E-05	5.99E-06
<i>Ethylbenzene</i>	100-41-4	2.48E-05	--	4.68E-05	2.48E-05	1.17E-05
<i>Fluoranthene</i>	206-44-0	--	--	--	--	--
<i>Fluorene</i>	86-73-7	--	--	--	--	--
<i>Formaldehyde</i>	50-00-0	2.1E-02	--	3.87E-02	2.05E-02	9.67E-03
<i>Hexane</i>	110-54-3	--	--	--	--	--
<i>Indeno(1,2,3-cd)pyrene</i>	193-39-5	--	--	--	--	--
<i>Methanol</i>	67-56-1	3.1E-03	--	5.77E-03	3.06E-03	1.44E-03
<i>Naphthalene</i>	91-20-3	9.7E-05	--	1.83E-04	9.71E-05	4.58E-05
<i>Phenanathrene</i>	85-01-8	--	--	--	--	--
<i>Phenol</i>	108-95-2	--	--	--	--	--
<i>Pyrene</i>	129-00-0	--	--	--	--	--
<i>Styrene</i>	100-42-5	1.2E-05	--	2.25E-05	1.19E-05	5.61E-06
<i>1,1,2,2,-Tetrachloroethane</i>	79-34-5	2.5E-05	--	4.77E-05	2.53E-05	1.19E-05
<i>Toluene</i>	108-88-3	5.6E-04	--	1.05E-03	5.58E-04	2.63E-04
<i>1,1,2-Trichloroethane</i>	79-00-5	1.5E-05	--	2.89E-05	1.53E-05	7.22E-06
<i>2,2,4-Trimethylpentane</i>	540-84-1	--	--	--	--	--
<i>Vinyl chloride</i>	75-01-4	7.2E-06	--	1.35E-05	7.18E-06	3.39E-06
<i>Xylenes</i>	1330-20-7	2.0E-04	--	3.68E-04	1.95E-04	9.20E-05

Notes:

- (1) Exempt from air permitting, pursuant to 6 NYCRR 201-3.2(c)(6).
- (2) AP-42 factors from Tables 1.4.2 & Table 1.4-3, unless otherwise noted.
- (3) Generac Model SG/MG130 technical data sheet.
- (4) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.

Potential Emissions From Bldg B Natural Gas-Fired Emergency Generator (Exempt Source) ⁽¹⁾

Generator Make/Model:	Generac, SG050NA
Engine Maximum Power Output:	75 HP
Genset Maximum Electrical Output:	50 kW
Fuel Type:	Natural Gas
HHV Natural Gas:	1,050 Btu/scf
Maximum Hourly Fuel Consumption:	621 scf @ 100% load standby
Maximum Heat Input:	652,050 Btu/hr 0.65 MMBtu/hr
Hourly Fuel Consumption:	621 scf/hr
Limit on Annual Operation:	500 hrs/yr
Annual Fuel Cap:	0.31 MMscf/yr

Pollutant Name	Pollutant CAS No.	Emission Factors (lb/MMBtu) ⁽²⁾	Engine	Emission Rate (lb/hr)	Emission Rate (lb/MMBtu)	Annual Emissions (tpy)
			Manufacturer Emissions Data (g/bhp-hr) ⁽³⁾			
NO _x	NY210-00-0	N/A	4.48	0.741	1.14	0.185
CO	630-08-0	N/A	35.10	5.80	8.90	1.45E+00
PM ₁₀	NY075-00-5	9.50E-03	--	6.19E-03	9.50E-03	1.55E-03
PM _{2.5}	NY750-02-5	9.50E-03	--	6.19E-03	9.50E-03	1.55E-03
SO ₂	7446-09-5	5.88E-04	--	3.83E-04	5.88E-04	9.59E-05
VOC	NY998-00-0	2.96E-02	--	1.93E-02	2.96E-02	4.83E-03
Pb	7439-92-1	--	--	--	--	--
CO ₂	124-38-9	117	--	76.3	117	19.1
N ₂ O	10024-97-2	2.21E-04	--	1.44E-04	2.21E-04	3.59E-05
CH ₄	74-82-8	2.21E-03	--	1.44E-03	2.21E-03	3.59E-04
CO ₂ e ⁽⁴⁾	NY750-00-0	117	--	76.4	117	19.1
Total HAPs	NY100-00-0	3.23E-02	--	2.11E-02	3.23E-02	5.27E-03
	<i>Acenaphthene</i>	83-32-9	--	--	--	--
	<i>Acenaphthylene</i>	203-96-8	--	--	--	--
	<i>Acetaldehyde</i>	75-07-0	2.8E-03	1.82E-03	2.79E-03	4.55E-04
	<i>Acrolein</i>	107-02-8	2.6E-03	1.71E-03	2.63E-03	4.29E-04
	<i>Anthracene</i>	120-12-7	--	--	--	--
	<i>Benz(a)anthracene</i>	56-55-3	--	--	--	--
	<i>Benzene</i>	71-43-2	1.6E-03	1.03E-03	1.58E-03	2.58E-04
	<i>Benzo(a)pyrene</i>	50-32-8	--	--	--	--
	<i>Benzo(b)fluoranthene</i>	205-99-2	--	--	--	--
	<i>Benzo(g,h,i)perylene</i>	191-24-2	--	--	--	--
	<i>Benzo(k)fluoranthene</i>	205-82-3	--	--	--	--
	<i>Biphenyl</i>	92-52-4	--	--	--	--
	<i>1,3-Butadiene</i>	106-99-0	6.6E-04	4.32E-04	6.63E-04	1.08E-04
	<i>Carbon tetrachloride</i>	56-23-5	1.8E-05	1.15E-05	1.77E-05	2.89E-06
	<i>Chlorobenzene</i>	108-90-7	1.3E-05	8.41E-06	1.29E-05	2.10E-06
	<i>Chloroethane</i>	75-00-3	--	--	--	--
	<i>Chloroform</i>	67-66-3	1.4E-05	8.93E-06	1.37E-05	2.23E-06
	<i>Chrysene</i>	218-01-9	--	--	--	--
	<i>1,2-Dibromomethane</i>	106-93-4	2.13E-05	1.39E-05	2.13E-05	3.47E-06
	<i>1,1-Dichloroethane</i>	75-34-3	1.13E-05	7.37E-06	1.13E-05	1.84E-06
	<i>1,2-Dichloroethane</i>	107-06-2	1.13E-05	7.37E-06	1.13E-05	1.84E-06

<i>Dichloromethane</i>	75-09-2	4.12E-05	--	2.69E-05	4.12E-05	6.72E-06
<i>1,2-Dichloropropane</i>	78-87-5	1.30E-05	--	8.48E-06	1.30E-05	2.12E-06
<i>1,3-Dichloropropene</i>	542-75-6	1.27E-05	--	8.28E-06	1.27E-05	2.07E-06
<i>Ethylbenzene</i>	100-41-4	2.48E-05	--	1.62E-05	2.48E-05	4.04E-06
<i>Fluoranthene</i>	206-44-0	--	--	--	--	--
<i>Fluorene</i>	86-73-7	--	--	--	--	--
<i>Formaldehyde</i>	50-00-0	2.1E-02	--	1.34E-02	2.05E-02	3.34E-03
<i>Hexane</i>	110-54-3	--	--	--	--	--
<i>Indeno(1,2,3-cd)pyrene</i>	193-39-5	--	--	--	--	--
<i>Methanol</i>	67-56-1	3.1E-03	--	2.00E-03	3.06E-03	4.99E-04
<i>Naphthalene</i>	91-20-3	9.7E-05	--	6.33E-05	9.71E-05	1.58E-05
<i>Phenanathrene</i>	85-01-8	--	--	--	--	--
<i>Phenol</i>	108-95-2	--	--	--	--	--
<i>Pyrene</i>	129-00-0	--	--	--	--	--
<i>Styrene</i>	100-42-5	1.2E-05	--	7.76E-06	1.19E-05	1.94E-06
<i>1,1,2,2,-Tetrachloroethane</i>	79-34-5	2.5E-05	--	1.65E-05	2.53E-05	4.12E-06
<i>Toluene</i>	108-88-3	5.6E-04	--	3.64E-04	5.58E-04	9.10E-05
<i>1,1,2-Trichloroethane</i>	79-00-5	1.5E-05	--	9.98E-06	1.53E-05	2.49E-06
<i>2,2,4-Trimethylpentane</i>	540-84-1	--	--	--	--	--
<i>Vinyl chloride</i>	75-01-4	7.2E-06	--	4.68E-06	7.18E-06	1.17E-06
<i>Xylenes</i>	1330-20-7	2.0E-04	--	1.27E-04	1.95E-04	3.18E-05

Notes:

- (1) Exempt from air permitting, pursuant to 6 NYCRR 201-3.2(c)(6).
- (2) AP-42 factors from Tables 1.4.2 & Table 1.4-3, unless otherwise noted.
- (3) Generac Model SG050NA technical data sheet.
- (4) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.

Potential Emissions From Bldg C Natural Gas-Fired Emergency Generator (Exempt Source) ⁽¹⁾

Generator Make/Model:	Generac, SG050NA
Engine Maximum Power Output:	75 HP
Genset Maximum Electrical Output:	50 kW
Fuel Type:	Natural Gas
HHV Natural Gas:	1,050 Btu/scf
Maximum Hourly Fuel Consumption:	621 scf @ 100% load standby
Maximum Heat Input:	652,050 Btu/hr
	0.65 MMBtu/hr
Hourly Fuel Consumption:	621 scf/hr
Limit on Annual Operation:	500 hrs/yr
Annual Fuel Cap:	0.31 MMscf/yr

Pollutant Name	Pollutant CAS No.	Emission Factors (lb/MMBtu) ⁽²⁾	Engine	Emission Rate (lb/hr)	Emission Rate (lb/MMBtu)	Annual Emissions (tpy)
			Manufacturer Emissions Data (g/bhp-hr) ⁽³⁾			
NO _x	NY210-00-0	N/A	4.48	0.741	1.14	0.185
CO	630-08-0	N/A	35.10	5.80	8.90	1.45
PM ₁₀	NY075-00-5	9.50E-03	--	6.19E-03	9.50E-03	1.55E-03
PM _{2.5}	NY750-02-5	9.50E-03	--	6.19E-03	9.50E-03	1.55E-03
SO ₂	7446-09-5	5.88E-04	--	3.83E-04	5.88E-04	9.59E-05
VOC	NY998-00-0	2.96E-02	--	1.93E-02	2.96E-02	4.83E-03
Pb	7439-92-1	--	--	--	--	--
CO ₂	124-38-9	117	--	76.3	117	19.1
N ₂ O	10024-97-2	2.21E-04	--	1.44E-04	2.21E-04	3.59E-05
CH ₄	74-82-8	2.21E-03	--	1.44E-03	2.21E-03	3.59E-04
CO ₂ e ⁽⁴⁾	NY750-00-0	117	--	76.4	117	19.1
Total HAPs	NY100-00-0	3.23E-02	--	2.11E-02	3.23E-02	5.27E-03
	<i>Acenaphthene</i>	83-32-9	--	--	--	--
	<i>Acenaphthylene</i>	203-96-8	--	--	--	--
	<i>Acetaldehyde</i>	75-07-0	2.8E-03	1.82E-03	2.79E-03	4.55E-04
	<i>Acrolein</i>	107-02-8	2.6E-03	1.71E-03	2.63E-03	4.29E-04
	<i>Anthracene</i>	120-12-7	--	--	--	--
	<i>Benz(a)anthracene</i>	56-55-3	--	--	--	--
	<i>Benzene</i>	71-43-2	1.6E-03	1.03E-03	1.58E-03	2.58E-04
	<i>Benzo(a)pyrene</i>	50-32-8	--	--	--	--
	<i>Benzo(b)fluoranthene</i>	205-99-2	--	--	--	--
	<i>Benzo(g,h,i)perylene</i>	191-24-2	--	--	--	--
	<i>Benzo(k)fluoranthene</i>	205-82-3	--	--	--	--
	<i>Biphenyl</i>	92-52-4	--	--	--	--
	<i>1,3-Butadiene</i>	106-99-0	6.6E-04	4.32E-04	6.63E-04	1.08E-04
	<i>Carbon tetrachloride</i>	56-23-5	1.8E-05	1.15E-05	1.77E-05	2.89E-06
	<i>Chlorobenzene</i>	108-90-7	1.3E-05	8.41E-06	1.29E-05	2.10E-06
	<i>Chloroethane</i>	75-00-3	--	--	--	--
	<i>Chloroform</i>	67-66-3	1.4E-05	8.93E-06	1.37E-05	2.23E-06
	<i>Chrysene</i>	218-01-9	--	--	--	--
	<i>1,2-Dibromomethane</i>	106-93-4	2.13E-05	1.39E-05	2.13E-05	3.47E-06
	<i>1,1-Dichloroethane</i>	75-34-3	1.13E-05	7.37E-06	1.13E-05	1.84E-06
	<i>1,2-Dichloroethane</i>	107-06-2	1.13E-05	7.37E-06	1.13E-05	1.84E-06

<i>Dichloromethane</i>	75-09-2	4.12E-05	--	2.69E-05	4.12E-05	6.72E-06
<i>1,2-Dichloropropane</i>	78-87-5	1.30E-05	--	8.48E-06	1.30E-05	2.12E-06
<i>1,3-Dichloropropene</i>	542-75-6	1.27E-05	--	8.28E-06	1.27E-05	2.07E-06
<i>Ethylbenzene</i>	100-41-4	2.48E-05	--	1.62E-05	2.48E-05	4.04E-06
<i>Fluoranthene</i>	206-44-0	--	--	--	--	--
<i>Fluorene</i>	86-73-7	--	--	--	--	--
<i>Formaldehyde</i>	50-00-0	2.1E-02	--	1.34E-02	2.05E-02	3.34E-03
<i>Hexane</i>	110-54-3	--	--	--	--	--
<i>Indeno(1,2,3-cd)pyrene</i>	193-39-5	--	--	--	--	--
<i>Methanol</i>	67-56-1	3.1E-03	--	2.00E-03	3.06E-03	4.99E-04
<i>Naphthalene</i>	91-20-3	9.7E-05	--	6.33E-05	9.71E-05	1.58E-05
<i>Phenanathrene</i>	85-01-8	--	--	--	--	--
<i>Phenol</i>	108-95-2	--	--	--	--	--
<i>Pyrene</i>	129-00-0	--	--	--	--	--
<i>Styrene</i>	100-42-5	1.2E-05	--	7.76E-06	1.19E-05	1.94E-06
<i>1,1,2,2,-Tetrachloroethane</i>	79-34-5	2.5E-05	--	1.65E-05	2.53E-05	4.12E-06
<i>Toluene</i>	108-88-3	5.6E-04	--	3.64E-04	5.58E-04	9.10E-05
<i>1,1,2-Trichloroethane</i>	79-00-5	1.5E-05	--	9.98E-06	1.53E-05	2.49E-06
<i>2,2,4-Trimethylpentane</i>	540-84-1	--	--	--	--	--
<i>Vinyl chloride</i>	75-01-4	7.2E-06	--	4.68E-06	7.18E-06	1.17E-06
<i>Xylenes</i>	1330-20-7	2.0E-04	--	1.27E-04	1.95E-04	3.18E-05

Notes:

- (1) Exempt from air permitting, pursuant to 6 NYCRR 201-3.2(c)(6).
- (2) AP-42 factors from Tables 1.4.2 & Table 1.4-3, unless otherwise noted.
- (3) Generac Model SG050NA technical data sheet.
- (4) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.

Potential Emissions From Bldg E Natural Gas-Fired Emergency Generator (Exempt Source) ⁽¹⁾

Generator Make/Model:	Generac, SG/MG130
Engine Maximum Power Output:	228 HP
Genset Maximum Electrical Output:	130 kW
Fuel Type:	Natural Gas
HHV Natural Gas:	1,050 Btu/scf
Maximum Hourly Fuel Consumption:	1,797 scf @ 100% load standby
Maximum Heat Input:	1,886,850 Btu/hr 1.89 MMBtu/hr
Hourly Fuel Consumption:	1,797 scf/hr
Limit on Annual Operation:	500 hrs/yr
Annual Fuel Cap:	0.90 MMscf/yr

Pollutant Name	Pollutant CAS No.	Emission Factors (lb/MMBtu) ⁽²⁾	Engine	Emission Rate (lb/hr)	Emission Rate (lb/MMBtu)	Annual Emissions (tpy)
			Manufacturer Emissions Data (g/bhp-hr) ⁽³⁾			
NO _x	NY210-00-0	N/A	0.10	5.03E-02	2.66E-02	1.26E-02
CO	630-08-0	N/A	0.74	0.372	0.197	9.30E-02
PM ₁₀	NY075-00-5	9.50E-03	--	1.79E-02	9.50E-03	4.48E-03
PM _{2.5}	NY750-02-5	9.50E-03	--	1.79E-02	9.50E-03	4.48E-03
SO ₂	7446-09-5	5.88E-04	--	1.11E-03	5.88E-04	2.77E-04
VOC	NY998-00-0	2.96E-02	--	5.59E-02	2.96E-02	1.40E-02
Pb	7439-92-1	--	--	--	--	--
CO ₂	124-38-9	117	--	221	117	55.2
N ₂ O	10024-97-2	2.21E-04	--	4.16E-04	2.21E-04	1.04E-04
CH ₄	74-82-8	2.21E-03	--	4.16E-03	2.21E-03	1.04E-03
CO ₂ e ⁽⁴⁾	NY750-00-0	117	--	221	117	55.2
Total HAPs	NY100-00-0	3.23E-02	--	6.10E-02	3.23E-02	1.52E-02

Notes:

(1) Exempt from air permitting, pursuant to 6 NYCRR 201-3.2(c)(6).

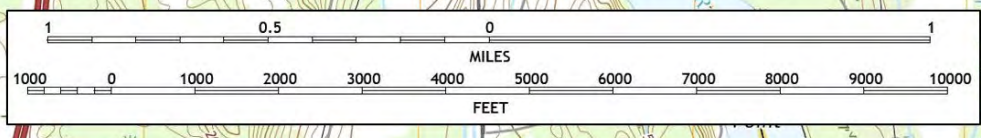
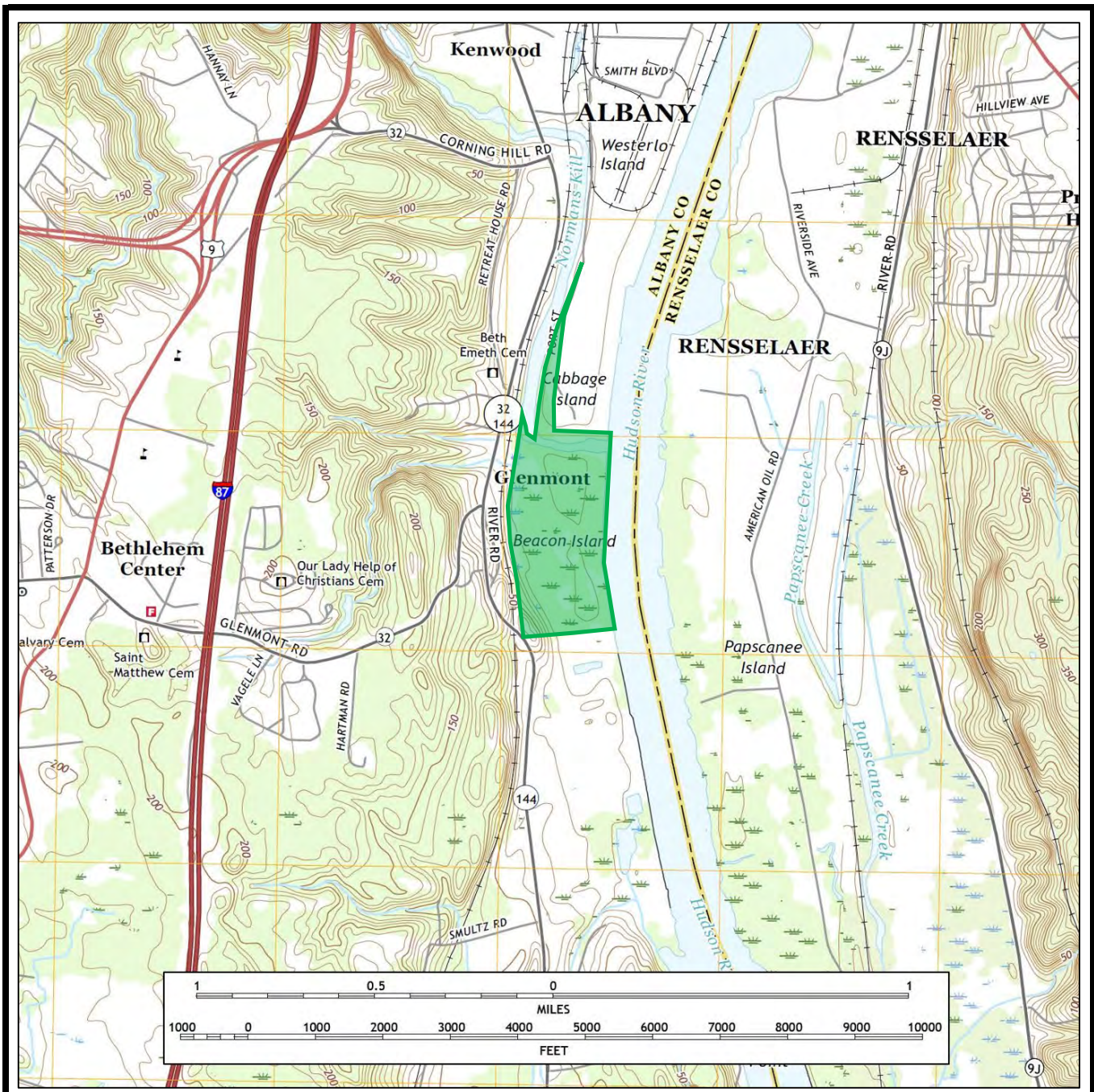
(2) AP-42 factors from Tables 1.4.2 & Table 1.4-3, unless otherwise noted.

(3) Generac Model SG/MG130 technical data sheet.

(4) 6 NYCRR 231-13.9 Table 9 Global warming potential values for calculating CO₂ equivalents. CO₂ = 1; CH₄ = 21; N₂O = 310.


ATTACHMENT C

Figures 1-2



QUADRANGLE LOCATION

SOURCE:
USGS; 2019, Delmar, East Greenbush, NY
7.5 Minute Topographic Quadrangle

TITLE: SITE LOCATION MAP		
PREPARED FOR: Marmen, Inc. Port of Albany Wind Tower Manufacturing Facility		
	PROJECT NO.: MARMEN, INC.	FIGURE 1
	PREPARED BY: C.G.	
	DATE: 2021-12-28	



McFarland Johnson
 80 RAILROAD PLACE
 SUITE 402
 SARATOGA SPRINGS, NEW YORK 12888
 P: 518-580-9380 F: 518-580-9383
 SaratogaROM@mjinc.com

PROJECT MILESTONE
PRELIMINARY PLANS

NO.	DATE	DESCRIPTION

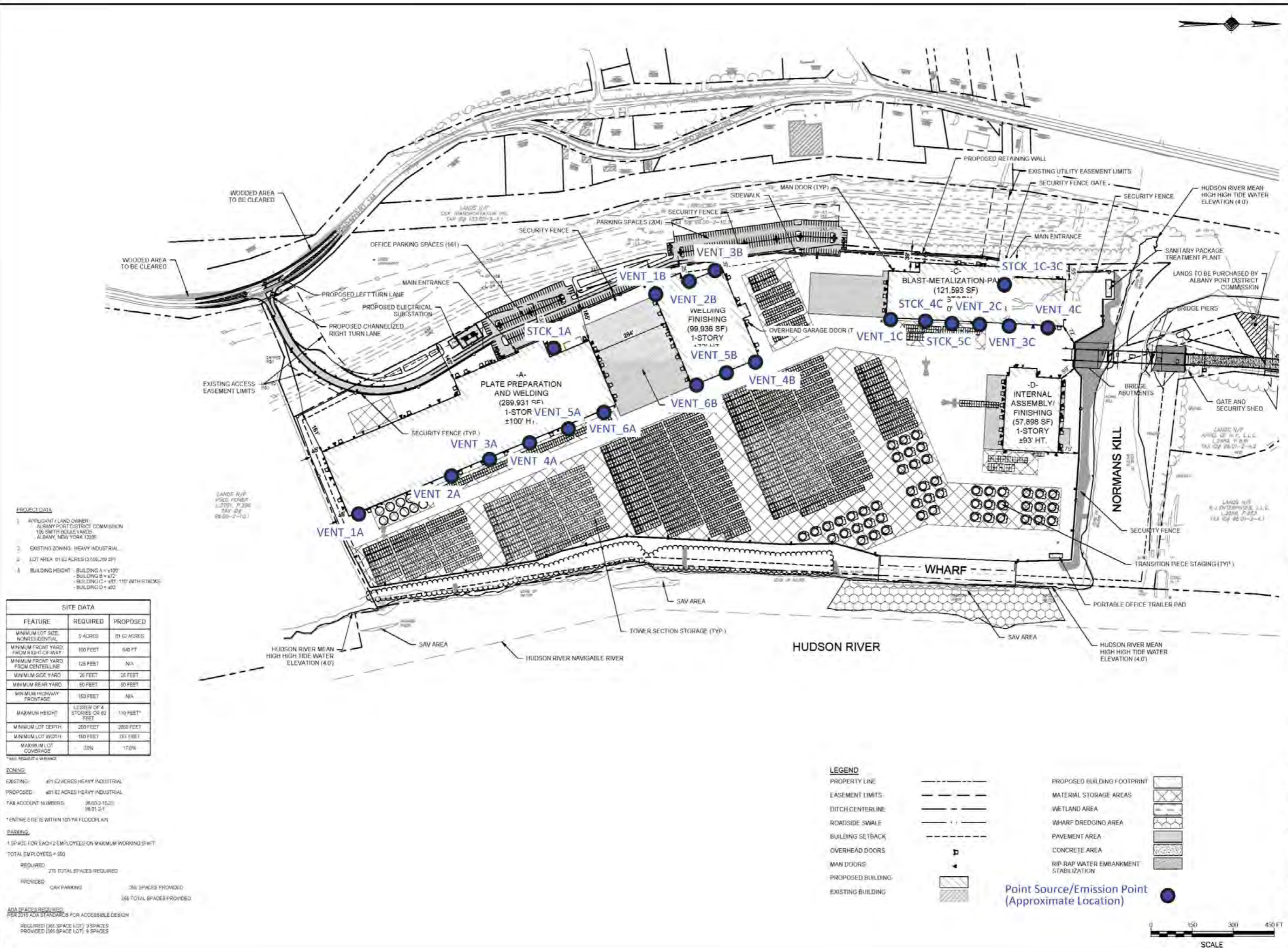
CLIENT: **ALBANY PORT DISTRICT COMMISSION**
 ALBANY, NEW YORK
 PROJECT: **PORT OF ALBANY SITE INFRASTRUCTURE IMPROVEMENTS**

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	1"=150'
DATE	OCTOBER 2021
PROJECT	18641.00

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER IN ANY WAY, IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

DRAWING TITLE
SITE PLAN OVERALL

DRAWING NUMBER
FIGURE 2



- PROJECT DATA**
1. APPLICANT / LAND OWNER: ALBANY PORT DISTRICT COMMISSION, 100 SMITH BOULEVARD, ALBANY, NEW YORK 12206
 2. EXISTING ZONING: HEAVY INDUSTRIAL
 3. LOT AREA: 81.62 ACRES (3,555,219 SF)
 4. BUILDING HEIGHT: BUILDING A = 100', BUILDING B = 70', BUILDING C = 93', BUILDING D = 93'

SITE DATA		
FEATURE	REQUIRED	PROPOSED
MINIMUM LOT SIZE NONRESIDENTIAL	5 ACRES	81.62 ACRES
MINIMUM FRONT YARD FROM RIGHT-OF-WAY	100 FEET	840 FT
MINIMUM FRONT YARD FROM CENTERLINE	125 FEET	N/A
MINIMUM SIDE YARD	25 FEET	25 FEET
MINIMUM REAR YARD	50 FEET	50 FEET
MINIMUM HIGHWAY FRONTAGE	150 FEET	N/A
MAXIMUM HEIGHT	LESSER OF 4 STORIES OR 60 FEET	110 FEET*
MINIMUM LOT DEPTH	200 FEET	2850 FEET
MINIMUM LOT WIDTH	150 FEET	751 FEET
MAXIMUM LOT COVERAGE	30%	17.0%

* MAY REQUIRE A VARIANCE

ZONING

EXISTING: 481.62 ACRES HEAVY INDUSTRIAL
 PROPOSED: 481.62 ACRES HEAVY INDUSTRIAL

TAX ACCOUNT NUMBERS: 3R 60-2-10201; 98-01-2-1

* ENTIRE SITE IS WITHIN 100-YR FLOODPLAIN

PARKING

1 SPACE FOR EACH 12 EMPLOYEES ON MAXIMUM WORKING SHIFT

TOTAL EMPLOYEES = 650

REQUIRED: 275 TOTAL SPACES REQUIRED

PROVIDED: CAR PARKING 366 SPACES PROVIDED; TOTAL SPACES PROVIDED 366

ADA SPACES REQUIRED PER 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN: REQUIRED (366 SPACE LOT) 9 SPACES; PROVIDED (366 SPACE LOT) 5 SPACES

LEGEND

- PROPERTY LINE
- EASEMENT LIMITS
- DITCH CENTERLINE
- ROADSIDE SWALE
- BUILDING SETBACK
- OVERHEAD DOORS
- MAN DOORS
- PROPOSED BUILDING
- EXISTING BUILDING
- PROPOSED BUILDING FOOTPRINT
- MATERIAL STORAGE AREAS
- WETLAND AREA
- WHARF DREDGING AREA
- PAVEMENT AREA
- CONCRETE AREA
- RIP-RAP WATER EMBANKMENT STABILIZATION
- Point Source/Emission Point (Approximate Location)



ATTACHMENT D

Part 212 Compliance Demonstration
(to be submitted under separate cover)

ATTACHMENT E

Coating Air Quality Data Sheets

Air Quality Datasheet

Confidential information



Product name and/or code	: Hempadur Avantguard 750		
	1736G19840		RD007
Ready-for-use mixture	: 1736G = 1736U 17 Vol/ 97043 3 Vol		
% Volatile by weight	: 14.8	% Solids by weight	: 85.2
% Volatile by volume	: 35	% Solids by volume	: 65
VOC (Material) - Default per EU	: 2.8 lbs/gal (335.8 g/l)	Density	: 18.92 lbs/gal (2.267 g/cm ³)
VOC (Coating, actual) - Exempt excluded	: 330 g/l (Measured)	% Water by weight	: 0
VOC (Coating, actual), gram VOC / litre Solids	: 507	% Exempt by weight	: 0
VOC (Regulatory) - Less exempt & water	: 330 g/l (Measured)	% HAPS by weight	: 11.53
VOC (Regulatory), gram VOC / litre Solids	: 507	gram HAPS / litre Solids	: 402

Ingredient name	CAS #	TX Short-term ESL (ug/m3)	TX Long-term ESL (ug/m3)	TX Short-term Odor ESL (ug/m3)	HAPS	W/W %	Type
middle molecular epoxy resin MMW 700-1200	25068-38-6	must meet NAAQS (PM10)	must meet NAAQS (PM10)			8.6974	Binders
xylene	1330-20-7	2200	180		Volatile, Listed	9.1886	Solvents
ethylbenzene	100-41-4	26000	570		Volatile, Listed	2.0443	Solvents
1-chloro-2,3-epoxypropane	106-89-8	20	2		Volatile, Listed	0.0016373	Binders, Monomers in -
toluene	108-88-3	4500	1200		Volatile, Listed	0.10548	Solvents
4,4'-isopropylidenediphenol	80-05-7	50 (PM10)	5 (PM10)			0.0017459	Binders, Monomers in -
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	68609-97-2	1000 (vapor)	100 (vapor)			0.94899	Binders
C12-14 alcohols	80206-82-2					0.019397	Chemicals
benzene	71-43-2	170	4.5		Volatile, Listed	0.0075039	Solvents
respirable quartz	14808-60-7	14 (PM10)				0.010911	Pigments, Inorganic
Quaternary ammonium compounds, benzyl (hydrogenated tallow alkyl)dimethyl, chlorides, compds. with bentonite and bis(hydrogenated tallow alkyl)dimethylammonium chlorides	71011-25-1					1.0912	Pigments, Inorganic
butan-1-ol	71-36-3	610	61	910	Volatile.	2.6424	Solvents
water	7732-18-5					0.002645	Solvents, Water
2-methylpropan-1-ol	78-83-1	1520	152		Volatile.	0.013225	Solvents
propyleneglycol	57-55-6	1560 (vapor)	156 (vapor)		Volatile.	0.013225	Solvents
polyamineamide salt						0.13225	Chemicals
zeolites	1318-02-1	50 (PM10)	5 (PM10)			0.13225	Pigments, Inorganic
pigment black 10, 77265	7782-42-5	20 (PM10)	2 (PM10)			0.96984	Pigments, Inorganic
zinc powder - zinc dust (stabilized)	7440-66-6	20	2			64.453	Pigments, Metallic
zinc oxide	1314-13-2	20	2			4.1067	Pigments, Inorganic
3-(2,3-epoxypropoxy) propyl trimethoxy silane	2530-83-8	1000 (vapor)	100 (vapor)			0.43907	Chemicals
methanol	67-56-1	3900	2100		Volatile, Listed	0.0013225	Solvents
methanol (formed by reaction)	Sec (67-56-1)	3900	2100		Volatile, Listed	0.18074	Solvents
allyl glycidyl ether	106-92-3				Volatile.	0.00043643	Solvents
glass beads	65997-17-3	must meet NAAQS (PM10)	must meet NAAQS (PM10)			1.4113	Pigments, Inorganic
precipitated silica	112926-00-8	27 (PM10)				0.043497	Pigments, Inorganic
2-methoxypropanol	1589-47-5	190	19		Volatile.	0.0018376	Solvents
1-methoxy-2-propanol	107-98-2	3700	370		Volatile.	0.61094	Solvents
3,6-diazaoctanethylenediamin	112-24-3	60	6			0.085172	Binders, Monomers in -
Polymer of: triethylenetetramine, polyaminoamide and bisphenol A-(epichlorhydrin) epoxy resin						2.4353	Binders
bis[(dimethylamino)methyl]phenol	71074-89-0	420	42			0.058181	Chemicals
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	420	42			0.32969	Chemicals

Hazardous Air Pollutant Substance (HAPS)

This information is given in good faith but no warranty is expressed or implied. This information is believed to be accurate and represents the most up-to-date information available to us. All information is based on the formula for the product. All values are theoretical values, not actual production values. Actual production values may differ from theoretical. It is recommended that this document be used as a guide.

This data is CONFIDENTIAL BUSINESS INFORMATION. It is released ONLY FOR USE IN COMPLYING WITH GOVERNMENT REGULATION AND NOT FOR FUTHER DISCLOSURE OR RELEASE TO ANY OTHER THIRD PARTY.

This information is subject to U.S. Trade secret regulations, the Economic Espionage Act of 1996, and specific confidentiality agreement signed by Hempel and this specific Hempel customer. (Agreement on file with any Hempel company within the Hempel Group of companies).

Air Quality Datasheet

Confidential information



Product name and/or code	: Hempadur 4774D				
	4774D10170				RD003
Ready-for-use mixture	: 4774D = 4774M 4 vol. / 9874D 1 vol.				
% Volatile by weight	: 14.6	% Solids by weight	: 85.4		
% Volatile by volume	: 23	% Solids by volume	: 77		
VOC (Material) - Default per EU	: 1.84 lbs/gal (220.3 g/l)	Density	: 12.61 lbs/gal (1.511 g/cm ³)		
VOC (Coating, actual) - Exempt excluded	: 1.84 lbs/gal (220.3 g/l)	% Water by weight	: 0		
VOC (Coating, actual), gram VOC / litre Solids	: 286 g/l	% Exempt by weight	: 0		
VOC (Regulatory) - Less exempt & water	: 1.84 lbs/gal (220.3 g/l)	% HAPS by weight	: 10.63		
VOC (Regulatory), gram VOC / litre Solids	: 286 g/l	gram HAPS / litre Solids	: 209 g/l		

Ingredient name	CAS #	TX Short-term ESL (ug/m3)	TX Long-term ESL (ug/m3)	TX Short-term Odor ESL (ug/m3)	HAPS	W/W %	Type
bisphenol A-(epichlorhydrin) epoxy resin MW < 700	25068-38-6	must meet NAAQS (PM10)	must meet NAAQS (PM10)			11.903	Binders
1-chloro-2,3-epoxypropane	106-89-8	20	2		Volatile. Listed	0.0041691	Binders, Monomers in -
4,4'-isopropylidenediphenol	80-05-7	50 (PM10)	5 (PM10)			0.012988	Binders, Monomers in -
xylene	1330-20-7	2200	180		Volatile. Listed	8.5404	Solvents
ethylbenzene	100-41-4	26000	570		Volatile. Listed	1.8893	Solvents
toluene	108-88-3	4500	1200		Volatile. Listed	0.080569	Solvents
benzene	71-43-2	170	4.5		Volatile. Listed	0.0059709	Solvents
middle molecular epoxy resin MMW 700-1200	25068-38-6	must meet NAAQS (PM10)	must meet NAAQS (PM10)			5.9358	Binders
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	68609-97-2	1000 (vapor)	100 (vapor)			6.1535	Binders
C12-14 alcohols	80206-82-2					0.12577	Chemicals
alkyd resin		50 (PM10)				0.13579	Binders
nonane	111-84-2	10500	1050		Volatile.	0.0059646	Chemicals
C10-C13 hydrocarbons (n-alkanes, isoalkanes, cyclics) <2% aromatics	64742-48-9				Volatile.	0.051099	Solvents
1,3-bis(12-hydroxyocta-decanamide-N-methyl) benzene		50	5			0.32433	Chemicals
Reaction mass of N, N'-hexane-1,6-diylbis [12-hydroxyoctadecanamide] and 12-hydroxy-N-[6-[1-oxoalkyl)amino] hexyl] octadecanamide		50	5			0.139	Chemicals
titanium dioxide	13463-67-7	50 (PM10)	5 (PM10)			12.644	Pigments, Inorganic
silicon dioxide	7631-86-9	27 (PM10)	2 (PM10)			0.13239	Pigments, Inorganic
aluminium hydroxide	21645-51-2	50 (PM10)	5 (PM10)			0.33099	Pigments, Inorganic
zirconium dioxide	1314-23-4	50 (PM10)	5 (PM10)			0.13239	Pigments, Inorganic
limestone	1317-65-3	must meet NAAQS (PM10)	must meet NAAQS (PM10)			18.449	Pigments, Inorganic
stearic acid	57-11-4	1000 (vapor)	100 (vapor)			0.98136	Chemicals
respirable quartz	14808-60-7	14 (PM10)				0.78508	Pigments, Inorganic
nepheline syenite	37244-96-5	50 (PM10)	5 (PM10)			19.038	Pigments, Inorganic
butan-1-ol	71-36-3	610	61	910	Volatile.	3.8909	Solvents
water	7732-18-5					0.0038948	Solvents, Water
3-(2,3-epoxypropoxy) propyl trimethoxy silane	2530-83-8	1000 (vapor)	100 (vapor)			0.26345	Chemicals
methanol	67-56-1	3900	2100		Volatile. Listed	0.00079353	Solvents
methanol (formed by reaction)	Sec (67-56-1)	3900	2100		Volatile. Listed	0.10845	Solvents
allyl glycidyl ether	106-92-3				Volatile.	0.00026186	Solvents
3,6-diazaoctanethylenediamin	112-24-3	60	6			0.21937	Binders, Monomers in -
Polymer of: triethylenetetramine, polymer of C18-unsatd. fatty acids dimers with tall-oil fatty acids and triethylenetetramine and bisphenol A-(epichlorhydrin) epoxy resin and bisphenol A-(epichlorhydrin) epoxy resin						6.3859	Binders
salicylic acid	69-72-7	50 (PM10)	5 (PM10)			0.1239	Chemicals
phenol	108-95-2	150	3.3	150	Volatile. Listed	0.0002483	Solvents
bis[(dimethylamino)methyl]phenol	71074-89-0	420	42			0.19554	Chemicals
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	420	42			1.108	Chemicals

Hazardous Air Pollutant Substance (HAPS)

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Product name and/or code	: Hempaprime Multi 500			
	459501217H			US003
Ready-for-use mixture	: 45950 = 45959 8 Ltr/ 95090 2 Ltr; 45953 = 45959 8 Ltr / 95093 2 Ltr			
% Volatile by weight	: 13.2	% Solids by weight	: 86.8	
% Volatile by volume	: 15	% Solids by volume	: 85	
VOC (Material) - Default per EU	: 1.61 lbs/gal (192.5 g/l)	Density	: 12.12 lbs/gal (1.452 g/cm ³)	
VOC (Coating, actual) - Exempt excluded	: 1.61 lbs/gal (192.5 g/l)	% Water by weight	: 0	
VOC (Coating, actual), gram VOC / litre Solids	: 226 g/l	% Exempt by weight	: 0	
VOC (Regulatory) - Less exempt & water	: 1.61 lbs/gal (192.5 g/l)	% HAPS by weight	: 0.16	
VOC (Regulatory), gram VOC / litre Solids	: 226 g/l	gram HAPS / litre Solids	: 3 g/l	

Ingredient name	CAS #		HAPS	W/W %	Type
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	25068-38-6			14.279	Binders
1-chloro-2,3-epoxypropane	106-89-8	Volatile.	Listed	0.0027435	Binders, Monomers in -
4,4'-isopropylidenediphenol	80-05-7			0.014151	Binders, Monomers in -
2-methylstyrene	611-15-4	Volatile.		< 0.0001	Binders, Monomers in -
phenol	108-95-2	Volatile.	Listed	0.024016	Solvents
2-phenylpropene	98-83-9	Volatile.		0.024016	Binders, Monomers in -
Methylstyrenated phenol	68512-30-1			4.7561	Binders
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	68609-97-2			4.7179	Binders
C12-14 alcohols	80206-82-2			0.096431	Chemicals
n-butyl acetate	123-86-4	Volatile.		7.1174	Solvents
water	7732-18-5			0.005115	Solvents, Water
butan-1-ol	71-36-3	Volatile.		3.7367	Solvents
xylene	1330-20-7	Volatile.	Listed	0.0089759	Solvents
ethylbenzene	100-41-4	Volatile.	Listed	0.0019703	Solvents
alkyd resin				0.24921	Binders
nonane	111-84-2	Volatile.		0.010946	Chemicals
C10-C13 hydrocarbons (n-alkanes, isoalkanes, cyclics) <2% aromatics	64742-48-9	Volatile.		0.093777	Solvents
1,3-bis(12-hydroxyocta-decanamide-N-methyle)benzene				0.55948	Chemicals
Reaction mass of N, N'-hexane-1,6-diy[bis [12-hydroxyoctadecanamide] and 12-hydroxy-N-[6-[1-oxoalkyl]amino] hexyl] octadecanamide				0.23978	Chemicals
titanium dioxide	13463-67-7			4.3217	Pigments, Inorganic
silicon dioxide	7631-86-9			0.045253	Pigments, Inorganic
aluminium hydroxide	21645-51-2			0.11313	Pigments, Inorganic
zirconium dioxide	1314-23-4			0.045253	Pigments, Inorganic
carbonblack	1333-86-4			0.02085	Pigments, Organic
iron hydroxide oxide	20344-49-4			0.047781	Pigments, Inorganic
respirable quartz	14808-60-7			1.0401	Pigments, Inorganic
nepheline syenite	37244-96-5			28.731	Pigments, Inorganic
middle molecular epoxy resin MMW 700-1200	25068-38-6			3.5132	Binders
heptan-2-one	110-43-0	Volatile.		1.1711	Solvents
polyolefins				0.041353	Chemicals
white spirit	64742-88-7	Volatile.		0.16541	Solvents
3-(2,3-epoxypropoxy) propyl trimethoxy silane	2530-83-8			0.28814	Chemicals
methanol	67-56-1	Volatile.	Listed	0.00086788	Solvents
methanol (formed by reaction)	Sec (67-56-1)	Volatile.	Listed	0.11861	Solvents
allyl glycidyl ether	106-92-3	Volatile.		0.0002864	Solvents
Talc (non-asbestiform)	14807-96-6			15.003	Pigments, Inorganic
fatty acids, c18-unsatd., dimers, polymers with triethylenetetramine, reaction products with poly (bisphenol a diglycidyl ether)	68424-41-9			7.3801	Binders
3,6-diazaoctanethylenediamin	112-24-3			0.29422	Binders, Monomers in -
bis(dimethylamino)methyl]phenol	71074-89-0			0.15852	Chemicals
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2			0.89828	Chemicals
2-methoxypropanol	1589-47-5	Volatile.		0.0017684	Solvents
1-methoxy-2-propanol	107-98-2	Volatile.		0.58789	Solvents
2-methoxypropyl acetate	70657-70-4	Volatile.		0.000563	Solvents
2-methoxy-1-methylethyl acetate	108-65-6	Volatile.		0.18711	Solvents

Hazardous Air Pollutant Substance (HAPS)

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Product name and/or code	: Hempathane HS 55610							
	556101115H							US005
Ready-for-use mixture	: 55610 = 55619 7 vol. / 97050 1 vol.							
% Volatile by weight	: 23.2	% Solids by weight	: 76.8					
% Volatile by volume	: 32	% Solids by volume	: 68					
VOC (Material) - Default per EU	: 2.79 lbs/gal (334.1 g/l)	Density	: 12.02 lbs/gal (1.441 g/cm ³)					
VOC (Coating, actual) - Exempt excluded	: 2.79 lbs/gal (334.1 g/l)	% Water by weight	: 0					
VOC (Coating, actual), gram VOC / litre Solids	: 491 g/l	% Exempt by weight	: 0					
VOC (Regulatory) - Less exempt & water	: 2.79 lbs/gal (334.1 g/l)	% HAPS by weight	: 0.5					
VOC (Regulatory), gram VOC / litre Solids	: 491 g/l	gram HAPS / litre Solids	: 11 g/l					

Ingredient name	CAS #	TX Short-term ESL (ug/m3)	TX Long-term ESL (ug/m3)	TX Short-term Odor ESL (ug/m3)	HAPS	W/W %	Type
acrylic resin	*	40				24.526	Binders
Solvent naphtha (petroleum), light arom.	64742-95-6	1250	125		Volatile.	12.116	Solvents
n-butyl acetate	123-86-4	11000	1400		Volatile.	6.2178	Solvents
lecithin	8002-43-5	must meet NAAQS (PM10)	must meet NAAQS (PM10)			0.13981	Chemicals
block copolymer		50	5			0.20999	Chemicals
polyolefins						0.014071	Chemicals
white spirit	64742-88-7	3500	350		Volatile.	0.056285	Solvents
1,3-bis(12-hydroxyocta-decanamide-N-methyl) benzene		50	5			0.58846	Chemicals
Reaction mass of N, N'-hexane-1,6-diylbis [12-hydroxyoctadecanamide] and 12-hydroxy-N-[6-[1-oxoalkyl)amino] hexyl] octadecanamide		50	5			0.2522	Chemicals
titanium dioxide	13463-67-7	50 (PM10)	5 (PM10)			20.074	Pigments, Inorganic
silicon dioxide	7631-86-9	27 (PM10)	2 (PM10)			0.22424	Pigments, Inorganic
aluminium hydroxide	21645-51-2	50 (PM10)	5 (PM10)			0.67271	Pigments, Inorganic
aluminium oxide	1344-28-1	50 (PM10)	5 (PM10)			0.67271	Pigments, Inorganic
zirconium dioxide	1314-23-4	50 (PM10)	5 (PM10)			0.22424	Pigments, Inorganic
dipotassium oxide	12136-45-7	must meet NAAQS (PM10)	must meet NAAQS (PM10)			0.11212	Chemicals
phosphorus pentoxide	1314-56-3					0.22199	Chemicals
trimethylolpropane	77-99-6	50	5			0.22199	Binders, Monomers in -
barium sulphate	7727-43-7	50 (PM10)	5 (PM10)			10.507	Pigments, Inorganic
respirable quartz	14808-60-7	14 (PM10)				0.2915	Pigments, Inorganic
limestone	1317-65-3	must meet NAAQS (PM10)	must meet NAAQS (PM10)			7.246	Pigments, Inorganic
stearic acid	57-11-4	1000 (vapor)	100 (vapor)			0.38542	Chemicals
lead powder (particle diameter < 1mm)	7439-92-1					0.0003142	Pigments, Metallic
lead compounds	1314-41-6				Listed	0.0010403	Pigments, Inorganic
zinc oxide	1314-13-2	20	2			0.031525	Pigments, Inorganic
trizinc bis(orthophosphate)	7779-90-0	20	2			1.0179	Pigments, Inorganic
1,2,4-trimethylbenzene	95-63-6	4400	54		Volatile.	3.0047	Solvents
xylene	1330-20-7	2200	180		Volatile.	0.28169	Solvents
ethylbenzene	100-41-4	26000	570		Volatile.	0.023475	Solvents
cumene	98-82-8	650	250	650	Volatile.	0.14085	Solvents
1,2,3-trimethylbenzene	526-73-8	4400	54		Volatile.	1.0329	Solvents
1-ethyl-2-methylbenzene	611-14-3	1250	125		Volatile.	0.277	Solvents
benzene	71-43-2	170	4.5		Volatile.	0.014486	Solvents
bis (1,2,2,6,6-pentamethyl-4-piperidyl) sebacate	41556-26-7	100	10		Listed	0.27998	Chemicals
methyl-1,2,2,6,6-pentamethyl-4-piperidylsebacate	82919-37-7	100	10			0.069995	Chemicals
water	7732-18-5					0.0010478	Solvents, Water
butan-1-ol	71-36-3	610	61	910	Volatile.	0.010478	Solvents
dibutyltin dilaurate	77-58-7	1 (PM10)	0.1 (PM10)			0.021441	Chemicals
hexamethylene-di-isocyanate	822-06-0	0.7	0.1		Listed	0.029393	Binders, Monomers in -
naphthalene	91-20-3	440	50	440	Volatile.	0.0097912	Solvents
hexamethylene-1,6-diisocyanate homopolymer	28182-81-2	8.7	0.87		Listed	8.7778	Binders

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Product name and/or code	: Hempel's Thinner 08740		
	0874000000		RD003
% Volatile by weight	: 100	% Solids by weight	: 0
% Volatile by volume	: 100	% Solids by volume	: 0
VOC (Material) - Default per EU	: 7.48 lbs/gal (896 g/l)	Density	: 7.48 lbs/gal (0.896 g/cm ³)
VOC (Coating, actual) - Exempt excluded	: 7.48 lbs/gal (896 g/l)	% Water by weight	: 0
VOC (Coating, actual), gram VOC / litre Solids	: Not applicable.	% Exempt by weight	: 0
VOC (Regulatory) - Less exempt & water	: 7.48 lbs/gal (896 g/l)	% HAPS by weight	: 2.26
VOC (Regulatory), gram VOC / litre Solids	: Not applicable.	gram HAPS / litre Solids	: Not applicable.

Ingredient name	CAS #	HAPS	W/W %	Type
2-methoxypropanol	1589-47-5	Volatile.	0.15895	Solvents
1-methoxy-2-propanol	107-98-2	Volatile.	52.841	Solvents
Solvent naphtha (petroleum), light arom.	64742-95-6	Volatile.	23.148	Solvents
1,2,4-trimethylbenzene	95-63-6	Volatile.	15.04	Solvents
xylene	1330-20-7	Volatile. Listed	1.41	Solvents
ethylbenzene	100-41-4	Volatile. Listed	0.1175	Solvents
cumene	98-82-8	Volatile. Listed	0.705	Solvents
1,2,3-trimethylbenzene	526-73-8	Volatile.	5.17	Solvents
1-ethyl-2-methylbenzene	611-14-3	Volatile.	1.3865	Solvents
benzene	71-43-2	Volatile. Listed	0.0235	Solvents

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Product name and/or code	: Hempel's Galvosil 15700			
	1570019840			RD029
Ready-for-use mixture	: 15700 = 15709 7.4 vol. / 97170 2.6 vol.			
% Volatile by weight	: 24.2	% Solids by weight	: 75.8	
% Volatile by volume	: 36	% Solids by volume	: 64	
VOC (Material) - Default per EU	: 5 lbs/gal (599 g/l)	Density	: 22.21 lbs/gal (2.662 g/cm ³)	
VOC (Coating, actual) - Exempt excluded	: 434 g/l (Measured)	% Water by weight	: 0	
VOC (Coating, actual), gram VOC / litre Solids	: 678	% Exempt by weight	: 0	
VOC (Regulatory) - Less exempt & water	: 434 g/l (Measured)	% HAPS by weight	: 4.61	
VOC (Regulatory), gram VOC / litre Solids	: 678	gram HAPS / litre Solids	: 192	

Ingredient name	CAS #		HAPS	W/W %	Type
xylene	1330-20-7	Volatile.	Listed	3.7	Solvents
ethylbenzene	100-41-4	Volatile.	Listed	0.8257	Solvents
toluene	108-88-3	Volatile.	Listed	0.043951	Solvents
benzene	71-43-2	Volatile.	Listed	0.0052528	Solvents
respirable quartz	14808-60-7			0.087898	Pigments, Inorganic
quaternary ammonium modified bentonite	121888-68-4			0.29161	Pigments, Inorganic
2-methylpropan-1-ol	78-83-1	Volatile.		0.015031	Solvents
propyleneglycol	57-55-6	Volatile.		0.015031	Solvents
polyamineamide salt				0.15031	Chemicals
ethanol (formed by reaction)	Sec (64-17-5)	Volatile.		1.4371	Solvents
2-methoxypropanol	1589-47-5	Volatile.		0.018496	Solvents
1-methoxy-2-propanol	107-98-2	Volatile.		6.1488	Solvents
ethanol	64-17-5	Volatile.		3.9847	Solvents
propan-2-ol	67-63-0	Volatile.		2.0892	Solvents
hydrogen chloride	7647-01-0		Listed	0.0075949	Chemicals
ethylpolysilicate	11099-06-2	Volatile.		4.1948	Binders
amorphous silica	68611-44-9			0.22539	Pigments, Inorganic
china clay	1332-58-7			7.1788	Pigments, Inorganic
quartz (chrySTALLINE, non respirable)	14808-60-7			0.33133	Pigments, Inorganic
mica	12001-26-2			0.15777	Pigments, Inorganic
Feldspar-group minerals	68476-25-5			0.11833	Pigments, Inorganic
titanium dioxide	13463-67-7			0.023666	Pigments, Inorganic
Solvent naphtha (petroleum), light arom.	64742-95-6	Volatile.		0.88805	Solvents
1,2,4-trimethylbenzene	95-63-6	Volatile.		0.577	Solvents
cumene	98-82-8	Volatile.	Listed	0.027047	Solvents
1,2,3-trimethylbenzene	526-73-8	Volatile.		0.19835	Solvents
1-ethyl-2-methylbenzene	611-14-3	Volatile.		0.053193	Solvents
water	7732-18-5			0.0018309	Solvents, Water
zinc oxide	1314-13-2			4.1069	Pigments, Inorganic
zinc chloride	7646-85-7			0.1184	Chemicals
zinc powder - zinc dust (stabilized)	7440-66-6			64.416	Pigments, Metallic

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Product name and/or code	: Hempadur Multi-Strength 35842			
	3584211630			RD001
% Volatile by weight	: 6.7	% Solids by weight	: 93.3	
% Volatile by volume	: 0	% Solids by volume	: 100	
VOC (Material) - Default per EU	: 0.186 lbs/gal (22.2 g/l)	Density	: 10.76 lbs/gal (1.289 g/cm ³)	
VOC (Coating, actual) - Exempt excluded	: 0.185 lbs/gal (22.2 g/l)	% Water by weight	: 0	
VOC (Coating, actual), gram VOC / litre Solids	: 22 g/l	% Exempt by weight	: 0.0005	
VOC (Regulatory) - Less exempt & water	: 0.185 lbs/gal (22.2 g/l)	% HAPS by weight	: 0.32	
VOC (Regulatory), gram VOC / litre Solids	: 22 g/l	gram HAPS / litre Solids	: 4 g/l	

Ingredient name	CAS #		HAPS	W/W %	Type
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	25068-38-6			37.211	Binders
1-chloro-2,3-epoxypropane	106-89-8	Volatile.	Listed	0.00095748	Binders, Monomers in -
4,4'-isopropylidenediphenol	80-05-7			0.036876	Binders, Monomers in -
1,6-hexanediol diglycidylether	16096-31-4			10.631	Binders
2,6-dimethylheptan-4-one	108-83-8	Volatile.		0.11156	Solvents
4,6-dimethyl-2-heptanone	19549-80-5	Volatile.		0.041816	Solvents
fluoro polysiloxane				0.0013189	Chemicals
octamethylcyclotetrasiloxane (D4)	556-67-2	Exempted		0.00015361	Chemicals
decamethylcyclopentasiloxane (D5)	541-02-6	Exempted		0.00015361	Chemicals
Dodecamethylcyclohexasiloxane (D6)	540-97-6	Exempted		0.00015361	Chemicals
hydrogenated castor oil	8001-78-3			1.4549	Chemicals
octadecanoic acid, 12-hydroxy-, reaction products with ethylenediamine	100545-48-0			0.48498	Chemicals
titanium dioxide	13463-67-7			3.7797	Pigments, Inorganic
silicon dioxide	7631-86-9			0.039578	Pigments, Inorganic
aluminium hydroxide	21645-51-2			0.098945	Pigments, Inorganic
zirconium dioxide	1314-23-4			0.039578	Pigments, Inorganic
Talc (non-asbestiform)	14807-96-6			10.679	Pigments, Inorganic
respirable quartz	14808-60-7			0.10785	Pigments, Inorganic
3-(2,3-epoxypropoxy) propyl trimethoxy silane	2530-83-8			0.7727	Chemicals
methanol	67-56-1	Volatile.	Listed	0.0023274	Solvents
methanol (formed by reaction)	Sec (67-56-1)	Volatile.	Listed	0.31808	Solvents
allyl glycidyl ether	106-92-3	Volatile.		0.00076804	Solvents
glass beads	65997-17-3			10.088	Pigments, Inorganic
benzaldehyde	100-52-7	Volatile.		0.011788	Solvents
benzyl alcohol	100-51-6	Volatile.		6.1827	Solvents, Coalscent (Calculated as solids)
dibenzyl ether	103-50-4			0.0061385	Solvents
α-chlorotoluene	100-44-7	Volatile.		0.00061348	Solvents
m-Xylylene-diamine	1477-55-0			0.32912	Binders, Monomers in -
polyoxypropylenediamine	9046-10-0			7.0396	Binders
Polymer of: m-Xylylene-diamine, (versatic acid) monoglycidylester and bisphenol A-(epichlorhydrin) epoxy resin				9.5263	Binders
bis[(dimethylamino)methyl]phenol	71074-89-0			0.19822	Chemicals
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2			1.1232	Chemicals

Hazardous Air Pollutant Substance (HAPS)

This information is given in good faith but no warranty is expressed or implied. This information is believed to be accurate and represents the most up-to-date information available to us. All information is based on the formula for the product. All values are theoretical values, not actual production values. Actual production values may differ from theoretical. It is recommended that this document be used as a guide.

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Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830 - Europe

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : HEMPADUR MULTISTRENGTH GF 35848
Product identity : 3584811150
Product type : epoxy primer (base for multi-component product)

1.2 Relevant identified uses of the substance or mixture and uses advised against

Field of application : Splash Zone, general
Ready-for-use mixture : 35842 =35848 13.5 ltr / 95620 4.5 ltr
Identified uses : Professional applications, Used by spraying.

1.3 Details of the supplier of the safety data sheet

Company details : HEMPEL A/S
Lundtoftegårdsvej 91
DK-2800 Kgs. Lyngby
Denmark
Tel.: + 45 45 93 38 00
hempel@hempel.com
Date of issue : 13 November 2019
Date of previous issue : 19 September 2019.

1.4 Emergency telephone number

Emergency telephone number (with hours of operation)

+45 45 93 38 00 (08.00 - 17.00)
See section 4 First aid measures.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2
Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1
Aquatic Chronic 2, H411 AQUATIC HAZARD (LONG-TERM) - Category 2

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H319 - Causes serious eye irritation.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention : Avoid breathing vapors, spray or mists. Wear protective gloves/protective clothing/eye protection/face protection.

Response : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation occurs: Get medical attention.

Hazardous ingredients : bisphenol A-(epichlorhydrin) epoxy resin MW =< 700
1,6-hexanediol diglycidylether
octadecanoic acid, 12-hydroxy-, reaction products with ethylenediamine

Supplemental label elements : Contains epoxy constituents. May produce an allergic reaction.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

SECTION 2: Hazards identification

2.3 Other hazards

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	REACH #: 01-2119456619-26 EC: 500-033-5 CAS: 25068-38-6 Index: 603-074-00-8	≥25 - ≤50	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411	[1]
1,6-hexanediol diglycidylether	REACH #: 01-2119463471-41 EC: 240-260-4 CAS: 16096-31-4	≥10 - ≤25	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 3, H412	[1]
benzyl alcohol	REACH #: 01-2119492630-38 EC: 202-859-9 CAS: 100-51-6 Index: 603-057-00-5	≥5 - ≤10	Acute Tox. 4, H302 Acute Tox. 4, H332 Eye Irrit. 2, H319	[1]
octadecanoic acid, 12-hydroxy-, reaction products with ethylenediamine	REACH #: 01-2119979085-27 EC: 309-629-8 CAS: 100545-48-0	<1	Skin Sens. 1B, H317 Aquatic Chronic 3, H412	[1]
			See Section 16 for the full text of the H statements declared above.	

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit, see section 8.
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

SECTION 4: First aid measures

4.1 Description of first aid measures

General :	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 112 and give immediate treatment (first aid).
Eye contact :	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek immediate medical attention.
Inhalation :	Remove to fresh air. Keep person warm and at rest. If unconscious, place in recovery position and seek medical advice.
Skin contact :	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
Ingestion :	If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do not induce vomiting unless directed to do so by medical personnel. Lower the head so that vomit will not re-enter the mouth and throat.
Protection of first-aiders :	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact :	Causes serious eye irritation.
Inhalation :	No known significant effects or critical hazards.
Skin contact :	Causes skin irritation. May cause an allergic skin reaction.
Ingestion :	No known significant effects or critical hazards.

Over-exposure signs/symptoms

SECTION 4: First aid measures

Eye contact :	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation :	No specific data.
Skin contact :	Adverse symptoms may include the following: irritation redness
Ingestion :	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician :	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments :	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media :	Recommended: alcohol resistant foam, CO ₂ , powders, water spray. Not to be used: waterjet.
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5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture :	In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products :	Decomposition products may include the following materials: carbon oxides halogenated compounds metal oxide/oxides

5.3 Advice for firefighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard. Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Refer to protective measures listed in sections 7 and 8. No action shall be taken involving any personal risk or without suitable training.

6.2 Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and materials for containment and cleaning up

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Contains epoxy constituents. Avoid all possible skin contact with epoxy and amine containing products, they may cause allergic reactions. Avoid inhalation of vapour, dust and spray mist. Avoid contact with skin and eyes. Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Appropriate personal protective equipment: see Section 8. Always keep in containers made from the same material as the original one.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a cool, well-ventilated area away from incompatible materials and ignition sources. Keep out of the reach of children. Keep away from: Oxidizing agents, strong alkalis, strong acids. No smoking. Prevent unauthorized access. Containers that are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

See separate Product Data Sheet for recommendations or industrial sector specific solutions.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Product/ingredient name	Exposure limit values
No exposure limit value known.	

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived effect levels

Product/ingredient name	Type	Exposure	Value	Population	Effects
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	DNEL	Long term Dermal	8.33 mg/kg bw/day	Workers	Systemic
1,6-hexanediol diglycidylether	DNEL	Long term Inhalation	12.25 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	2.8 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	0.44 mg/m ³	Workers	Systemic
benzyl alcohol	DNEL	Long term Inhalation	22 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	8 mg/kg bw/day	Workers	Systemic

Predicted effect concentrations

Product/ingredient name	Compartment Detail	Value	Method Detail
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	Fresh water	0.006 mg/l	-
	Marine	0.0006 mg/l	-
	Sewage Treatment Plant	10 mg/l	-
	Fresh water sediment	0.996 mg/l	-
	Marine water sediment	0.0996 mg/l	-
	Soil	0.196 mg/l	-
1,6-hexanediol diglycidylether	Fresh water	0.0115 mg/l	-
	Fresh water sediment	0.283 mg/kg dwt	-
	Marine water	0.00115 mg/l	-
	Marine water sediment	0.0283 mg/kg dwt	-
	Soil	0.223 mg/kg dwt	-
	Sewage Treatment Plant	1 mg/l	-
benzyl alcohol	Soil	0.456 mg/kg wwt	Assessment Factors
	Sewage Treatment Plant	39 mg/l	Assessment Factors
	Sediment	5.27 mg/kg wwt	Assessment Factors
	Marine water sediment	0.527 mg/kg wwt	Assessment Factors
	Marine	0.1 mg/l	Assessment Factors
	Fresh water	1 mg/l	Assessment Factors

8.2 Exposure controls

Appropriate engineering controls

SECTION 8: Exposure controls/personal protection

Arrange sufficient ventilation by local exhaust ventilation and good general ventilation to keep the airborne concentrations of vapors or dust lowest possible and below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the workstation location.

Individual protection measures

- General : Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. Safety eyewear should be used when there is a likelihood of exposure.
- Hygiene measures : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.
- Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Hand protection : Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. The quality of the chemical-resistant protective gloves must be chosen as a function of the specific workplace concentrations and quantity of hazardous substances.
- Since the actual work situation is unknown. Supplier of gloves should be contacted in order to find the appropriate type. Below listed glove(s) should be regarded as generic advice:
- Recommended: Silver Shield / Barrier / 4H gloves, Viton®
May be used: polyvinyl alcohol (PVA), butyl rubber, nitrile rubber
Short term exposure: natural rubber (latex), polyvinyl chloride (PVC), neoprene rubber
- Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved handling this product.
Wear suitable protective clothing. Always wear protective clothing when spraying.
- Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If working areas have insufficient ventilation: When the product is applied by means that will not generate an aerosol such as, brush or roller wear half or totally covering mask equipped with gas filter of type A, when grinding use particle filter of type P. Be sure to use an approved/certified respirator or equivalent.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Physical state : Liquid.
- Odor : Amine-like.
- pH : Testing not relevant or not possible due to nature of the product.
- Melting point/freezing point : -16°C This is based on data for the following ingredient: bisphenol A-(epichlorhydrin) epoxy resin MW = < 700
- Boiling point/boiling range : Testing not relevant or not possible due to nature of the product.
- Flash point : Closed cup: 86°C (186.8°F)
- Evaporation rate : Testing not relevant or not possible due to nature of the product.
- Flammability : Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.
Slightly flammable in the presence of the following materials or conditions: heat.
- Lower and upper explosive (flammable) limits : 1.3 - 13 vol %
- Vapor pressure : 0 kPa This is based on data for the following ingredient: bisphenol A-(epichlorhydrin) epoxy resin MW = < 700
- Vapor density : Testing not relevant or not possible due to nature of the product.
- Specific gravity : 1.395 g/cm³
- Solubility(ies) : Partially soluble in the following materials: cold water and hot water.
- Partition coefficient (LogKow) : Testing not relevant or not possible due to nature of the product.
- Auto-ignition temperature : Lowest known value: 436°C (816.8°F) (benzyl alcohol).

SECTION 9: Physical and chemical properties

Decomposition temperature :	Testing not relevant or not possible due to nature of the product.
Viscosity :	Testing not relevant or not possible due to nature of the product.
Explosive properties :	Slightly explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Oxidizing properties :	Testing not relevant or not possible due to nature of the product.

9.2 Other information

Solvent(s) % by weight :	Weighted average: 7 %
Water % by weight :	Weighted average: 0 %
VOC content :	24.8 g/l
TOC Content :	Weighted average: 19 g/l
Solvent Gas :	Weighted average: 0.023 m ³ /l

SECTION 10: Stability and reactivity

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

No specific data.

10.5 Incompatible materials

Reactive or incompatible with the following materials: oxidizing materials.
Slightly reactive or incompatible with the following materials: reducing materials.

10.6 Hazardous decomposition products

When exposed to high temperatures (i.e. in case of fire) harmful decomposition products may be formed:
Decomposition products may include the following materials: carbon oxides halogenated compounds metal oxide/oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Exposure to component solvent vapor concentrations may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Solvents may cause some of the above effects by absorption through the skin. Symptoms and signs include headaches, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and reversible damage. Accidental swallowing may cause stomach pain. Chemical lung inflammation may occur if the product is taken into the lungs via vomiting.

Epoxy and amine containing products can cause skin disorders such as allergic eczema. The allergy may arise after only a short exposure period.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
1,6-hexanediol diglycidylether	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	2190 mg/kg	-
benzyl alcohol	LC50 Inhalation Dusts and mists	Rat	>4178 mg/m ³	4 hours
	LD50 Oral	Rat	1230 mg/kg	-

Acute toxicity estimates

SECTION 11: Toxicological information

Product/ingredient name	Oral mg/kg	Dermal mg/kg	Inhalation (gases) ppm	Inhalation (vapors) mg/l	Inhalation (dusts and mists) mg/l
HEMPADUR MULTISTRENGTH GF 35848 1,6-hexanediol diglycidylether benzyl alcohol	20923.8 2190 1230			187.1 11	

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	Eyes - Mild irritant	Rabbit	-	-
1,6-hexanediol diglycidylether	Skin - Mild irritant	Rabbit	-	-
	Skin - Irritant	Rabbit	-	-
	Eyes - Irritant	Rabbit	-	-
benzyl alcohol	Eyes - Visible necrosis	Rabbit	-	-
	Skin - Mild irritant	Rabbit	-	-
octadecanoic acid, 12-hydroxy-, reaction products with ethylenediamine	Skin - Mild irritant	Rabbit	-	-
	Eyes - Mild irritant	Rabbit	-	-

Sensitizer

Product/ingredient name	Route of exposure	Species	Result
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	skin	Guinea pig	Sensitizing
1,6-hexanediol diglycidylether	skin	Guinea pig	Sensitizing

Mutagenic effects

No known significant effects or critical hazards.

Carcinogenicity

No known significant effects or critical hazards.

Reproductive toxicity

No known significant effects or critical hazards.

Teratogenic effects

No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
No known data available in our database.			

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
No known data available in our database.			

Aspiration hazard

Product/ingredient name	Result
No known data available in our database.	

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential chronic health effects

Sensitization : Contains bisphenol A-(epichlorhydrin) epoxy resin MW =< 700, 1,6-hexanediol diglycidylether, octadecanoic acid, 12-hydroxy-, reaction products with ethylenediamine. May produce an allergic reaction.

Other information : No additional known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Do not allow to enter drains or watercourses. Toxic to aquatic life with long lasting effects.

Product/ingredient name	Result	Species	Exposure
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	Acute EC50 >11 mg/l	Algae	72 hours
	Acute EC50 2.1 mg/l	Daphnia - Daphnia magna	48 hours
	Acute LC50 3.1 mg/l	Fish - fathead minnow (Pimephales promelas)	96 hours
1,6-hexanediol diglycidylether	Acute EC50 23.1 mg/l	Algae	48 hours
	Acute LC50 47 mg/l	Daphnia	48 hours
	Acute LC50 30 mg/l	Fish	96 hours
benzyl alcohol	Acute EC50 230 mg/l	Daphnia	48 hours
	Acute IC50 770 mg/l	Algae	72 hours
	Acute LC50 460 mg/l	Fish	96 hours
octadecanoic acid, 12-hydroxy-, reaction products with ethylenediamine	Acute EC50 >100 mg/l	Algae	72 hours
	Acute EC50 >10 mg/l	Daphnia	48 hours
	Acute EC50 >10 mg/l	Fish	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	OECD 302B Inherent Biodegradability: Zahn-Wellens/EMPA Test	12 % - Not readily - 28 days	-	-
1,6-hexanediol diglycidylether	OECD 301D Ready Biodegradability - Closed Bottle Test	47 % - Inherent - 28 days	2 mg/l	-
benzyl alcohol	OECD 301A 301A Ready Biodegradability - DOC Die-Away Test	95 - 97 % - Readily - 21 days	-	-
	OECD 301C 301C Ready Biodegradability - Modified MITI Test (I)	92 - 96 % - Readily - 14 days	-	-
octadecanoic acid, 12-hydroxy-, reaction products with ethylenediamine	OECD 301D Ready Biodegradability - Closed Bottle Test	22 % - Not readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	-	-	Not readily
1,6-hexanediol diglycidylether	-	-	Inherent
benzyl alcohol	-	-	Readily
octadecanoic acid, 12-hydroxy-, reaction products with ethylenediamine	-	-	Not readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	2.64 - 3.78	31	low
1,6-hexanediol diglycidylether	0.822	3.57	low
benzyl alcohol	0.87	1.37	low
octadecanoic acid, 12-hydroxy-, reaction products with ethylenediamine	5.86	-	high

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}): No known data available in our database.

Mobility: No known data available in our database.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects

SECTION 12: Ecological information

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

The generation of waste should be avoided or minimized wherever possible. Residues of the product is listed as hazardous waste. Dispose of according to all state and local applicable regulations. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Spillage, remains, discarded clothes and similar should be discarded in a fireproof container.

European waste catalogue no. (EWC) is given below.







European waste catalogue (EWC) : 08 01 11*

Packaging

The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

Transport may take place according to national regulation or ADR for transport by road, RID for transport by train, IMDG for transport by sea, IATA for transport by air.

	14.1 UN no.	14.2 Proper shipping name	14.3 Transport hazard class(es)	14.4 PG*	14.5 Env*	Additional information
ADR/RID Class	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bisphenol A-(epichlorhydrin) epoxy resin MW =< 700)	9  	III	Yes.	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.
IMDG Class	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.. (bisphenol A-(epichlorhydrin) epoxy resin MW =< 700)	9  	III	Yes.	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. Emergency schedules F-A, S-F
IATA Class	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bisphenol A-(epichlorhydrin) epoxy resin MW =< 700)	9  	III	Yes.	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.

PG* : Packing group

Env.* : Environmental hazards

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH) Annex XIV - List of substances subject to authorization - Substances of very high concern

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

Other EU regulations

Seveso category This product is controlled under the Seveso III Directive.

Seveso category
E2: Hazardous to the aquatic environment - Chronic 2

SECTION 16: Other information

Abbreviations and acronyms :
 ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 EUH statement = CLP-specific Hazard statement
 RRN = REACH Registration Number
 DNEL = Derived No Effect Level
 PNEC = Predicted No Effect Concentration

Full text of abbreviated H statements :
 H302 Harmful if swallowed.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H411 Toxic to aquatic life with long lasting effects.
 H412 Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS] :
 Acute Tox. 4, H302 ACUTE TOXICITY (oral) - Category 4
 Acute Tox. 4, H332 ACUTE TOXICITY (inhalation) - Category 4
 Aquatic Chronic 2, H411 AQUATIC HAZARD (LONG-TERM) - Category 2
 Aquatic Chronic 3, H412 AQUATIC HAZARD (LONG-TERM) - Category 3
 Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
 Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2
 Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1
 Skin Sens. 1B, H317 SKIN SENSITIZATION - Category 1B

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 2	Calculation method

Notice to reader

➤ Indicates information that has changed from previously issued version.

The information contained in this safety data sheet is based on the present state of knowledge and EU and national legislation. It provides guidance on health, safety and environmental aspects for handling the product in a safe way and should not be construed as any guarantee of the technical performance or suitability for particular applications.

It is always the duty of the user/employer to ascertain that the work is planned and carried out in accordance with the national regulations.

This document is intended to communicate the conditions of safe use for the product and should always be read in combination with the product's Safety Data Sheet and labels.

General description of the process covered

Indoor or outdoor spray painting by professionals or with brush, roller, putty knife, dipping etc. with good general room ventilation

This safe use information is linked to : Professional spray painting and/or low-energy painting, local effect - Level II
Skin Sens. 1, Eye Irrit. 2, Asp. Tox. 1 or Solvent.

Sector(s) of use : Industrial uses - Professional uses

Product category(ies) : Coatings and paints, thinners, paint removers

Operational conditions

Place of use : Indoor or outdoor use




Risk management measures (RMM)

Contributing activity	Process category (ies)	Maximum duration	Ventilation		Respiratory	Eye	Hands
			Type and air changes per hour				
Preparation of material for application	PROC05	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	None	Use eye protection according to EN 166.	Wear suitable gloves tested to EN374.
Loading of application equipment and handling of coated parts before curing	PROC08a	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	None	Use eye protection according to EN 166.	Wear suitable gloves tested to EN374.
Professional application of coatings by brush or roller	PROC10	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	None	Use eye protection according to EN 166.	Wear suitable gloves tested to EN374.
Professional application of coatings by spraying	PROC11	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	Wear a respirator conforming to EN140 with an assigned protection factor of at least 10.	Use eye protection according to EN 166.	Wear suitable gloves tested to EN374.
Film formation - force drying, stoving and other technologies	PROC04	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	None	None	None
Cleaning	PROC05	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	None	Use eye protection according to EN 166.	Wear suitable gloves tested to EN374.
Waste management	PROC08a	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	None	Use eye protection according to EN 166.	Wear suitable gloves tested to EN374.

See chapter 8 of this Safety Data Sheet for specifications.



Conforms to ANSI Z400.1-2010 Standard - HCS 2012

Protective Clothing	General Hazard	DOT
		

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : Hempaprime Multi 500 Base
 Product identity : 4595900010
 Product type : epoxy paint

1.2 Relevant identified uses of the substance or mixture and uses advised against

Field of application : metal industry
 Ready-for-use mixture : 45950 = 45959 8 Ltr/ 95090 2 Ltr; 45953 = 45959 8 Ltr / 95093 2 Ltr
 Identified uses : Industrial/Professional use
 TSCA : **Unless otherwise stated. All components are listed or exempted.**

1.3 Details of the supplier of the safety data sheet

Company details :	HEMPEL (USA), Inc. 600 Conroe Park North Drive Conroe, Texas 77303 Toll free: (800) 678-6641, if outside area codes 713, 281, 409, 936 Regular phone number: (936) 523-6000 E-mail Hempel@Hempel.com	HEMPEL (USA), Inc. 2728 Empire Central Dallas, TX 75235 Phone number: 1-214-353-1600 E-mail: hempel@hempel.com
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1.4 Emergency telephone number (with hours of operation)

For Transportation Emergencies : (24 hours) CHEMTREC: **1-800-424-9300** (Toll-free in the U.S., Canada and the U.S. Virgin Islands) **703-527-3887**
 For calls originating elsewhere (Collect calls are accepted). Contract number: CCN10384
 To preserve the effectiveness of arrangements for providing accurate and timely emergency response information, the basic identifying information (shipper name or contract number) must be included on shipping papers.
 If the purchaser of this product is going to be shipping this product to other locations, the purchaser must arrange for its own Emergency Information Provider to respond to transport incidents. Hempel's 24 hour response contract does not cover non-Hempel shipments.

For all other information : (8 AM - 5 PM CST) In USA toll free calling available: 1-800- 678-6641 or (936)-523-6000
 See Section 4 of the safety data sheet (first aid measures).

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

GHS Classification :
 FLAMMABLE LIQUIDS - Category 3
 SKIN IRRITATION - Category 2
 EYE IRRITATION - Category 2A
 SKIN SENSITIZATION - Category 1
 CARCINOGENICITY - Category 1A
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

2.2 Label elements

Hazard pictograms :



SECTION 2: Hazards identification

Signal word :	Danger
Hazard statements :	H226 - Flammable liquid and vapor. H315 - Causes skin irritation. H317 - May cause an allergic skin reaction. H319 - Causes serious eye irritation. H350 - May cause cancer. H372 - Causes damage to organs through prolonged or repeated exposure. (hearing organs, lungs)
Precautionary statements :	
Prevention :	Obtain special instructions before use. Wear protective gloves. Wear protective clothing. Wear eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating or lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Do not breathe vapor, mist or spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.
Response :	IF exposed or concerned: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. Wash contaminated clothing before reuse. IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.
Storage :	Store in a well-ventilated place. Keep cool.
Disposal :	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements :	None known.

2.3 Other hazards

Hazards not otherwise classified : None known.

SECTION 3: Composition/information on ingredients

Product definition :	Mixture
Physical state :	Liquid.

Product/ingredient name	Identifiers	%	GHS Classification
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	25068-38-6	≥10 - ≤25	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1
Talc (non-asbestiform)	14807-96-6	≥10 - ≤25	Not classified.
titanium dioxide	13463-67-7	≥10 - ≤25	Not classified.
xylene	1330-20-7	≥5 - ≤10	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 SKIN IRRITATION - Category 2 SKIN SENSITIZATION - Category 1
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	68609-97-2	≥5 - ≤10	SKIN IRRITATION - Category 2 SKIN IRRITATION - Category 2 SKIN SENSITIZATION - Category 1
Methylstyrenated phenol	68512-30-1	≥3 - ≤5	SKIN IRRITATION - Category 2 SKIN SENSITIZATION - Category 1B
middle molecular epoxy resin MMW 700-1200	25068-38-6	≥3 - ≤5	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1
ethylbenzene	100-41-4	≥1 - ≤3	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (inhalation) - Category 4 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
butan-1-ol	71-36-3	≥1 - <3	ASPIRATION HAZARD - Category 1 FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
respirable quartz	14808-60-7	≥1 - ≤3	CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED

SECTION 3: Composition/information on ingredients

			EXPOSURE) - Category 1
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Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

SECTION 4: First aid measures

4.1 Description of first aid measures

General :	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 911 and give immediate treatment (first aid).
Eye contact :	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek immediate medical attention.
Inhalation :	Remove to fresh air. Keep person warm and at rest. If unconscious, place in recovery position and seek medical advice.
Skin contact :	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
Ingestion :	If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do not induce vomiting unless directed to do so by medical personnel. Lower the head so that vomit will not re-enter the mouth and throat.
Protection of first-aiders :	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact :	Causes serious eye irritation.
Inhalation :	No known significant effects or critical hazards.
Skin contact :	Causes skin irritation. May cause an allergic skin reaction.
Ingestion :	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact :	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation :	No specific data.
Skin contact :	Adverse symptoms may include the following: irritation redness
Ingestion :	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician :	Not applicable.
Specific treatments :	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media : Recommended: alcohol resistant foam, CO₂, powders, water spray.
Not to be used: waterjet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : Decomposition products may include the following materials: carbon oxides halogenated compounds metal oxide/oxides

5.3 Advice for firefighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard. Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Exclude sources of ignition and be aware of explosion hazard. Ventilate the area. Refer to protective measures listed in sections 7 and 8. No action shall be taken involving any personal risk or without suitable training.

6.2 Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material.

6.3 Methods and materials for containment and cleaning up

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air. Prevent the creation of flammable or explosive concentrations of vapors in air and avoid vapor concentrations higher than the occupational exposure limits. In addition, the product should be used only in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. To dissipate static electricity during transfer, ground drum and connect to receiving container with bonding strap. No sparking tools should be used. Contains epoxy constituents. Avoid all possible skin contact with epoxy and amine containing products, they may cause allergic reactions. Avoid inhalation of vapour, dust and spray mist. Avoid contact with skin and eyes. Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Appropriate personal protective equipment: see Section 8. Always keep in containers made from the same material as the original one.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a cool, well-ventilated area away from incompatible materials and ignition sources. Keep out of the reach of children. Keep away from: Oxidizing agents, strong alkalis, strong acids. No smoking. Prevent unauthorized access. Containers that are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 7: Handling and storage

7.3 Specific end use(s)

See separate Product Data Sheet for recommendations or industrial sector specific solutions.

This product may be applied using several application techniques and methods of handling may be different for each. Application techniques include [but are not limited to] brushing, rolling, and spray application [conventional, HPLV, airless, pleural component or aerosol can]. Avoid the breathing of vapors and, if spraying, do not breath spray mist or aerosols.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Product/ingredient name	Exposure limit values
Talc (non-asbestiform)	<p>ACGIH TLV (United States, 3/2019). TWA: 0.1 f/cc 8 hours. Form: Respirable fibers: length greater than 5 µm; aspect ratio equal to or greater than 3:1 as determined by the membrane filter method at 400-450X magnification (4-mm objective) phase contrast illumination.</p> <p>OSHA PEL Z3 (United States, 6/2016). TWA: 0.1 f/cc 8 hours. Form: containing asbestos STEL: 1 f/cc 30 minutes. Form: containing asbestos</p>
titanium dioxide	<p>OSHA PEL (United States, 5/2018). TWA: 15 mg/m³ 8 hours. Form: Total dust</p> <p>ACGIH TLV (United States, 3/2019). TWA: 10 mg/m³ 8 hours.</p>
xylene	<p>ACGIH TLV (United States, 3/2019). TWA: 100 ppm 8 hours. TWA: 434 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 651 mg/m³ 15 minutes.</p> <p>OSHA PEL (United States, 5/2018). TWA: 100 ppm 8 hours. TWA: 435 mg/m³ 8 hours.</p>
ethylbenzene	<p>ACGIH TLV (United States, 3/2019). TWA: 20 ppm 8 hours.</p> <p>NIOSH REL (United States, 10/2016). STEL: 545 mg/m³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 435 mg/m³ 10 hours. TWA: 100 ppm 10 hours.</p> <p>OSHA PEL (United States, 5/2018). TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours.</p>
butan-1-ol	<p>ACGIH TLV (United States, 3/2019). TWA: 20 ppm 8 hours.</p> <p>NIOSH REL (United States, 10/2016). Absorbed through skin. CEIL: 50 ppm CEIL: 150 mg/m³</p> <p>OSHA PEL (United States, 5/2018). TWA: 100 ppm 8 hours. TWA: 300 mg/m³ 8 hours.</p>
respirable quartz	<p>OSHA PEL Z3 (United States, 6/2016). TWA: 250 mppcf / (%SiO₂+5) 8 hours. Form: Respirable TWA: 10 mg/m³ / (%SiO₂+2) 8 hours. Form: Respirable</p> <p>OSHA PEL (United States, 5/2018). TWA: 50 µg/m³ 8 hours. Form: Respirable dust</p> <p>ACGIH TLV (United States, 3/2019). TWA: 0.025 mg/m³ 8 hours. Form: Respirable fraction</p> <p>NIOSH REL (United States, 10/2016). TWA: 0.05 mg/m³ 10 hours. Form: respirable dust</p>

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

SECTION 8: Exposure controls/personal protection

8.2 Exposure controls

Appropriate engineering controls

Provide local exhaust and general ventilation systems to maintain airborne concentrations below OSHA, ACGIH, and manufacturer recommended exposure limits. Local exhaust ventilation is preferred because it prevents contaminant dispersion into work areas by controlling it at its source. Use local and general exhaust ventilation to effectively remove and prevent buildup of mists/vapors/fumes generated from the handling of this product.

Note: Local exhaust ventilation is designed to capture an emitted contaminant at or near its source, before the contaminant has a chance to disperse into the workplace air. General exhaust ventilation, also called dilution ventilation, is different from local exhaust ventilation because instead of capturing emissions at their source and removing them from the air, general exhaust ventilation allows the contaminant to be emitted into the workplace air and then dilutes the concentration of the contaminant to an acceptable level (e.g., to the PEL or below).

Individual protection measures

General : Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. Safety eyewear should be used when there is a likelihood of exposure.

Hygiene measures : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Hand protection : Wear chemical-resistant gloves in combination with 'basic' employee training. The quality of the chemical-resistant protective gloves must be chosen as a function of the specific workplace concentrations and quantity of hazardous substances.
Since the actual work situation is unknown. Supplier of gloves should be contacted in order to find the appropriate type. Below listed glove(s) should be regarded as generic advice:

Recommended: Silver Shield / Barrier / 4H gloves, polyvinyl alcohol (PVA), Viton®
May be used: nitrile rubber, butyl rubber
Short term exposure: neoprene rubber, natural rubber (latex), polyvinyl chloride (PVC)

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved handling this product.
Wear suitable protective clothing. Always wear protective clothing when spraying.

Respiratory protection : If working areas have insufficient ventilation, wear half or totally covering mask equipped with gas filter of type Organic Vapor, when grinding use particle filter of type P95, P99 or P100. When spraying use a combined filter (organic vapor / HEPA or organic vapor / P100 type). Be sure to use approved/certified respirator or equivalent. Always wear an air-fed respirator when spraying in a continuous and prolonged work situation (e.g. hood with supply of fresh or compressed air or a full face, powered air purifying filter).

Protective clothing (pictograms) :



Note: Application of paint products by spraying requires additional safety precautions: Full body suit, Full face respirator with air supplied.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : Liquid.
Odor : Amine-like.
pH : Testing not relevant or not possible due to nature of the product.
Melting point/freezing point : Testing not relevant or not possible due to nature of the product.
Boiling point/boiling range : Testing not relevant or not possible due to nature of the product.
Flash point : Closed cup: 25°C (77°F)

SECTION 9: Physical and chemical properties

Evaporation rate :	Testing not relevant or not possible due to nature of the product.
Flammability :	Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Upper/lower flammability or explosive limits :	0.8 - 11.3 vol %
Vapor pressure :	Testing not relevant or not possible due to nature of the product.
Vapor density :	Testing not relevant or not possible due to nature of the product.
Relative density :	1.659 g/cm ³
Solubility(ies) :	Partially soluble in the following materials: cold water and hot water.
Partition coefficient (LogKow) :	Testing not relevant or not possible due to nature of the product.
Auto-ignition temperature :	Testing not relevant or not possible due to nature of the product.
Decomposition temperature :	Testing not relevant or not possible due to nature of the product.
Viscosity :	Testing not relevant or not possible due to nature of the product.
Explosive properties :	Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Oxidizing properties :	Testing not relevant or not possible due to nature of the product.

9.2 Other information

Solvent(s) % by weight (Included exempt solvent(s)):	9.2 % (w/w)
Water % by weight :	Weighted average: 0 %
VOC content (Coatings) :	1.27 lbs/gal (152.6 g/l)
VOC content (Regulatory) :	1.27 lbs/gal (152.6 g/l)
TOC Content (Volatile) :	Weighted average: 131 g/l
Solvent Gas :	Weighted average: 0.038 m ³ /l

SECTION 10: Stability and reactivity

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 Incompatible materials

Highly reactive or incompatible with the following materials: oxidizing materials.
Reactive or incompatible with the following materials: reducing materials.

10.6 Hazardous decomposition products

When exposed to high temperatures (i.e. in case of fire) harmful decomposition products may be formed:

Decomposition products may include the following materials: carbon oxides halogenated compounds metal oxide/oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Exposure to component solvent vapor concentrations may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Solvents may cause some of the above effects by absorption through the skin. Symptoms and signs include headaches, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and reversible damage. Accidental swallowing may cause stomach pain. Chemical lung inflammation may occur if the product is taken into the lungs via vomiting.

Epoxy and amine containing products can cause skin disorders such as allergic eczema. The allergy may arise after only a short exposure period.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Dermal	Rat	>2000 mg/kg	-
titanium dioxide	LD50 Oral	Rat	>2000 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>6.8 mg/l	4 hours
xylene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	6350 ppm	4 hours
oxirane, mono[(C12-14-alkyloxy) methyl] derivs.	LD50 Dermal	Rabbit	>4200 mg/kg	-
	LD50 Oral	Rat	3523 mg/kg	-
	LD50 Dermal	Rat	>4500 mg/kg	-
Methylstyrenated phenol	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>5 mg/l	4 hours
middle molecular epoxy resin MMW 700-1200	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Dermal	Rat	>2000 mg/kg	-
ethylbenzene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
butan-1-ol	LC50 Inhalation Vapor	Rat	24000 mg/m ³	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	790 mg/kg	-

Acute toxicity estimates

Route	ATE value
Oral	59958.46 mg/kg
Dermal	17841.24 mg/kg
Inhalation (gases)	65052.36 ppm
Inhalation (vapors)	146 mg/l

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	Eyes - Mild irritant	Rabbit	-	-
	Skin - Mild irritant	Rabbit	-	-
Talc (non-asbestiform)	Skin - Mild irritant	Human	-	72 hours 300 Micrograms Intermittent
	Skin - Mild irritant	Human	-	72 hours 300 Micrograms Intermittent
titanium dioxide	Skin - Mild irritant	Human	-	72 hours 300 Micrograms Intermittent
	Skin - Mild irritant	Human	-	72 hours 300 Micrograms Intermittent
xylene	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams
oxirane, mono[(C12-14-alkyloxy) methyl] derivs.	Eyes - Mild irritant	Rabbit	-	-
	Eyes - Mild irritant	Rabbit	-	-
Methylstyrenated phenol	Skin - Moderate irritant	Rabbit	-	-
	Eyes - Mild irritant	Rabbit	-	-
ethylbenzene	Skin - Irritant	Rabbit	-	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams
	Respiratory - Mild irritant	Rabbit	-	-
butan-1-ol	Eyes - Mild irritant	Rabbit	-	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams

Sensitizer

SECTION 11: Toxicological information

Product/ingredient name	Route of exposure	Species	Result
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	skin	Guinea pig	Sensitizing
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	skin	Guinea pig	Sensitizing
middle molecular epoxy resin MMW 700-1200	skin	Guinea pig	Sensitizing

Carcinogen Classification

Product/ingredient name	IARC	NTP	OSHA
Talc (non-asbestiform)	1	-	-
titanium dioxide	2B	-	-
xylene	3	-	-
ethylbenzene	2B	-	-
respirable quartz	1	Known to be a human carcinogen.	-

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
butan-1-ol	Category 3		Respiratory tract irritation
	Category 3		Narcotic effects

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ethylbenzene	Category 2	-	hearing organs
respirable quartz	Category 1	inhalation	lungs

Aspiration hazard

Product/ingredient name	Result
ethylbenzene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential chronic health effects

Sensitization : Contains bisphenol A-(epichlorhydrin) epoxy resin MW =< 700, oxirane, mono[(C12-14-alkyloxy)methyl] derivs., Methylstyrenated phenol, middle molecular epoxy resin MMW 700-1200, 1,3-bis (12-hydroxyocta-decanamide-N-methyle)benzene. May produce an allergic reaction.

Other information : No additional known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Do not allow to enter drains or watercourses. Harmful to aquatic life with long lasting effects.

When spilled, this product may act as an oil, causing a film, sheen, emulsion, or sludge at or beneath the surface of a body of water. Oils of any kind can cause: (a) drowning of waterfowl due to lack of buoyancy, loss of insulating capacity of feathers, starvation and vulnerability to predators due to lack of mobility; (b) lethal effect on fish by coating gill surfaces, preventing respiration; (c) potential fish kills resulting from alteration in biochemical oxygen demand; (d) asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom; and (e) adverse aesthetic effects of fouled shoreline and beaches.

SECTION 12: Ecological information

Product/ingredient name	Result	Species	Exposure
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	Acute EC50 >11 mg/l	Algae	72 hours
	Acute EC50 2.1 mg/l	Daphnia - Daphnia magna	48 hours
	Acute LC50 3.1 mg/l	Fish - fathead minnow (Pimephales promelas)	96 hours
titanium dioxide	Acute LC50 >100 mg/l	Daphnia	48 hours
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	Acute LC50 >100 mg/l	Fish	96 hours
	Acute IC50 843.75 mg/l	Algae	72 hours
Methylstyrenated phenol	Acute LC50 5000 mg/l	Fish	96 hours
	Acute EC50 15 mg/l	Algae	72 hours
middle molecular epoxy resin MMW 700-1200	Acute EC50 14 - 51 mg/l	Daphnia	48 hours
	Acute EC50 25.8 mg/l	Fish	96 hours
	Acute EC50 >100 mg/l	Daphnia	48 hours
ethylbenzene	Acute LC50 >100 mg/l	Fish	96 hours
	Chronic NOEC <1000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
butan-1-ol	Acute EC50 1328 mg/l	Daphnia	96 hours
	Acute LC50 1.376 mg/l	Fish	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	OECD 302B Inherent Biodegradability: Zahn-Wellens/EMPA Test	12 % - Not readily - 28 days	-	-
xylene	-	>60 % - Readily - 28 days	-	-
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	-	87 % - Readily - 28 days	-	-
ethylbenzene	-	>70 % - Readily - 28 days	-	-
butan-1-ol	OECD 301D Ready Biodegradability - Closed Bottle Test	92 % - 20 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	-	-	Not readily
xylene	-	-	Readily
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	-	-	Readily
Methylstyrenated phenol	-	-	Not readily
ethylbenzene	-	-	Readily
butan-1-ol	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
bisphenol A-(epichlorhydrin) epoxy resin MW =< 700	2.64 - 3.78	31	low
xylene	3.12	8.1 - 25.9	low
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	3.77	160 - 263	low
Methylstyrenated phenol	3.627	-	low
middle molecular epoxy resin MMW 700-1200	2.64 - 3.78	31	low
ethylbenzene	3.6	-	low
butan-1-ol	1	3.16	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : No known data available in our database.

Mobility : No known data available in our database.

12.5 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7 and Section 8 for additional handling information and protection of employees.






The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Xylene 1-Butanol (I); n-Butyl alcohol (I)	1330-20-7 71-36-3	Listed Listed	U239 U031

SECTION 14: Transport information

Transport may take place according to national regulation or DOT for transport by road and by train, IMDG for transport by sea, IATA for Air shipment. Refer to specific Dangerous Goods Transport requirements under 49CFR, ICAO and IATA.

	14.1 UN no.	14.2 Proper shipping name	14.3 Transport hazard class(es)	14.4 PG*	14.5 Env*	14.5 Additional information
DOT Code	UN1263	PAINT	3 - 	III	No.	ERG : 128 Reportable quantity (xylene) 1618.1 lbs / 734.62 kg [116.98 gal / 442.81 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
TDG Code	UN1263	PAINT	3 - 	III	No.	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3).
SCT Code	UN1263	PAINT	3 - 	III	No.	-
IMDG Code	UN1263	PAINT	3 - 	III	No.	Emergency schedules F-E, S-E
IATA Code	UN1263	PAINT	3 - 	III	No.	-

Code : Classification

PG* : Packing group

Env.* : Environmental hazards

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

SECTION 14: Transport information

14.7 Transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): Not determined.

Clean Water Act (CWA) 307: ethylbenzene; toluene; benzene; phenol

Clean Water Act (CWA) 311: 1-chloro-2,3-epoxypropane; xylene; ethylbenzene; toluene; benzene; phenol

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Product/ingredient name	CAS number	Concentration
1-chloro-2,3-epoxypropane	106-89-8	0.0035685
xylene	1330-20-7	6.1801
ethylbenzene	100-41-4	1.3718
toluene	108-88-3	0.076475
benzene	71-43-2	0.0062361
phenol	108-95-2	0.020991
methanol (formed by reaction)	Sec (67-56-1)	0.13407

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304 :

Product/ingredient name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
phenol	≤0.1	Yes.	500 / 10000	-	1000	-
1-chloro-2,3-epoxypropane	<0.1	Yes.	1000	101.6	100	10.2

SARA 304 RQ :

2802291.8 lbs / 1272240.5 kg [202586.1 gal / 766871.9 L]

SARA 311/312 Classification :

FLAMMABLE LIQUIDS - Category 3
 SKIN IRRITATION - Category 2
 EYE IRRITATION - Category 2A
 SKIN SENSITIZATION - Category 1
 CARCINOGENICITY - Category 1A
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

Product/ingredient name	%	Classification
bisphenol A-(epichlorhydrin) epoxy resin MW = < 700	≥10 - ≤25	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1
xylene	≥5 - ≤10	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	≥5 - ≤10	SKIN IRRITATION - Category 2 SKIN SENSITIZATION - Category 1
Methylstyrenated phenol	≥3 - ≤5	SKIN IRRITATION - Category 2 SKIN SENSITIZATION - Category 1B
middle molecular epoxy resin MMW 700-1200	≥3 - ≤5	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1
ethylbenzene	≥1 - ≤3	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (inhalation) - Category 4 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
butan-1-ol	≥1 - <3	ASPIRATION HAZARD - Category 1 FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
respirable quartz	≥1 - ≤3	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

SECTION 15: Regulatory information

SARA 313 : SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

Form R - Reporting requirements :

Product/ingredient name	CAS number	Concentration
xylene	1330-20-7	5 - 10
ethylbenzene	100-41-4	1 - 3
butan-1-ol	71-36-3	1 - 3

Supplier notification :

Product/ingredient name	CAS number	Concentration
xylene	1330-20-7	5 - 10
middle molecular epoxy resin MMW 700-1200	25068-38-6	3 - 5
ethylbenzene	100-41-4	1 - 3
butan-1-ol	71-36-3	1 - 3

State regulations :

Connecticut Carcinogen Reporting: None of the components are listed.
Connecticut Hazardous Material Survey: None of the components are listed.
Florida substances: None of the components are listed.
Illinois Chemical Safety Act: None of the components are listed.
Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.
Louisiana Reporting: None of the components are listed.
Louisiana Spill: None of the components are listed.
Massachusetts Spill: None of the components are listed.
Massachusetts Substances: The following components are listed: SILICA, CRYSTALLINE, QUARTZ; TALC; SOAPSTONE; TITANIUM DIOXIDE; TIN DIOXIDE DUST; XYLENE; DIMETHYLBENZENE; ETHYL BENZENE; ETHYLBENZENE; N-BUTYL ALCOHOL; 1-BUTANOL
Michigan Critical Material: None of the components are listed.
Minnesota Hazardous Substances: None of the components are listed.
New Jersey Hazardous Substances: The following components are listed: SILICA, QUARTZ; QUARTZ (SiO₂); SOAPSTONE; TITANIUM DIOXIDE; TITANIUM OXIDE (TiO₂); XYLENES; BENZENE, DIMETHYL-; ETHYL BENZENE; BENZENE, ETHYL-; n-BUTYL ALCOHOL; 1-BUTANOL
New Jersey Spill: None of the components are listed.
New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.
New York Acutely Hazardous Substances: The following components are listed: Xylene mixed; Ethylbenzene; Butyl alcohol; 1-Butanol
New York Toxic Chemical Release Reporting: None of the components are listed.
Pennsylvania RTK Hazardous Substances: The following components are listed: QUARTZ DUST; QUARTZ; TALC; SOAPSTONE DUST; TITANIUM OXIDE; SILICA; BENZENE, DIMETHYL-; BENZENE, ETHYL-; 1-BUTANOL
Rhode Island Hazardous Substances: None of the components are listed.

California Prop. 65 PFF : **WARNING:** This product can expose you to chemicals including Benzene and Epichlorohydrin, which are known to the State of California to cause cancer and birth defects or other reproductive harm. This product can expose you to chemicals including Talc containing asbestiform fibers, Titanium dioxide, Ethylbenzene, Silica, crystalline and α -Methyl styrene, which are known to the State of California to cause cancer, and Toluene, Bisphenol A and Methanol, which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Product/ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Talc (non-asbestiform)	Yes.	No.		
titanium dioxide	Yes.	No.		
ethylbenzene	Yes.	No.	Yes.	
respirable quartz	Yes.	No.		
toluene	No.	Yes.		Yes.
2-phenylpropene	Yes.	No.		
4,4'-isopropylidenediphenol	No.	Yes.		Yes.
benzene	Yes.	Yes.	Yes.	Yes.
1-chloro-2,3-epoxypropane	Yes.	Yes.	Yes.	
methanol	No.	Yes.		Yes.

SECTION 16: Other information

Remarks : Note: In USA, consult Code of Federal Regulations, Title 29, Labor, Parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable Federal, State or local regulations that apply to safe practices in coating operations.
Warning! If you scrape, sand, or remove old paint, you may release lead dust. LEAD is TOXIC.

Validation : Validated by US - HSE Products Coordinator on 27 June 2020

GHS Classification

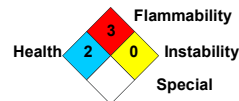
Procedure used to derive the classification.

Classification	Justification
FLAMMABLE LIQUIDS - Category 3	On basis of test data
SKIN IRRITATION - Category 2	Calculation method
EYE IRRITATION - Category 2A	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
CARCINOGENICITY - Category 1A	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1	Calculation method

Hazardous Material Information System (U.S.A.)

Health	3
Fire hazard	3
Physical hazards	0
Personal protection	X

National Fire Protection Association (U.S.A.)



Personal Protective Equipment (PPE) shown in this section is a suggestion. Since conditions vary from one work location to another consult the facility safety & health program. Customer or end user is responsible to evaluate worker exposure conditions at the site of application and determine the appropriate PPE suitable for workers at that particular facility or location.

Abbreviations and acronyms :

ANSI = American National Standards Institute

HCS = Hazardous Communication System

TSCA = Toxic Substances Control Act

CFR = Code of federal Regulations

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

OSHA = United States Occupational Health and Safety Administration

NIOSH = National Institute for Occupational Safety and Health

ACGIH = American Conference of Industrial Hygienists

IARC = International Agency for Research on Cancer.

NTP = National Toxicology Program

ATE = Acute Toxicity Estimate

OECD = Organisation for Economic Co-operation and Development

BCF = Bioconcentration Factor

DOT = United States Department of Transportation

ERG = Emergency Response Guide

TDG = Transport of Dangerous Goods, Canada

SCT = Transportation & Communications Ministry, Mexico

IMDG = International Maritime Dangerous Goods

IATA = International Air Transport Association

SARA = Superfund Amendments Reauthorization Act

EPCRA = Emergency Planning and Community Right to Know Act

Notice to reader

 Indicates information that has changed from previously issued version.

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Conforms to ANSI Z400.1-2010 Standard - HCS 2012

Protective Clothing	General Hazard	DOT
		

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : HEMPEL'S CURING AGENT 95090
 Product identity : 9509000000
 Product type : Curing agent

1.2 Relevant identified uses of the substance or mixture and uses advised against

Field of application : used only as part of two- or multi component products.
 Ready-for-use mixture : (see base component)
 Identified uses : Industrial/Professional use
 TSCA : **Unless otherwise stated. All components are listed or exempted.**

1.3 Details of the supplier of the safety data sheet

Company details :	HEMPEL (USA), Inc. 600 Conroe Park North Drive Conroe, Texas 77303 Toll free: (800) 678-6641, if outside area codes 713, 281, 409, 936 Regular phone number: (936) 523-6000 E-mail Hempel@Hempel.com	HEMPEL (USA), Inc. 2728 Empire Central Dallas, TX 75235 Phone number: 1-214-353-1600 E-mail: hempel@hempel.com
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1.4 Emergency telephone number (with hours of operation)

For Transportation Emergencies : (24 hours) CHEMTREC: **1-800-424-9300** (Toll-free in the U.S., Canada and the U.S. Virgin Islands) **703-527-3887**
 For calls originating elsewhere (Collect calls are accepted). Contract number: CCN10384
 To preserve the effectiveness of arrangements for providing accurate and timely emergency response information, the basic identifying information (shipper name or contract number) must be included on shipping papers.
 If the purchaser of this product is going to be shipping this product to other locations, the purchaser must arrange for its own Emergency Information Provider to respond to transport incidents. Hempel's 24 hour response contract does not cover non-Hempel shipments.

For all other information : (8 AM - 5 PM CST) In USA toll free calling available: 1-800- 678-6641 or (936)-523-6000
 See Section 4 of the safety data sheet (first aid measures).

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

GHS Classification :
 FLAMMABLE LIQUIDS - Category 3
 SKIN CORROSION - Category 1C
 SERIOUS EYE DAMAGE - Category 1
 SKIN SENSITIZATION - Category 1
 CARCINOGENICITY - Category 2
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2

2.2 Label elements

Hazard pictograms :



SECTION 2: Hazards identification

Signal word :	Danger
Hazard statements :	H226 - Flammable liquid and vapor. H314 - Causes severe skin burns and eye damage. H317 - May cause an allergic skin reaction. H351 - Suspected of causing cancer. H373 - May cause damage to organs through prolonged or repeated exposure. (hearing organs)
Precautionary statements :	
Prevention :	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Do not breathe vapor. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.
Response :	Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
Storage :	Store locked up. Store in a well-ventilated place. Keep cool.
Disposal :	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements :	None known.

2.3 Other hazards

Hazards not otherwise classified : None known.

SECTION 3: Composition/information on ingredients

Product definition : Mixture

Physical state : Liquid.

Product/ingredient name	Identifiers	%	GHS Classification
xylene	1330-20-7	≥10 - ≤21	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2
Methylstyrenated phenol	68512-30-1	≥5 - ≤10	SKIN IRRITATION - Category 2 SKIN SENSITIZATION - Category 1
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	≥5 - ≤10	SKIN CORROSION - Category 1C SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1B
1-methoxy-2-propanol	107-98-2	≥5 - ≤10	FLAMMABLE LIQUIDS - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
ethylbenzene	100-41-4	≥3 - ≤4.7	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (inhalation) - Category 4 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2
triethylenetetramine	112-24-3	≥1 - ≤3	ASPIRATION HAZARD - Category 1 ACUTE TOXICITY (dermal) - Category 4 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1
bis[(dimethylamino)methyl]phenol	71074-89-0	≥1 - ≤3	SKIN SENSITIZATION - Category 1 SKIN CORROSION - Category 1C SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1B

SECTION 3: Composition/information on ingredients

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

SECTION 4: First aid measures

4.1 Description of first aid measures

General :	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 911 and give immediate treatment (first aid).
Eye contact :	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek immediate medical attention.
Inhalation :	Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Give nothing by mouth. If unconscious, place in recovery position and get medical attention immediately.
Skin contact :	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
Ingestion :	If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do not induce vomiting unless directed to do so by medical personnel. Lower the head so that vomit will not re-enter the mouth and throat.
Protection of first-aiders :	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact :	Causes serious eye damage.
Inhalation :	No known significant effects or critical hazards.
Skin contact :	Causes severe burns. May cause an allergic skin reaction.
Ingestion :	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact :	Adverse symptoms may include the following: pain watering redness
Inhalation :	No specific data.
Skin contact :	Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion :	Adverse symptoms may include the following: stomach pains

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician :	If gasses have been inhaled, from the decomposition of the product, symptoms may be delayed.
Specific treatments :	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media : Recommended: alcohol resistant foam, CO₂, powders, water spray.
Not to be used: waterjet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous combustion products : Decomposition products may include the following materials: carbon oxides nitrogen oxides

5.3 Advice for firefighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard. Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid all direct contact with the spilled material. Exclude sources of ignition and be aware of explosion hazard. Ventilate the area. Avoid breathing vapor or mist. Refer to protective measures listed in sections 7 and 8. No action shall be taken involving any personal risk or without suitable training. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.2 Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air. Prevent the creation of flammable or explosive concentrations of vapors in air and avoid vapor concentrations higher than the occupational exposure limits. In addition, the product should be used only in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. To dissipate static electricity during transfer, ground drum and connect to receiving container with bonding strap. No sparking tools should be used.

Avoid inhalation of vapour, dust and spray mist. Avoid contact with skin and eyes. Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Appropriate personal protective equipment: see Section 8. Always keep in containers made from the same material as the original one.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a cool, well-ventilated area away from incompatible materials and ignition sources. Keep out of the reach of children. Keep away from: Oxidizing agents, strong alkalis, strong acids. No smoking. Prevent unauthorized access. Containers that are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

SECTION 7: Handling and storage

See separate Product Data Sheet for recommendations or industrial sector specific solutions.

This product may be applied using several application techniques and methods of handling may be different for each. Application techniques include [but are not limited to] brushing, rolling, and spray application [conventional, HPLV, airless, pleural component or aerosol can]. Avoid the breathing of vapors and, if spraying, do not breath spray mist or aerosols.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Product/ingredient name	Exposure limit values
xylene	ACGIH TLV (United States, 3/2017). TWA: 100 ppm 8 hours. TWA: 434 mg/m ³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 651 mg/m ³ 15 minutes. OSHA PEL (United States, 6/2016). TWA: 100 ppm 8 hours. TWA: 435 mg/m ³ 8 hours.
1-methoxy-2-propanol	ACGIH TLV (United States, 3/2017). STEL: 369 mg/m ³ 15 minutes. STEL: 100 ppm 15 minutes. TWA: 184 mg/m ³ 8 hours. TWA: 50 ppm 8 hours. NIOSH REL (United States, 10/2016). STEL: 540 mg/m ³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 360 mg/m ³ 10 hours. TWA: 100 ppm 10 hours.
ethylbenzene	ACGIH TLV (United States, 3/2017). TWA: 20 ppm 8 hours. NIOSH REL (United States, 10/2016). STEL: 545 mg/m ³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 435 mg/m ³ 10 hours. TWA: 100 ppm 10 hours. OSHA PEL (United States, 6/2016). TWA: 435 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.
triethylenetetramine	AIHA WEEL (United States, 10/2011). Absorbed through skin. TWA: 1 ppm 8 hours.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

8.2 Exposure controls

Appropriate engineering controls

Provide local exhaust and general ventilation systems to maintain airborne concentrations below OSHA, ACGIH, and manufacturer recommended exposure limits. Local exhaust ventilation is preferred because it prevents contaminant dispersion into work areas by controlling it at its source. Use local and general exhaust ventilation to effectively remove and prevent buildup of mists/vapors/fumes generated from the handling of this product.


Note: Local exhaust ventilation is designed to capture an emitted contaminant at or near its source, before the contaminant has a chance to disperse into the workplace air. General exhaust ventilation, also called dilution ventilation, is different from local exhaust ventilation because instead of capturing emissions at their source and removing them from the air, general exhaust ventilation allows the contaminant to be emitted into the workplace air and then dilutes the concentration of the contaminant to an acceptable level (e.g., to the PEL or below).

Individual protection measures

General : Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. Safety eyewear should be used when there is a likelihood of exposure.

Hygiene measures : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

SECTION 8: Exposure controls/personal protection

Eye/face protection :	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
Hand protection :	<p>Wear chemical-resistant gloves in combination with 'basic' employee training. The quality of the chemical-resistant protective gloves must be chosen as a function of the specific workplace concentrations and quantity of hazardous substances.</p> <p>Since the actual work situation is unknown. Supplier of gloves should be contacted in order to find the appropriate type. Below listed glove(s) should be regarded as generic advice:</p> <p>May be used: nitrile rubber, butyl rubber Recommended: Silver Shield / Barrier / 4H gloves, polyvinyl alcohol (PVA), Viton® Short term exposure: neoprene rubber, natural rubber (latex), polyvinyl chloride (PVC)</p>
Body protection :	<p>Personal protective equipment for the body should be selected based on the task being performed and the risks involved handling this product.</p> <p>Wear suitable protective clothing. Always wear protective clothing when spraying.</p>
Respiratory protection :	If working areas have insufficient ventilation, wear half or totally covering mask equipped with gas filter of type Organic Vapor, when grinding use particle filter of type P95, P99 or P100. When spraying use a combined filter (organic vapor / HEPA or organic vapor / P100 type). Be sure to use approved/certified respirator or equivalent. Always wear an air-fed respirator when spraying in a continuous and prolonged work situation (e.g. hood with supply of fresh or compressed air or a full face, powered air purifying filter).
Protective clothing (pictograms) :	 <p>Note: Application of paint products by spraying requires additional safety precautions: Full body suit, Full face respirator with air supplied.</p>

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state :	Liquid.
Odor :	Solvent-like
pH :	Testing not relevant or not possible due to nature of the product.
Melting point/freezing point :	Testing not relevant or not possible due to nature of the product.
Boiling point/boiling range :	Testing not relevant or not possible due to nature of the product.
Flash point :	Closed cup: 27°C (80.6°F)
Evaporation rate :	Testing not relevant or not possible due to nature of the product.
Flammability :	Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Upper/lower flammability or explosive limits :	0.8 - 13.74 vol %
Vapor pressure :	Testing not relevant or not possible due to nature of the product.
Vapor density :	Testing not relevant or not possible due to nature of the product.
Relative density :	0.956 g/cm ³
Solubility(ies) :	Very slightly soluble in the following materials: cold water and hot water.
Partition coefficient (LogKow) :	Testing not relevant or not possible due to nature of the product.
Auto-ignition temperature :	Testing not relevant or not possible due to nature of the product.
Decomposition temperature :	Testing not relevant or not possible due to nature of the product.

SECTION 9: Physical and chemical properties

Viscosity :	Testing not relevant or not possible due to nature of the product.
Explosive properties :	Not available.
Oxidizing properties :	Testing not relevant or not possible due to nature of the product.

9.2 Other information

Solvent(s) % by weight (Included exempt solvent(s)):	27.8 % (w/w)
Water % by weight :	Weighted average: 0 %
VOC content (Coatings) :	2.22 lbs/gal (266.1 g/l)
VOC content (Regulatory) :	2.22 lbs/gal (266.1 g/l)
TOC Content (Volatile) :	Weighted average: 222 g/l
Solvent Gas :	Weighted average: 0.062 m ³ /l

SECTION 10: Stability and reactivity

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 Incompatible materials

Extremely reactive or incompatible with the following materials: acids.
Highly reactive or incompatible with the following materials: oxidizing materials.
Reactive or incompatible with the following materials: reducing materials and organic materials.

10.6 Hazardous decomposition products

When exposed to high temperatures (i.e. in case of fire) harmful decomposition products may be formed:
Decomposition products may include the following materials: carbon oxides nitrogen oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Exposure to component solvent vapor concentrations may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Solvents may cause some of the above effects by absorption through the skin. Symptoms and signs include headaches, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and reversible damage. Accidental swallowing may cause stomach pain. Chemical lung inflammation may occur if the product is taken into the lungs via vomiting.

Acute toxicity

SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
xylene	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	6350 ppm	4 hours
	LD50 Dermal	Rabbit	>4200 mg/kg	-
Methylstyrenated phenol	LD50 Oral	Rat	3523 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>5 mg/l	4 hours
2,4,6-tris(dimethylaminomethyl) phenol	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Dermal	Rat	1280 mg/kg	-
1-methoxy-2-propanol	LD50 Oral	Rat	1200 mg/kg	-
	LD50 Oral	Rat	2169 mg/kg	-
	LD50 Dermal	Rabbit	13 g/kg	-
ethylbenzene	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	4016 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
triethylenetetramine	LD50 Dermal	Rabbit	3500 mg/kg	-
	LD50 Oral	Rat	550 mg/kg	-
	LD50 Oral	Rat	1716 mg/kg	-

Acute toxicity estimates

Route	ATE value
Oral	13920.2 mg/kg
Dermal	5804.5 mg/kg
Inhalation (gases)	23339.8 ppm
Inhalation (vapors)	52.37 mg/l

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure
xylene	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams
Methylstyrenated phenol	Eyes - Mild irritant	Rabbit	-	-
	Eyes - Severe irritant	Rabbit	-	24 hours 50 Micrograms
1-methoxy-2-propanol	Skin - Severe irritant	Rabbit	-	24 hours 2 milligrams
	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams
ethylbenzene	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams
	Respiratory - Mild irritant	Rabbit	-	-
triethylenetetramine	Eyes - Mild irritant	Rabbit	-	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams
	Skin - Severe irritant	Rabbit	-	24 hours 5 milligrams

Sensitizer

Product/ingredient name	Route of exposure	Species	Result
triethylenetetramine	skin	Guinea pig	Sensitizing

Carcinogen Classification

Product/ingredient name	IARC	NTP	OSHA
xylene	3	-	-
ethylbenzene	2B	-	-

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
1-methoxy-2-propanol	Category 3	Not applicable.	Narcotic effects

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ethylbenzene	Category 2	Not determined	hearing organs

Aspiration hazard

SECTION 11: Toxicological information

Product/ingredient name	Result
ethylbenzene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential chronic health effects

Sensitization : Contains Methylstyrenated phenol, triethylenetetramine. May produce an allergic reaction.

Other information : No additional known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Do not allow to enter drains or watercourses.

When spilled, this product may act as an oil, causing a film, sheen, emulsion, or sludge at or beneath the surface of a body of water. Oils of any kind can cause: (a) drowning of waterfowl due to lack of buoyancy, loss of insulating capacity of feathers, starvation and vulnerability to predators due to lack of mobility; (b) lethal effect on fish by coating gill surfaces, preventing respiration; (c) potential fish kills resulting from alteration in biochemical oxygen demand; (d) asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom; and (e) adverse aesthetic effects of fouled shoreline and beaches.

Product/ingredient name	Result	Species	Exposure
Methylstyrenated phenol	Acute EC50 15 mg/l	Algae	72 hours
	Acute EC50 14 - 51 mg/l	Daphnia	48 hours
	Acute EC50 25.8 mg/l	Fish	96 hours
2,4,6-tris(dimethylaminomethyl) phenol	Acute EC50 84 mg/l	Algae	72 hours
1-methoxy-2-propanol	Acute LC50 175 mg/l	Fish	96 hours
	Acute EC50 1000 mg/l	Algae - Pseudokirchneriella subcapitata (green algae)	7 days
	Acute EC50 23300 mg/l	Daphnia - Daphnia magna (Water flea)	48 hours
	Acute LC50 6812 mg/l	Fish - Leuciscus idus	96 hours
ethylbenzene	Chronic NOEC <1000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
triethylenetetramine	Acute EC50 20 mg/l	Algae	72 hours
	Acute EC50 31.1 mg/l	Daphnia	48 hours
	Acute LC50 330 mg/l	Fish	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
xylene	-	>60 % - Readily - 28 days	-	-
2,4,6-tris(dimethylaminomethyl) phenol	OECD 301D 301D Ready	4 % - Not readily - 28 days	-	-
1-methoxy-2-propanol	Biodegradability - Closed Bottle Test OECD 301E Ready	96 % - Readily - 28 days	-	-
ethylbenzene	Biodegradability - Modified OECD Screening Test	>70 % - Readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
xylene	-	-	Readily
2,4,6-tris(dimethylaminomethyl) phenol	-	-	Not readily
1-methoxy-2-propanol	-	-	Readily
ethylbenzene	-	-	Readily

12.3 Bioaccumulative potential

SECTION 12: Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
xylene	3.12	8.1 - 25.9	low
Methylstyrenated phenol	3.627	-	low
2,4,6-tris(dimethylaminomethyl)phenol	0.219	-	low
1-methoxy-2-propanol	<1	-	low
ethylbenzene	3.6	-	low
triethylenetetramine	-1.66 - -1.4	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : No known data available in our database.

Mobility : No known data available in our database.

12.5 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7 and Section 8 for additional handling information and protection of employees.





The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List







Ingredient	CAS #	Status	Reference number
Xylene	1330-20-7	Listed	U239

SECTION 14: Transport information

Transport may take place according to national regulation or DOT for transport by road and by train, IMDG for transport by sea, IATA for Air shipment. Refer to specific Dangerous Goods Transport requirements under 49CFR, ICAO and IATA.

	14.1 UN no.	14.2 Proper shipping name	14.3 Transport hazard class(es)	14.4 PG*	14.5 Env* Additional information
DOT Code	UN3469	PAINT, FLAMMABLE, CORROSIVE	3 8  	III	No. Reportable quantity (xylene, ethylbenzene) 541.06 lbs / 245.64 kg [67.879 gal / 256.95 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
TDG Code	UN3469	PAINT, FLAMMABLE, CORROSIVE	3 8  	III	No. Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.40-2.42 (Class 8).

SECTION 14: Transport information

SCT Code	UN3469	PAINT, FLAMMABLE, CORROSIVE	3 8	 	III	No. -
IMDG Code	UN3469	PAINT, FLAMMABLE, CORROSIVE	3 8	 	III	No. <u>Emergency schedules</u> F-S, S-E
IATA Code	UN3469	PAINT, FLAMMABLE, CORROSIVE	3 8	 	III	No. -

Code : Classification
 PG* : Packing group
 Env.* : Environmental hazards

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal regulations : Not determined.

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): Not determined.

Clean Water Act (CWA) 307: ethylbenzene; phenol

Clean Water Act (CWA) 311: xylene; ethylbenzene; phenol

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Product/ingredient name	CAS number	Concentration
xylene	1330-20-7	18.482
ethylbenzene	100-41-4	4.057
phenol	108-95-2	0.0041552

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304 - SARA 311/312:

SARA 302/304: phenol

SARA 311/312 Hazards identification: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

Product/ingredient name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
xylene	10 - 25	Yes.	No.	No.	Yes.	No.
Methylstyrenated phenol	5 - 10	No.	No.	No.	Yes.	No.
2,4,6-tris(dimethylaminomethyl)phenol	5 - 10	No.	No.	No.	Yes.	No.
1-methoxy-2-propanol	5 - 10	Yes.	No.	No.	Yes.	No.
ethylbenzene	3 - 5	Yes.	No.	No.	Yes.	Yes.
triethylenetetramine	1 - 3	No.	No.	No.	Yes.	No.
bis(dimethylamino)methyl]phenol	1 - 3	No.	No.	No.	Yes.	No.

SARA 313 :

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

Form R - Reporting requirements :

Product/ingredient name	CAS number	Concentration
xylene	1330-20-7	10 - 20
ethylbenzene	100-41-4	3 - 5

SECTION 15: Regulatory information

Supplier notification :

Product/ingredient name	CAS number	Concentration
xylene	1330-20-7	10 - 20
ethylbenzene	100-41-4	3 - 5

State regulations :

Connecticut Carcinogen Reporting: None of the components are listed.
Connecticut Hazardous Material Survey: None of the components are listed.
Florida substances: None of the components are listed.
Illinois Chemical Safety Act: None of the components are listed.
Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.
Louisiana Reporting: None of the components are listed.
Louisiana Spill: None of the components are listed.
Massachusetts Spill: None of the components are listed.
Massachusetts Substances: The following components are listed: XYLENE; DIMETHYLBENZENE; ETHYL BENZENE; ETHYLBENZENE; TRIETHYLENETETRAMINE; PROPYLENE GLYCOL METHYL ETHER; PROPYLENE GLYCOL MONOMETHYL ETHER
Michigan Critical Material: None of the components are listed.
Minnesota Hazardous Substances: None of the components are listed.
New Jersey Hazardous Substances: The following components are listed: XYLENES; BENZENE, DIMETHYL-; ETHYL BENZENE; BENZENE, ETHYL-; TRIETHYLENE TETRAMINE; 1, 2-ETHANEDIAMINE, N,N'-BIS(2-AMINOETHYL)-; PROPYLENE GLYCOL MONOMETHYL ETHER; 1-METHOXY-2-PROPANOL
New Jersey Spill: None of the components are listed.
New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.
New York Acutely Hazardous Substances: The following components are listed: Xylene mixed; Ethylbenzene
New York Toxic Chemical Release Reporting: None of the components are listed.
Pennsylvania RTK Hazardous Substances: The following components are listed: BENZENE, DIMETHYL-; BENZENE, ETHYL-; 1,2-ETHANEDIAMINE, N,N'-BIS(2-AMINOETHYL)-; 2-PROPANOL, 1-METHOXY-
Rhode Island Hazardous Substances: None of the components are listed.

California Prop. 65 PFF :

WARNING: This product contains a chemical known to the State of California to cause cancer.

Product/ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
ethylbenzene	Yes.	No.	Yes.	
2-phenylpropene	Yes.	No.		

SECTION 16: Other information

Remarks :

Note: In USA, consult Code of Federal Regulations, Title 29, Labor, Parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable Federal, State or local regulations that apply to safe practices in coating operations.
 Warning! If you scrape, sand, or remove old paint, you may release lead dust. LEAD is TOXIC.

Validation :

Validated by US - HSE Products Coordinator on 8 March 2018

GHS Classification

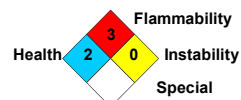
Procedure used to derive the classification.

Classification	Justification
FLAMMABLE LIQUIDS - Category 3 SKIN CORROSION - Category 1C SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2	On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method

Hazardous Material Information System (U.S.A.)

Health	3
Fire hazard	3
Physical hazards	0
Personal protection	X

National Fire Protection Association (U.S.A.)



Personal Protective Equipment (PPE) shown in this section is a suggestion. Since conditions vary from one work location to another consult the facility safety & health program. Customer or end user is responsible to evaluate worker exposure conditions at the site of application and determine the appropriate PPE suitable for workers at that particular facility or location.

Abbreviations and acronyms :

SECTION 16: Other information

ANSI = American National Standards Institute
HCS = Hazardous Communication System
TSCA = Toxic Substances Control Act
CFR = Code of federal Regulations
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
OSHA = United States Occupational Health and Safety Administration
NIOSH = National Institute for Occupational Safety and Health
ACGIH = American Conference of Industrial Hygienists
IARC = International Agency for Research on Cancer.
NTP = National Toxicology Program
ATE = Acute Toxicity Estimate

OECD = Organisation for Economic Co-operation and Development
BCF = Bioconcentration Factor
DOT = United States Department of Transportation
ERG = Emergency Response Guide
TDG = Transport of Dangerous Goods, Canada
SCT = Transportation & Communications Ministry, Mexico
IMDG = International Maritime Dangerous Goods
IATA = International Air Transport Association
SARA = Superfund Amendments Reauthorization Act
EPCRA = Emergency Planning and Community Right to Know Act

Notice to reader

 Indicates information that has changed from previously issued version.

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830 - Europe

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : CURING AGENT 95620
Product identity : 9562000000
Product type : Curing agent

1.2 Relevant identified uses of the substance or mixture and uses advised against

Field of application : metal industry
Ready-for-use mixture : 35629:95620 3:1

Identified uses : Industrial applications, Professional applications.

1.3 Details of the supplier of the safety data sheet

Company details : HEMPEL A/S
Lundtoftegårdsvej 91
DK-2800 Kgs. Lyngby
Denmark
Tel.: + 45 45 93 38 00
hempel@hempel.com
Date of issue : 20 September 2019
Date of previous issue : No previous validation.

1.4 Emergency telephone number

Emergency telephone number (with hours of operation)

+45 45 93 38 00 (08.00 - 17.00)
See section 4 First aid measures.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Skin Corr. 1C, H314 SKIN CORROSION/IRRITATION - Category 1C
Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1
Aquatic Chronic 3, H412 AQUATIC HAZARD (LONG-TERM) - Category 3

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H314 - Causes severe skin burns and eye damage.
H317 - May cause an allergic skin reaction.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements :

Prevention : Avoid breathing vapors, spray or mists. Wear protective gloves/protective clothing/eye protection/face protection.

Response : IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN (or hair): Rinse skin with water or shower. Take off immediately all contaminated clothing. Immediately call a POISON CENTER or doctor.

Hazardous ingredients : polyoxypropylenediamine
m-Xylylene-diamine
bis[(dimethylamino)methyl]phenol

Supplemental label elements :

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

SECTION 2: Hazards identification

Tactile warning of danger : Not applicable.

2.3 Other hazards

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
polyoxypropylenediamine	REACH #: 01-2119557899-12 EC: 618-561-0 CAS: 9046-10-0	≥25 - ≤50	Skin Corr. 1C, H314 Eye Dam. 1, H318 Aquatic Chronic 3, H412	[1]
benzyl alcohol	REACH #: 01-2119492630-38 EC: 202-859-9 CAS: 100-51-6 Index: 603-057-00-5	≥5 - ≤10	Acute Tox. 4, H302 Acute Tox. 4, H332 Eye Irrit. 2, H319	[1]
2,4,6-tris(dimethylaminomethyl) phenol	REACH #: 01-2119560597-27 EC: 202-013-9 CAS: 90-72-2	≥5 - ≤10	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319	[1]
m-Xylylene-diamine	REACH #: 01-2119480150-50 EC: 216-032-5 CAS: 1477-55-0	≥1 - ≤3	Acute Tox. 4, H302 Acute Tox. 4, H332 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1B, H317 Aquatic Chronic 3, H412 EUH071	[1] [2]
bis[(dimethylamino)methyl] phenol	EC: 275-162-0 CAS: 71074-89-0	≥1 - ≤3	Skin Corr. 1C, H314 Eye Dam. 1, H318 Skin Sens. 1B, H317 See Section 16 for the full text of the H statements declared above.	[1]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit, see section 8.
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

SECTION 4: First aid measures

4.1 Description of first aid measures

General :	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 112 and give immediate treatment (first aid).
Eye contact :	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek immediate medical attention.
Inhalation :	Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Give nothing by mouth. If unconscious, place in recovery position and get medical attention immediately.
Skin contact :	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners. In case of burns flush with water until the pain ceases. While flushing remove clothing from the affected area unless it is burnt into the skin. If hospital treatment is necessary flushing must continue during transfer and until the hospital staff takes over the treatment.
Ingestion :	If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do not induce vomiting unless directed to do so by medical personnel. Lower the head so that vomit will not re-enter the mouth and throat.
Protection of first-aiders :	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

SECTION 4: First aid measures

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact :	Causes serious eye damage.
Inhalation :	No known significant effects or critical hazards.
Skin contact :	Causes severe burns. May cause an allergic skin reaction.
Ingestion :	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact :	Adverse symptoms may include the following: pain watering redness
Inhalation :	No specific data.
Skin contact :	Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion :	Adverse symptoms may include the following: stomach pains

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician :	If gasses have been inhaled, from the decomposition of the product, symptoms may be delayed. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments :	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media :	Recommended: alcohol resistant foam, CO ₂ , powders, water spray. Not to be used: waterjet.
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5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture :	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products :	Decomposition products may include the following materials: carbon oxides nitrogen oxides

5.3 Advice for firefighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard. Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid all direct contact with the spilled material. Refer to protective measures listed in sections 7 and 8. No action shall be taken involving any personal risk or without suitable training. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.2 Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and materials for containment and cleaning up

SECTION 6: Accidental release measures

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid inhalation of vapour, dust and spray mist. Avoid contact with skin and eyes. Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Appropriate personal protective equipment: see Section 8. Always keep in containers made from the same material as the original one.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a cool, well-ventilated area away from incompatible materials and ignition sources. Keep out of the reach of children. Keep away from: Oxidizing agents, strong alkalis, strong acids. No smoking. Prevent unauthorized access. Containers that are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

See separate Product Data Sheet for recommendations or industrial sector specific solutions.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Product/ingredient name	Exposure limit values
m-Xylylene-diamine	EU OEL (Europe, 2/2010). Absorbed through skin. (ACGIH) C: 0.1 mg/m ³

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived effect levels

Product/ingredient name	Type	Exposure	Value	Population	Effects
polyoxypropylenediamine	DNEL	Long term Dermal	2.5 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	1.36 mg/m ³	Workers	Systemic
benzyl alcohol	DNEL	Long term Inhalation	22 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	8 mg/kg bw/day	Workers	Systemic
2,4,6-tris(dimethylaminomethyl)phenol	DNEL	Long term Inhalation	0.13 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	0.15 mg/kg bw/day	Workers	Systemic
m-Xylylene-diamine	DNEL	Long term Dermal	0.33 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	1.2 mg/m ³	Workers	Systemic

Predicted effect concentrations

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Compartment Detail	Value	Method Detail
polyoxypropylenediamine	Fresh water	0.015 mg/l	-
	Marine water sediment	0.125 mg/kg	-
	Fresh water sediment	0.132 mg/kg	-
	Marine water	0.0143 mg/l	-
	Soil	0.0176 mg/kg	-
benzyl alcohol	Sewage Treatment Plant	7.5 mg/l	-
	Soil	0.456 mg/kg wwt	Assessment Factors
	Sewage Treatment Plant	39 mg/l	Assessment Factors
	Sediment	5.27 mg/kg wwt	Assessment Factors
	Marine water sediment	0.527 mg/kg wwt	Assessment Factors
2,4,6-tris(dimethylaminomethyl)phenol	Marine	0.1 mg/l	Assessment Factors
	Fresh water	1 mg/l	Assessment Factors
	Fresh water	0.084 mg/l	-
	Marine water	0.0084 mg/l	-
	Sewage Treatment Plant	0.2 mg/l	-
m-Xylylene-diamine	Fresh water	0.094 mg/l	-
	Marine water	0.0094 mg/l	-
	Fresh water sediment	0.43 mg/kg	-
	Marine water sediment	0.043 mg/kg	-
	Soil	0.045 mg/kg	-
	Sewage Treatment Plant	10 mg/l	-

8.2 Exposure controls

Appropriate engineering controls

Arrange sufficient ventilation by local exhaust ventilation and good general ventilation to keep the airborne concentrations of vapors or dust lowest possible and below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Individual protection measures

General :	Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. Safety eyewear should be used when there is a likelihood of exposure.
Hygiene measures :	Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.
Eye/face protection :	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
Hand protection :	<p>Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. The quality of the chemical-resistant protective gloves must be chosen as a function of the specific workplace concentrations and quantity of hazardous substances.</p> <p>Since the actual work situation is unknown. Supplier of gloves should be contacted in order to find the appropriate type. Below listed glove(s) should be regarded as generic advice:</p> <p>Recommended: Silver Shield / Barrier / 4H gloves, Viton® May be used: nitrile rubber, neoprene rubber, polyvinyl alcohol (PVA) Short term exposure: butyl rubber, natural rubber (latex), polyvinyl chloride (PVC)</p>
Body protection :	<p>Personal protective equipment for the body should be selected based on the task being performed and the risks involved handling this product.</p> <p>Wear suitable protective clothing.</p> <p>Chemical-resistant apron.</p>
Respiratory protection :	Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If working areas have insufficient ventilation: When the product is applied by means that will not generate an aerosol such as, brush or roller wear half or totally covering mask equipped with gas filter of type A, when grinding use particle filter of type P. Be sure to use an approved/certified respirator or equivalent.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state :	Liquid.
Odor :	Non-characteristic.
pH :	Testing not relevant or not possible due to nature of the product.
Melting point/freezing point :	Testing not relevant or not possible due to nature of the product.
Boiling point/boiling range :	Testing not relevant or not possible due to nature of the product.
Flash point :	Closed cup: 130°C (266°F)
Evaporation rate :	Testing not relevant or not possible due to nature of the product.
Flammability :	Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge. Slightly flammable in the presence of the following materials or conditions: heat.
Lower and upper explosive (flammable) limits :	1.3 - 13 vol %
Vapor pressure :	0.091 kPa This is based on data for the following ingredient: polyoxypropylenediamine
Vapor density :	Testing not relevant or not possible due to nature of the product.
Specific gravity :	1.011 g/cm ³
Solubility(ies) :	Partially soluble in the following materials: cold water and hot water.
Partition coefficient (LogKow) :	Testing not relevant or not possible due to nature of the product.
Auto-ignition temperature :	Lowest known value: 382°C (719.6°F) (2,4,6-tris(dimethylaminomethyl)phenol).
Decomposition temperature :	Testing not relevant or not possible due to nature of the product.
Viscosity :	Testing not relevant or not possible due to nature of the product.
Explosive properties :	Slightly explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Oxidizing properties :	Testing not relevant or not possible due to nature of the product.

9.2 Other information

Solvent(s) % by weight :	Weighted average: 7 %
Water % by weight :	Weighted average: 0 %
VOC content :	14.4 g/l
TOC Content :	Weighted average: 13 g/l
Solvent Gas :	Weighted average: 0.016 m ³ /l

SECTION 10: Stability and reactivity

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

No specific data.

10.5 Incompatible materials

Reactive or incompatible with the following materials: oxidizing materials.
Slightly reactive or incompatible with the following materials: reducing materials.

10.6 Hazardous decomposition products

When exposed to high temperatures (i.e. in case of fire) harmful decomposition products may be formed:
Decomposition products may include the following materials: carbon oxides nitrogen oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Exposure to component solvent vapor concentrations may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Solvents may cause some of the above effects by absorption through the skin. Symptoms and signs include headaches, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and reversible damage. Accidental swallowing may cause stomach pain. Chemical lung inflammation may occur if the product is taken into the lungs via vomiting.

Inhalation of a corrosive substance may result in health effects such as stinging, coughing and in extreme cases, dyspnoea or loss of consciousness with a risk of lung damage, possibly lung oedema. Cauterization of skin and mucous membrane. If splashed in the eyes, the liquid may cause irreversible damage. Accidental swallowing may cause stinging and cauterization to mouth, oesophagus and stomach. Symptoms and signs include bloody vomiting, chock and loss of consciousness.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
polyoxypropylenediamine	LD50 Dermal	Rabbit	2980 mg/kg	-
	LD50 Oral	Rat	2880 mg/kg	-
benzyl alcohol	LC50 Inhalation Dusts and mists	Rat	>4178 mg/m ³	4 hours
	LD50 Oral	Rat	1230 mg/kg	-
2,4,6-tris(dimethylaminomethyl) phenol	LD50 Dermal	Rat	1280 mg/kg	-
	LD50 Oral	Rat	1200 mg/kg	-
m-Xylylene-diamine	LD50 Oral	Rat	2169 mg/kg	-
	LD50 Oral	Rat	2169 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	1.34 mg/l	4 hours
	LD50 Dermal	Rabbit	>3100 mg/kg	-
	LD50 Oral	Rat	930 mg/kg	-

Acute toxicity estimates

Product/ingredient name	Oral mg/kg	Dermal mg/kg	Inhalation (gases) ppm	Inhalation (vapors) mg/l	Inhalation (dusts and mists) mg/l
CURING AGENT 95620	8895.4			137.9	
polyoxypropylenediamine	2880	2980			
benzyl alcohol	1230			11	
2,4,6-tris(dimethylaminomethyl)phenol	1200				
m-Xylylene-diamine	930			11	

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure
polyoxypropylenediamine	Skin - Severe irritant	Rabbit	-	-
	Eyes - Severe irritant	Rabbit	-	-
benzyl alcohol	Eyes - Visible necrosis	Rabbit	-	-
	Skin - Mild irritant	Rabbit	-	-
2,4,6-tris(dimethylaminomethyl) phenol	Eyes - Severe irritant	Rabbit	-	24 hours 50 Micrograms
m-Xylylene-diamine	Skin - Severe irritant	Rabbit	-	24 hours 2 milligrams
	Eyes - Severe irritant	Rabbit	-	24 hours 50 Micrograms
	Skin - Severe irritant	Rabbit	-	24 hours 750 Micrograms
	Respiratory - Severe irritant	Rabbit	-	-

Mutagenic effects

No known significant effects or critical hazards.

Carcinogenicity

No known significant effects or critical hazards.

Reproductive toxicity

No known significant effects or critical hazards.

Teratogenic effects

No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
No known data available in our database.			

Specific target organ toxicity (repeated exposure)

SECTION 11: Toxicological information

Product/ingredient name	Category	Route of exposure	Target organs
No known data available in our database.			

Aspiration hazard

Product/ingredient name	Result
No known data available in our database.	

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential chronic health effects

Sensitization : Contains m-Xylylene-diamine. May produce an allergic reaction.

Other information : No additional known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Do not allow to enter drains or watercourses. Harmful to aquatic life with long lasting effects.

Product/ingredient name	Result	Species	Exposure
polyoxypropylenediamine	Acute EC50 15 mg/l	Algae	72 hours
	Acute EC50 80 mg/l	Daphnia	48 hours
	Acute LC50 772 mg/l	Fish	96 hours
benzyl alcohol	Acute EC50 230 mg/l	Daphnia	48 hours
	Acute IC50 770 mg/l	Algae	72 hours
	Acute LC50 460 mg/l	Fish	96 hours
2,4,6-tris(dimethylaminomethyl) phenol	Acute EC50 84 mg/l	Algae	72 hours
	Acute LC50 175 mg/l	Fish	96 hours
m-Xylylene-diamine	Acute EC50 12 mg/l	Algae	72 hours
	Acute EC50 15.2 mg/l	Daphnia - Daphnia	48 hours
	Acute LC50 75 mg/l	Fish - Leuciscus idus	96 hours
	Acute NOEC 4.7 mg/l	Daphnia	21 days

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
polyoxypropylenediamine	-	0 % - Not readily - 28 days	-	-
benzyl alcohol	OECD 301A 301A Ready Biodegradability - DOC Die-Away Test	95 - 97 % - Readily - 21 days	-	-
	OECD 301C 301C Ready Biodegradability - Modified MITI Test (I)	92 - 96 % - Readily - 14 days	-	-
2,4,6-tris(dimethylaminomethyl) phenol	OECD 301D 301D Ready Biodegradability - Closed Bottle Test	4 % - Not readily - 28 days	-	-
m-Xylylene-diamine	OECD 301B 301B Ready Biodegradability - CO ₂ Evolution Test	49 % - Inherent - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
polyoxypropylenediamine	-	-	Not readily
benzyl alcohol	-	-	Readily
2,4,6-tris(dimethylaminomethyl) phenol	-	-	Not readily
m-Xylylene-diamine	-	-	Inherent

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
polyoxypropylenediamine	1.34	-	low
benzyl alcohol	0.87	1.37	low
2,4,6-tris(dimethylaminomethyl)phenol	0.219	-	low
m-Xylylene-diamine	0.18	2.69	low

12.4 Mobility in soil

SECTION 12: Ecological information

Soil/water partition coefficient (K_{oc}): No known data available in our database.
 Mobility: No known data available in our database.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

The generation of waste should be avoided or minimized wherever possible. Residues of the product is listed as hazardous waste. Dispose of according to all state and local applicable regulations. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

European waste catalogue no. (EWC) is given below.




European waste catalogue (EWC) : 08 01 11*

Packaging

The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

Transport may take place according to national regulation or ADR for transport by road, RID for transport by train, IMDG for transport by sea, IATA for transport by air.

	14.1 UN no.	14.2 Proper shipping name	14.3 Transport hazard class(es)	14.4 PG*	14.5 Env*	Additional information
ADR/RID Class	UN3066	PAINT	8 	III	No.	Tunnel code (E)
IMDG Class	UN3066	PAINT	8 	III	No.	Emergency schedules F-A, S-B
IATA Class	UN3066	PAINT	8 	III	No.	-

PG* : Packing group

Env.* : Environmental hazards

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH) Annex XIV - List of substances subject to authorization - Substances of very high concern

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

SECTION 15: Regulatory information

Other EU regulations

Seveso category This product is not controlled under the Seveso III Directive.

SECTION 16: Other information

Abbreviations and acronyms :
 ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 EUH statement = CLP-specific Hazard statement
 RRN = REACH Registration Number
 DNEL = Derived No Effect Level
 PNEC = Predicted No Effect Concentration

Full text of abbreviated H statements :
 H302 Harmful if swallowed.
 H314 Causes severe skin burns and eye damage.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H318 Causes serious eye damage.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H412 Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS] :
 Acute Tox. 4, H302 ACUTE TOXICITY (oral) - Category 4
 Acute Tox. 4, H332 ACUTE TOXICITY (inhalation) - Category 4
 Aquatic Chronic 3, H412 AQUATIC HAZARD (LONG-TERM) - Category 3
 EUH071 Corrosive to the respiratory tract.
 Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
 Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
 Skin Corr. 1B, H314 SKIN CORROSION/IRRITATION - Category 1B
 Skin Corr. 1C, H314 SKIN CORROSION/IRRITATION - Category 1C
 Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2
 Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1
 Skin Sens. 1B, H317 SKIN SENSITIZATION - Category 1B

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
SKIN CORROSION/IRRITATION - Category 1C	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation method

Notice to reader

📌 Indicates information that has changed from previously issued version.

The information contained in this safety data sheet is based on the present state of knowledge and EU and national legislation. It provides guidance on health, safety and environmental aspects for handling the product in a safe way and should not be construed as any guarantee of the technical performance or suitability for particular applications.

It is always the duty of the user/employer to ascertain that the work is planned and carried out in accordance with the national regulations.

This document is intended to communicate the conditions of safe use for the product and should always be read in combination with the product's Safety Data Sheet and labels.

General description of the process covered

Indoor or outdoor spray painting by professionals or with brush, roller, putty knife, dipping etc. with good general room ventilation

This safe use information is linked to : Professional spray painting and/or low-energy painting, local effect - Level III
Skin Corr. 1, Eye Dam. 1, Resp. Sens. 1 or EUH071

Sector(s) of use : Industrial uses - Professional uses

Product category(ies) : Coatings and paints, thinners, paint removers

Operational conditions

Place of use : Indoor or outdoor use




Risk management measures (RMM)

Contributing activity	Process category (ies)	Maximum duration	Ventilation		Respiratory	Eye	Hands
			Type	and air changes per hour			
Preparation of material for application	PROC05	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	Wear a respirator conforming to EN140 with an assigned protection factor of at least 10.	Use eye protection according to EN 166.	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Loading of application equipment and handling of coated parts before curing	PROC08a	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	None	Use eye protection according to EN 166.	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Professional application of coatings by brush or roller	PROC10	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	None	Use eye protection according to EN 166.	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Professional application of coatings by spraying	PROC11	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	Wear a respirator conforming to EN140 with an assigned protection factor of at least 10.	Use eye protection according to EN 166.	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Film formation - force drying, stoving and other technologies	PROC04	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	None	None	Wear suitable gloves tested to EN374.
Cleaning	PROC05	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	Wear a respirator conforming to EN140 with an assigned protection factor of at least 10.	Use eye protection according to EN 166.	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Waste management	PROC08a	More than 4 hours	Good general room ventilation - Outdoors	3 - 5	None	Use eye protection according to EN 166.	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

See chapter 8 of this Safety Data Sheet for specifications.



Conforms to ANSI Z400.1-2010 Standard - HCS 2012

Protective Clothing	General Hazard	DOT
		

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : **HEMPEL'S GALVOSIL 15709**
 Product identity : **1570919840**
 Product type : zinc silicate primer (base for multi-component product)

1.2 Relevant identified uses of the substance or mixture and uses advised against

Field of application : metal industry
 Ready-for-use mixture : 15700 = 15709 7.4 vol. / 97170 2.6 vol. 1570A = 15709 7.4 vol. / 97170 2.6 vol.
 Identified uses : Industrial/Professional use
 TSCA : **Unless otherwise stated. All components are listed or exempted.**

1.3 Details of the supplier of the safety data sheet

Company details :	HEMPEL (USA), Inc. 600 Conroe Park North Drive Conroe, Texas 77303 Toll free: (800) 678-6641, if outside area codes 713, 281, 409, 936 Regular phone number: (936) 523-6000 E-mail Hempel@Hempel.com	HEMPEL (USA), Inc. 2728 Empire Central Dallas, TX 75235 Phone number: 1-214-353-1600 E-mail: hempel@hempel.com
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1.4 Emergency telephone number (with hours of operation)

For Transportation Emergencies : (24 hours) CHEMTREC: **1-800-424-9300** (Toll-free in the U.S., Canada and the U.S. Virgin Islands) **703-527-3887**
 For calls originating elsewhere (Collect calls are accepted). Contract number: CCN10384
 To preserve the effectiveness of arrangements for providing accurate and timely emergency response information, the basic identifying information (shipper name or contract number) must be included on shipping papers.
 If the purchaser of this product is going to be shipping this product to other locations, the purchaser must arrange for its own Emergency Information Provider to respond to transport incidents. Hempel's 24 hour response contract does not cover non-Hempel shipments.
 For all other information : (8 AM - 5 PM CST) In USA toll free calling available: 1-800- 678-6641 or (936)-523-6000
 See Section 4 of the safety data sheet (first aid measures).

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
 GHS Classification : **FLAMMABLE LIQUIDS - Category 2**
SKIN IRRITATION - Category 2
CARCINOGENICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs, lungs) - Category 1

2.2 Label elements

Hazard pictograms :



SECTION 2: Hazards identification

Signal word :	Danger
Hazard statements :	H225 - Highly flammable liquid and vapor. H315 - Causes skin irritation. H351 - Suspected of causing cancer. H336 - May cause drowsiness or dizziness. H372 - Causes damage to organs through prolonged or repeated exposure. (hearing organs, lungs)
Precautionary statements :	
Prevention :	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
Response :	Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention.
Storage :	Store locked up. Store in a well-ventilated place. Keep cool.
Disposal :	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements :	None known.

2.3 Other hazards

Hazards not otherwise classified : None known.

SECTION 3: Composition/information on ingredients

Product definition :	Mixture
Physical state :	Liquid.

Product/ingredient name	Identifiers	%	GHS Classification
china clay	1332-58-7	≥10 - ≤25	Not classified. FLAMMABLE LIQUIDS - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
1-methoxy-2-propanol	107-98-2	≥10 - ≤25	
ethylpolysilicate	11099-06-2	≥10 - ≤25	Not classified. FLAMMABLE LIQUIDS - Category 2 FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2
ethanol	64-17-5	≥10 - ≤25	
xylene	1330-20-7	≥10 - ≤18	
isopropanol	67-63-0	≥5 - ≤7.8	
solvent naphtha (petroleum), light arom.	64742-95-6	≥1 - ≤3	FLAMMABLE LIQUIDS - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
ethylbenzene	100-41-4	≥1 - ≤3	FLAMMABLE LIQUIDS - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1 FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (inhalation) - Category 4 CARCINOGENICITY - Category 2
1,2,4-trimethylbenzene	95-63-6	≥1 - ≤2.1	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2 ASPIRATION HAZARD - Category 1 FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A

SECTION 3: Composition/information on ingredients

respirable quartz	14808-60-7	<1	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (lungs) (inhalation) - Category 1
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Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Occupational exposure limits, if available, are listed in Section 8.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

SECTION 4: First aid measures

4.1 Description of first aid measures

General :	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 911 and give immediate treatment (first aid).
Eye contact :	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. In all cases of doubt, or when symptoms persist, seek medical attention.
Inhalation :	Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Give nothing by mouth. If unconscious, place in recovery position and get medical attention immediately.
Skin contact :	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
Ingestion :	If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do not induce vomiting unless directed to do so by medical personnel. Lower the head so that vomit will not re-enter the mouth and throat.
Protection of first-aiders :	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact :	No known significant effects or critical hazards.
Inhalation :	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
Skin contact :	Causes skin irritation.
Ingestion :	Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

Eye contact :	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation :	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Skin contact :	Adverse symptoms may include the following: irritation redness
Ingestion :	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Not applicable.

SECTION 4: First aid measures

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media : Recommended: alcohol resistant foam, CO₂, powders, water spray.
Not to be used: waterjet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : Decomposition products may include the following materials: carbon oxides metal oxide/oxides

5.3 Advice for firefighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard. Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid all direct contact with the spilled material. Exclude sources of ignition and be aware of explosion hazard. Ventilate the area. Avoid breathing vapor or mist. Refer to protective measures listed in sections 7 and 8. No action shall be taken involving any personal risk or without suitable training. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.2 Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and materials for containment and cleaning up

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air. Prevent the creation of flammable or explosive concentrations of vapors in air and avoid vapor concentrations higher than the occupational exposure limits. In addition, the product should be used only in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. To dissipate static electricity during transfer, ground drum and connect to receiving container with bonding strap. No sparking tools should be used.

Avoid inhalation of vapour, dust and spray mist. Avoid contact with skin and eyes. Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Appropriate personal protective equipment: see Section 8. Always keep in containers made from the same material as the original one.

SECTION 7: Handling and storage

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a cool, well-ventilated area away from incompatible materials and ignition sources. Keep out of the reach of children. Keep away from: Oxidizing agents, strong alkalis, strong acids. No smoking. Prevent unauthorized access. Containers that are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

See separate Product Data Sheet for recommendations or industrial sector specific solutions. This product may be applied using several application techniques and methods of handling may be different for each. Application techniques include [but are not limited to] brushing, rolling, and spray application [conventional, HPLV, airless, pleural component or aerosol can]. Avoid the breathing of vapors and, if spraying, do not breath spray mist or aerosols.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Product/ingredient name	Exposure limit values
china clay	<p>ACGIH TLV (United States, 3/2017). TWA: 2 mg/m³ 8 hours. Form: Respirable fraction</p> <p>NIOSH REL (United States, 10/2016). TWA: 5 mg/m³ 10 hours. Form: Respirable fraction TWA: 10 mg/m³ 10 hours. Form: Total</p> <p>OSHA PEL (United States, 6/2016). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</p>
1-methoxy-2-propanol	<p>ACGIH TLV (United States, 3/2017). STEL: 369 mg/m³ 15 minutes. STEL: 100 ppm 15 minutes. TWA: 184 mg/m³ 8 hours. TWA: 50 ppm 8 hours.</p> <p>NIOSH REL (United States, 10/2016). STEL: 540 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 360 mg/m³ 10 hours. TWA: 100 ppm 10 hours.</p>
ethanol	<p>ACGIH TLV (United States, 3/2017). STEL: 1000 ppm 15 minutes.</p> <p>NIOSH REL (United States, 10/2016). TWA: 1000 ppm 10 hours. TWA: 1900 mg/m³ 10 hours.</p> <p>OSHA PEL (United States, 6/2016). TWA: 1000 ppm 8 hours. TWA: 1900 mg/m³ 8 hours.</p>
xylene	<p>ACGIH TLV (United States, 3/2017). TWA: 100 ppm 8 hours. TWA: 434 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 651 mg/m³ 15 minutes.</p> <p>OSHA PEL (United States, 6/2016). TWA: 100 ppm 8 hours. TWA: 435 mg/m³ 8 hours.</p>
isopropanol	<p>ACGIH TLV (United States, 3/2017). TWA: 200 ppm 8 hours. STEL: 400 ppm 15 minutes.</p> <p>NIOSH REL (United States, 10/2016). TWA: 400 ppm 10 hours. TWA: 980 mg/m³ 10 hours. STEL: 500 ppm 15 minutes. STEL: 1225 mg/m³ 15 minutes.</p> <p>OSHA PEL (United States, 6/2016). TWA: 400 ppm 8 hours. TWA: 980 mg/m³ 8 hours.</p>
solvent naphtha (petroleum), light arom.	<p>ACGIH TLV (United States). TWA Tentative: 25 ppm 8 hours.</p>
ethylbenzene	<p>ACGIH TLV (United States, 3/2017).</p>

SECTION 8: Exposure controls/personal protection

1,2,4-trimethylbenzene	<p>TWA: 20 ppm 8 hours. NIOSH REL (United States, 10/2016). STEL: 545 mg/m³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 435 mg/m³ 10 hours. TWA: 100 ppm 10 hours. OSHA PEL (United States, 6/2016). TWA: 435 mg/m³ 8 hours. TWA: 100 ppm 8 hours.</p>
respirable quartz	<p>ACGIH TLV (United States, 3/2017). TWA: 123 mg/m³ 8 hours. TWA: 25 ppm 8 hours. NIOSH REL (United States, 10/2016). TWA: 125 mg/m³ 10 hours. TWA: 25 ppm 10 hours. OSHA PEL Z3 (United States, 6/2016). TWA: 250 mppcf / (%SiO₂+5) 8 hours. Form: Respirable TWA: 10 mg/m³ / (%SiO₂+2) 8 hours. Form: Respirable OSHA PEL (United States, 6/2016). TWA: 50 µg/m³ 8 hours. Form: Respirable dust ACGIH TLV (United States, 3/2017). TWA: 0.025 mg/m³ 8 hours. Form: Respirable fraction NIOSH REL (United States, 10/2016). TWA: 0.05 mg/m³ 10 hours. Form: respirable dust</p>

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

8.2 Exposure controls

Appropriate engineering controls

Provide local exhaust and general ventilation systems to maintain airborne concentrations below OSHA, ACGIH, and manufacturer recommended exposure limits. Local exhaust ventilation is preferred because it prevents contaminant dispersion into work areas by controlling it at its source. Use local and general exhaust ventilation to effectively remove and prevent buildup of mists/vapors/fumes generated from the handling of this product.

Note: Local exhaust ventilation is designed to capture an emitted contaminant at or near its source, before the contaminant has a chance to disperse into the workplace air. General exhaust ventilation, also called dilution ventilation, is different from local exhaust ventilation because instead of capturing emissions at their source and removing them from the air, general exhaust ventilation allows the contaminant to be emitted into the workplace air and then dilutes the concentration of the contaminant to an acceptable level (e.g., to the PEL or below).

Individual protection measures

- General : Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. Safety eyewear should be used when there is a likelihood of exposure.
- Hygiene measures : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.
- Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Hand protection : Wear chemical-resistant gloves in combination with 'basic' employee training. The quality of the chemical-resistant protective gloves must be chosen as a function of the specific workplace concentrations and quantity of hazardous substances.

 Since the actual work situation is unknown. Supplier of gloves should be contacted in order to find the appropriate type. Below listed glove(s) should be regarded as generic advice:

 Recommended: Silver Shield / Barrier / 4H gloves, Viton®
 May be used: polyvinyl alcohol (PVA), nitrile rubber, neoprene rubber, butyl rubber
 Short term exposure: natural rubber (latex), polyvinyl chloride (PVC)

SECTION 8: Exposure controls/personal protection

Body protection :	Personal protective equipment for the body should be selected based on the task being performed and the risks involved handling this product. Wear suitable protective clothing. Always wear protective clothing when spraying.
Respiratory protection :	If working areas have insufficient ventilation, wear half or totally covering mask equipped with gas filter of type Organic Vapor, when grinding use particle filter of type P95, P99 or P100. When spraying use a combined filter (organic vapor / HEPA or organic vapor / P100 type). Be sure to use approved/certified respirator or equivalent. Always wear an air-fed respirator when spraying in a continuous and prolonged work situation (e.g. hood with supply of fresh or compressed air or a full face, powered air purifying filter). This product contains low-boiling point liquids. Any respiratory protective equipment should be air-fed.

Protective clothing (pictograms) :




Note: Application of paint products by spraying requires additional safety precautions: Full body suit, Full face respirator with air supplied.

Environmental exposure controls


Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state :	Liquid.
Odor :	Solvent-like
pH :	Testing not relevant or not possible due to nature of the product.
Melting point/freezing point :	Testing not relevant or not possible due to nature of the product.
Boiling point/boiling range :	Testing not relevant or not possible due to nature of the product.
Flash point :	 Closed cup: 14°C (57.2°F)
Evaporation rate :	Testing not relevant or not possible due to nature of the product.
Flammability :	Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge. Highly flammable in the presence of the following materials or conditions: heat and oxidizing materials. Slightly flammable in the presence of the following materials or conditions: reducing materials.
Upper/lower flammability or explosive limits :	0.8 - 19 vol %
Vapor pressure :	Testing not relevant or not possible due to nature of the product.
Vapor density :	Testing not relevant or not possible due to nature of the product.
Relative density :	1.128 g/cm ³
Solubility(ies) :	Insoluble in the following materials: cold water and hot water.
Partition coefficient (LogKow) :	Testing not relevant or not possible due to nature of the product.
Auto-ignition temperature :	Testing not relevant or not possible due to nature of the product.
Decomposition temperature :	Testing not relevant or not possible due to nature of the product.
Viscosity :	Testing not relevant or not possible due to nature of the product.
Explosive properties :	Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials. Slightly explosive in the presence of the following materials or conditions: reducing materials.
Oxidizing properties :	Testing not relevant or not possible due to nature of the product.

9.2 Other information

Solvent(s) % by weight (Included exempt solvent(s)):	 1.5 % (w/w)
Water % by weight :	Weighted average: 0 %

SECTION 9: Physical and chemical properties

VOC content (Coatings) :	585 g/l (Measured)
VOC content (Regulatory) :	585 g/l (Measured)
TOC Content (Volatile) :	Weighted average: 461 g/l
Solvent Gas :	Weighted average: 0.335 m³/l

SECTION 10: Stability and reactivity

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 Incompatible materials

Highly reactive or incompatible with the following materials: oxidizing materials and acids.

Reactive or incompatible with the following materials: reducing materials.

10.6 Hazardous decomposition products

When exposed to high temperatures (i.e. in case of fire) harmful decomposition products may be formed:

Decomposition products may include the following materials: carbon oxides metal oxide/oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Exposure to component solvent vapor concentrations may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Solvents may cause some of the above effects by absorption through the skin. Symptoms and signs include headaches, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and reversible damage. Accidental swallowing may cause stomach pain. Chemical lung inflammation may occur if the product is taken into the lungs via vomiting.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
1-methoxy-2-propanol	LD50 Dermal	Rabbit	13 g/kg	-
	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	4016 mg/kg	-
ethanol	LC50 Inhalation Vapor	Rat	124700 mg/m³	4 hours
	LD50 Oral	Rat	7060 mg/kg	-
xylene	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	6350 ppm	4 hours
	LD50 Dermal	Rabbit	>4200 mg/kg	-
isopropanol	LD50 Oral	Rat	3523 mg/kg	-
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Intraperitoneal	Rabbit	667 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
solvent naphtha (petroleum), light arom.	LDLo Oral	Human	3570 mg/kg	-
	LC50 Inhalation Vapor	Rat	6193 mg/m³	4 hours
ethylbenzene	LD50 Dermal	Rabbit	3160 mg/kg	-
	LD50 Oral	Rat	3492 mg/kg	-
	LD50 Dermal	Rabbit	>5000 mg/kg	-

SECTION 11: Toxicological information

1,2,4-trimethylbenzene	LD50 Oral	Rat	3500 mg/kg	-
	LC50 Inhalation Vapor	Rat	18000 mg/m ³	4 hours
	LD50 Oral	Rat	5 g/kg	-

Acute toxicity estimates

Route	ATE value
Oral	10325.6 mg/kg
Dermal	8959.8 mg/kg
Inhalation (gases)	31137.9 ppm
Inhalation (vapors)	73.79 mg/l

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure
1-methoxy-2-propanol ethanol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams
	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams
xylene	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams
isopropanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams
	Skin - Mild irritant	Rabbit	-	500 milligrams
solvent naphtha (petroleum), light arom.	Eyes - Mild irritant	Rabbit	-	24 hours 100 microliters
ethylbenzene	Respiratory - Mild irritant	Rabbit	-	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams
	Respiratory - Mild irritant	Rabbit	-	-
	Eyes - Mild irritant	Rabbit	-	-

Carcinogen Classification

Product/ingredient name	IARC	NTP	OSHA
ethanol	1	-	-
xylene	3	-	-
isopropanol	3	-	-
ethylbenzene	2B	-	-
respirable quartz	1	Known to be a human carcinogen.	-

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
1-methoxy-2-propanol	Category 3	Not applicable.	Narcotic effects
isopropanol	Category 3	Not applicable.	Narcotic effects
solvent naphtha (petroleum), light arom.	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
1,2,4-trimethylbenzene	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ethylbenzene	Category 2	Not determined	hearing organs
respirable quartz	Category 1	Inhalation	lungs

Aspiration hazard

Product/ingredient name	Result
solvent naphtha (petroleum), light arom.	ASPIRATION HAZARD - Category 1
ethylbenzene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential chronic health effects

Other information : No additional known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Do not allow to enter drains or watercourses. Harmful to aquatic life with long lasting effects.

When spilled, this product may act as an oil, causing a film, sheen, emulsion, or sludge at or beneath the surface of a body of water. Oils of any kind can cause: (a) drowning of waterfowl due to lack of buoyancy, loss of insulating capacity of feathers, starvation and vulnerability to predators due to lack of mobility; (b) lethal effect on fish by coating gill surfaces, preventing respiration; (c) potential fish kills resulting from alteration in biochemical oxygen demand; (d) asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom; and (e) adverse aesthetic effects of fouled shoreline and beaches.

Product/ingredient name	Result	Species	Exposure
1-methoxy-2-propanol	Acute EC50 1000 mg/l	Algae - Pseudokirchneriella subcapitata (green algae)	7 days
ethanol	Acute EC50 23300 mg/l	Daphnia - Daphnia magna (Water flea)	48 hours
	Acute LC50 6812 mg/l	Fish - Leuciscus idus	96 hours
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.375 µl/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks
solvent naphtha (petroleum), light arom.	Acute EC50 2.6 mg/l	Algae - Pseudokirchneriella subcapitata (green algae)	96 hours
	Acute EC50 6.14 mg/l	Daphnia - Daphnia magna	48 hours
ethylbenzene 1,2,4-trimethylbenzene	Acute LC50 9.22 mg/l	Fish - Oncorhynchus mykiss (rainbow trout)	96 hours
	Chronic NOEC <1000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute LC50 4910 µg/l Marine water	Crustaceans - Elasmopus pectinicus - Adult	48 hours
	Acute LC50 7720 µg/l Fresh water	Fish - Pimephales promelas	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
1-methoxy-2-propanol	OECD 301E Ready Biodegradability - Modified OECD Screening Test	96 % - Readily - 28 days	-	-
xylene	-	>60 % - Readily - 28 days	-	-
solvent naphtha (petroleum), light arom.	-	>70 % - Readily - 28 days	-	-
ethylbenzene	-	>70 % - Readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
1-methoxy-2-propanol	-	-	Readily
xylene	-	-	Readily
solvent naphtha (petroleum), light arom.	-	-	Readily
ethylbenzene	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
1-methoxy-2-propanol	<1	-	low
ethanol	-0.35	-	low
xylene	3.12	8.1 - 25.9	low
isopropanol	0.05	-	low
solvent naphtha (petroleum), light arom.	-	10 - 2500	high
ethylbenzene	3.6	-	low
1,2,4-trimethylbenzene	3.63	243	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : No known data available in our database.

Mobility : No known data available in our database.

12.5 Other adverse effects

SECTION 12: Ecological information

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7 and Section 8 for additional handling information and protection of employees.






The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Xylene	1330-20-7	Listed	U239

SECTION 14: Transport information

Transport may take place according to national regulation or DOT for transport by road and by train, IMDG for transport by sea, IATA for Air shipment. Refer to specific Dangerous Goods Transport requirements under 49CFR, ICAO and IATA.

	14.1 UN no.	14.2 Proper shipping name	14.3 Transport hazard class(es)	14.4 PG*	14.5 Env* Additional information
DOT Code	UN1263	PAINT	3 - 	II	No. ERG : 128 Reportable quantity (xylene, chlorine) 839.85 lbs / 381.29 kg [89.296 gal / 338.02 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
TDG Code	UN1263	PAINT	3 - 	II	No. Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3).
SCT Code	UN1263	PAINT	3 - 	II	No. -
IMDG Code	UN1263	PAINT	3 - 	II	No. Emergency schedules F-E, S-E
IATA Code	UN1263	PAINT	3 - 	II	No. -

Code : Classification
PG* : Packing group
Env.* : Environmental hazards

SECTION 14: Transport information

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal regulations : All components are listed or exempted.

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 307: ethylbenzene; benzene; Zinc chloride; Zinc; zinc oxide

Clean Water Act (CWA) 311: Hydrochloric acid; xylene; ethylbenzene; benzene; Zinc chloride

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Product/ingredient name	CAS number	Concentration
Hydrochloric acid	7647-01-0	0.024126
xylene	1330-20-7	11.907
ethylbenzene	100-41-4	2.6229
Cumen	98-82-8	0.085918
benzene	71-43-2	0.0028639

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304 - SARA 311/312: SARA 302/304: chlorine; Hydrochloric acid

SARA 311/312 Hazards identification: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

Product/ingredient name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Methoxy-2-propanol	10 - 25	Yes.	No.	No.	Yes.	No.
ethanol	10 - 25	Yes.	No.	No.	No.	No.
xylene	10 - 25	Yes.	No.	No.	Yes.	No.
isopropanol	5 - 10	Yes.	No.	No.	Yes.	No.
solvent naphtha (petroleum), light arom.	1 - 3	Yes.	No.	No.	Yes.	No.
ethylbenzene	1 - 3	Yes.	No.	No.	Yes.	Yes.
1,2,4-trimethylbenzene	1 - 3	Yes.	No.	No.	Yes.	No.
respirable quartz	0.5 - 1	No.	No.	No.	No.	Yes.

SARA 313 : SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

Form R - Reporting requirements :

Product/ingredient name	CAS number	Concentration
xylene	1330-20-7	10 - 20
ethylbenzene	100-41-4	1 - 3
1,2,4-trimethylbenzene	95-63-6	1 - 3

Supplier notification :

Product/ingredient name	CAS number	Concentration
xylene	1330-20-7	10 - 20
ethylbenzene	100-41-4	1 - 3
1,2,4-trimethylbenzene	95-63-6	1 - 3

State regulations :

Connecticut Carcinogen Reporting: None of the components are listed.

Connecticut Hazardous Material Survey: None of the components are listed.

Florida substances: None of the components are listed.

Illinois Chemical Safety Act: None of the components are listed.

Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.

Louisiana Reporting: None of the components are listed.

Louisiana Spill: None of the components are listed.

Massachusetts Spill: None of the components are listed.

Massachusetts Substances: The following components are listed: ETHYL ALCOHOL; DENATURED ALCOHOL; PROPYLENE GLYCOL METHYL ETHER; PROPYLENE GLYCOL MONOMETHYL

SECTION 15: Regulatory information

ETHER; ISOPROPYL ALCOHOL; 2-PROPANOL; XYLENE; DIMETHYLBENZENE; ETHYL BENZENE; ETHYLBENZENE; PSEUDOCUMENE

Michigan Critical Material: None of the components are listed.

Minnesota Hazardous Substances: None of the components are listed.

New Jersey Hazardous Substances: The following components are listed: KAOLIN; ETHYL ALCOHOL; ALCOHOL; PROPYLENE GLYCOL MONOMETHYL ETHER; 1-METHOXY-2-PROPANOL; ISOPROPYL ALCOHOL; 2-PROPANOL; XYLENES; BENZENE, DIMETHYL-; ETHYL BENZENE; BENZENE, ETHYL-; PSEUDOCUMENE; 1,2,4-TRIMETHYL BENZENE

New Jersey Spill: None of the components are listed.

New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.

New York Acutely Hazardous Substances: The following components are listed: Xylene mixed; Ethylbenzene

New York Toxic Chemical Release Reporting: None of the components are listed.

Pennsylvania RTK Hazardous Substances: The following components are listed: KAOLIN; SILICIC ACID, ETHYL ESTER; DENATURED ALCOHOL; ETHANOL; 2-PROPANOL, 1-METHOXY-; 2-PROPANOL; BENZENE, DIMETHYL-; BENZENE, ETHYL-; PSEUDOCUMENE

Rhode Island Hazardous Substances: None of the components are listed.

California Prop. 65 PFF :

WARNING: This product contains a chemical known to the State of California to cause cancer.

WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Product/ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Ethylbenzene	Yes.	No.	Yes.	
respirable quartz	Yes.	No.		
Cumen	Yes.	No.		
1-ethyl-2-methylbenzene	No.	Yes.		
benzene	Yes.	Yes.	Yes.	Yes.
cadmium	Yes.	Yes.		

SECTION 16: Other information

Remarks :

Note: In USA, consult Code of Federal Regulations, Title 29, Labor, Parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable Federal, State or local regulations that apply to safe practices in coating operations.

Warning! If you scrape, sand, or remove old paint, you may release lead dust. LEAD is TOXIC.

Validation :

Validated by US - HSE Products Coordinator on 30 January 2018

GHS Classification

Procedure used to derive the classification.

Classification	Justification
FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs, lungs) - Category 1	On basis of test data Calculation method Calculation method Calculation method Calculation method

Hazardous Material Information System (U.S.A.)

Health	3
Fire hazard	3
Physical hazards	0
Personal protection	X

National Fire Protection Association (U.S.A.)

Health	2	Flammability	4
		Instability	0
		Special	

Personal Protective Equipment (PPE) shown in this section is a suggestion. Since conditions vary from one work location to another consult the facility safety & health program. Customer or end user is responsible to evaluate worker exposure conditions at the site of application and determine the appropriate PPE suitable for workers at that particular facility or location.

Abbreviations and acronyms :

ANSI = American National Standards Institute
 HCS = Hazardous Communication System
 TSCA = Toxic Substances Control Act
 CFR = Code of federal Regulations
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 OSHA = United States Occupational Health and Safety Administration
 NIOSH = National Institute for Occupational Safety and Health
 ACGIH = American Conference of Industrial Hygienists
 IARC = International Agency for Research on Cancer.
 NTP = National Toxicology Program
 ATE = Acute Toxicity Estimate

OECD = Organisation for Economic Co-operation and Development
 BCF = Bioconcentration Factor
 DOT = United States Department of Transportation
 ERG = Emergency Response Guide
 TDG = Transport of Dangerous Goods, Canada
 SCT = Transportation & Communications Ministry, Mexico
 IMDG = International Maritime Dangerous Goods
 IATA = International Air Transport Association
 SARA = Superfund Amendments Reauthorization Act
 EPCRA = Emergency Planning and Community Right to Know Act

SECTION 16: Other information

Notice to reader

▣ Indicates information that has changed from previously issued version.

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830 - Europe

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : Hempel's Thinner 08080
Product identity : 0808000000
Product type : thinner

1.2 Relevant identified uses of the substance or mixture and uses advised against

Field of application : buildings and metal industry. yacht, ships and shipyards.
Identified uses : Consumer applications, Industrial applications, Professional applications.

1.3 Details of the supplier of the safety data sheet

Company details : HEMPEL A/S
Lundtoftegårdsvej 91
DK-2800 Kgs. Lyngby
Denmark
Tel.: + 45 45 93 38 00
hempel@hempel.com
Date of issue : 1 July 2020
Date of previous issue : 19 September 2019.

1.4 Emergency telephone number

Emergency telephone number (with hours of operation)

+45 45 93 38 00 (08.00 - 17.00)
See section 4 First aid measures.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 3, H226	FLAMMABLE LIQUIDS
Acute Tox. 4, H312	ACUTE TOXICITY (dermal)
Acute Tox. 4, H332	ACUTE TOXICITY (inhalation)
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION
STOT RE 2, H373	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE)
Asp. Tox. 1, H304	ASPIRATION HAZARD

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H226 - Flammable liquid and vapor.
H304 - May be fatal if swallowed and enters airways.
H312 + H332 - Harmful in contact with skin or if inhaled.
H315 - Causes skin irritation.
H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements :

General : If medical advice is needed, have product container or label at hand. Keep out of reach of children.
Prevention : Avoid breathing vapors, spray or mists. Wear protective gloves/protective clothing/eye protection/face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response : IF SWALLOWED: Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.
Storage : Keep cool. Store locked up.
Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazardous ingredients : xylene
ethylbenzene

Supplemental label elements :

Special packaging requirements

SECTION 2: Hazards identification

Containers to be fitted with child-resistant fastenings : Yes, applicable.

Tactile warning of danger : Yes, applicable.

2.3 Other hazards

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
xylene	REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9	≥75 - ≤90	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315	C [1] [2]
ethylbenzene	REACH #: 01-2119489370-35 EC: 202-849-4 CAS: 100-41-4 Index: 601-023-00-4	≥10 - ≤25	Flam. Liq. 2, H225 Acute Tox. 4, H332 STOT RE 2, H373 (hearing organs) Asp. Tox. 1, H304	- [1] [2]
toluene	REACH #: 01-2119471310-51 EC: 203-625-9 CAS: 108-88-3 Index: 601-021-00-3	≥1 - <3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361d STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 See Section 16 for the full text of the H statements declared above.	- [1] [2]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit, see section 8.
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

SECTION 4: First aid measures

4.1 Description of first aid measures

- General : In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.
If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 112 and give immediate treatment (first aid).
- Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 5 minutes, occasionally lifting the upper and lower eyelids. In all cases of doubt, or when symptoms persist, seek medical attention.
- Inhalation : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Give nothing by mouth. If unconscious, place in recovery position and get medical attention immediately.
- Skin contact : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
- Ingestion : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do not induce vomiting unless directed to do so by medical personnel. Lower the head so that vomit will not re-enter the mouth and throat.
- Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

SECTION 4: First aid measures

Eye contact :	No known significant effects or critical hazards.
Inhalation :	Harmful if inhaled.
Skin contact :	Harmful in contact with skin. Causes skin irritation.
Ingestion :	May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact :	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation :	No specific data.
Skin contact :	Adverse symptoms may include the following: irritation redness
Ingestion :	Adverse symptoms may include the following: nausea or vomiting

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician :	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments :	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media :	Recommended: alcohol resistant foam, CO ₂ , powders, water spray. Not to be used: waterjet.
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5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture :	Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
Hazardous combustion products :	Decomposition products may include the following materials: carbon oxides

5.3 Advice for firefighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard. Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid all direct contact with the spilled material. Exclude sources of ignition and be aware of explosion hazard. Ventilate the area. Avoid breathing vapor or mist. Refer to protective measures listed in sections 7 and 8. No action shall be taken involving any personal risk or without suitable training. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.2 Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections

SECTION 6: Accidental release measures

See Section 1 for emergency contact information.
 See Section 8 for information on appropriate personal protective equipment.
 See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air. Prevent the creation of flammable or explosive concentrations of vapors in air and avoid vapor concentrations higher than the occupational exposure limits. In addition, the product should be used only in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. To dissipate static electricity during transfer, ground drum and connect to receiving container with bonding strap. No sparking tools should be used.

Avoid inhalation of vapour, dust and spray mist. Avoid contact with skin and eyes. Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Appropriate personal protective equipment: see Section 8. Always keep in containers made from the same material as the original one.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a cool, well-ventilated area away from incompatible materials and ignition sources. Keep out of the reach of children. Keep away from: Oxidizing agents, strong alkalis, strong acids. No smoking. Prevent unauthorized access. Containers that are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

See separate Product Data Sheet for recommendations or industrial sector specific solutions.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Product/ingredient name	Exposure limit values
xylene	EU OEL (Europe, 10/2019). Absorbed through skin. TWA: 50 ppm 8 hours. TWA: 221 mg/m ³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 442 mg/m ³ 15 minutes.
ethylbenzene	EU OEL (Europe, 10/2019). Absorbed through skin. STEL: 884 mg/m ³ 15 minutes. STEL: 200 ppm 15 minutes. TWA: 442 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.
toluene	EU OEL (Europe, 10/2019). Absorbed through skin. TWA: 192 mg/m ³ 8 hours. TWA: 50 ppm 8 hours. STEL: 384 mg/m ³ 15 minutes. STEL: 100 ppm 15 minutes.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived effect levels

Product/ingredient name	Type	Exposure	Value	Population	Effects
xylene	DNEL	Long term Inhalation	77 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	180 mg/kg bw/day	Workers	Systemic
ethylbenzene	DNEL	Long term Dermal	180 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	77 mg/m ³	Workers	Systemic
toluene	DNEL	Long term Dermal	384 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	192 mg/m ³	Workers	Systemic

Predicted effect concentrations

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Compartment Detail	Value	Method Detail	
xylene	Fresh water	0.327 mg/l	-	
	Marine water	0.327 mg/l	-	
	Fresh water sediment	12.46 mg/kg	-	
	Marine water sediment	12.46 mg/kg	-	
	Soil	2.31 mg/kg	-	
	Sewage Treatment Plant	6.68 mg/l	-	
	toluene	Fresh water	0.68 mg/l	-
		Marine water	0.68 mg/l	-
		Sewage Treatment Plant	13.61 mg/l	-
		Fresh water sediment	16.39 mg/kg	-
Marine water sediment		16.39 mg/kg	-	
	Soil	2.89 mg/kg	-	

8.2 Exposure controls

Appropriate engineering controls

Arrange sufficient ventilation by local exhaust ventilation and good general ventilation to keep the airborne concentrations of vapors or dust lowest possible and below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Individual protection measures

- General :** Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. Safety eyewear should be used when there is a likelihood of exposure.
- Hygiene measures :** Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.
- Eye/face protection :** Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Hand protection :** Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. The quality of the chemical-resistant protective gloves must be chosen as a function of the specific workplace concentrations and quantity of hazardous substances.
Since the actual work situation is unknown. Supplier of gloves should be contacted in order to find the appropriate type. Below listed glove(s) should be regarded as generic advice:



Recommended: Silver Shield / Barrier / 4H gloves, polyvinyl alcohol (PVA), Viton®
May be used: nitrile rubber
Short term exposure: neoprene rubber, butyl rubber, natural rubber (latex), polyvinyl chloride (PVC)
- Body protection :** Personal protective equipment for the body should be selected based on the task being performed and the risks involved handling this product.
- Respiratory protection :** Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If working areas have insufficient ventilation: When the product is applied by means that will not generate an aerosol such as, brush or roller wear half or totally covering mask equipped with gas filter of type A, when grinding use particle filter of type P. Be sure to use an approved/certified respirator or equivalent.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Physical state :** Liquid.
- Color :**  Transparent
- Odor :** Solvent-like
- pH :** Testing not relevant or not possible due to nature of the product.
- Melting point/freezing point :** -94.96°C This is based on data for the following ingredient: xylene
- Boiling point/boiling range :** Testing not relevant or not possible due to nature of the product.
- Flash point :**  Closed cup: 23°C (73.4°F)

SECTION 9: Physical and chemical properties

Evaporation rate :	Testing not relevant or not possible due to nature of the product.
Flammability :	Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.
Lower and upper explosive (flammable) limits :	0.8 - 7.1 vol %
Vapor pressure :	0.893 kPa This is based on data for the following ingredient: xylene
Vapor density :	3.7 Air = 1 This is based on data for the following ingredient: xylene
Specific gravity :	0.87 g/cm ³
Solubility(ies) :	Very slightly soluble in the following materials: cold water and hot water.
Partition coefficient (LogKow) :	Testing not relevant or not possible due to nature of the product.
Auto-ignition temperature :	Lowest known value: 432°C (809.6°F) (xylene).
Decomposition temperature :	Testing not relevant or not possible due to nature of the product.
Viscosity :	☑ Kinematic (40°C): >0.09 cm ² /s
Explosive properties :	Testing not relevant or not possible due to nature of the product.
Oxidizing properties :	Testing not relevant or not possible due to nature of the product.

9.2 Other information

Solvent(s) % by weight :	Weighted average: 100 %
Water % by weight :	Weighted average: 0 %
VOC content :	870 g/l
TOC Content :	Weighted average: 788 g/l
Solvent Gas :	Weighted average: 0.197 m ³ /l

SECTION 10: Stability and reactivity

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 Incompatible materials

Highly reactive or incompatible with the following materials: oxidizing materials.
Reactive or incompatible with the following materials: reducing materials.

10.6 Hazardous decomposition products

When exposed to high temperatures (i.e. in case of fire) harmful decomposition products may be formed:
Decomposition products may include the following materials: carbon oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Exposure to component solvent vapor concentrations may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Solvents may cause some of the above effects by absorption through the skin. Symptoms and signs include headaches, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and reversible damage. Accidental swallowing may cause stomach pain. Chemical lung inflammation may occur if the product is taken into the lungs via vomiting.

SECTION 11: Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
xylene	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	6350 ppm	4 hours
	LD50 Dermal	Rabbit	>4200 mg/kg	-
ethylbenzene	LD50 Oral	Rat	3523 mg/kg	-
	LD50 Dermal	Rabbit	>5000 mg/kg	-
toluene	LD50 Oral	Rat	3500 mg/kg	-
	LC50 Inhalation Vapor	Rat	>20 mg/l	4 hours
	LD50 Oral	Rat	636 mg/kg	-

Acute toxicity estimates

Product/ingredient name	Oral mg/kg	Dermal mg/kg	Inhalation (gases) ppm	Inhalation (vapors) mg/l	Inhalation (dusts and mists) mg/l
Hempel's Thinner 08080					
xylene	3523	1359.7	6180.4	61.1	
ethylbenzene	3500	1100	5000	11	

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure
xylene	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams
ethylbenzene	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams
	Respiratory - Mild irritant	Rabbit	-	-
toluene	Eyes - Mild irritant	Rabbit	-	-
	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams

Mutagenic effects

No known significant effects or critical hazards.

Carcinogenicity

No known significant effects or critical hazards.

Reproductive toxicity

No known significant effects or critical hazards.

Teratogenic effects

No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
toluene	Category 3		Narcotic effects

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ethylbenzene	Category 2	-	hearing organs
toluene	Category 2	-	-

Aspiration hazard

Product/ingredient name	Result
ethylbenzene	ASPIRATION HAZARD - Category 1
toluene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential chronic health effects

Other information : No additional known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Do not allow to enter drains or watercourses.

Product/ingredient name	Result	Species	Exposure
ethylbenzene toluene	Chronic NOEC <1000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Chronic NOEC <500000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Chronic NOEC 1000 µg/l Fresh water	Daphnia - Daphnia magna	21 days

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
xylene ethylbenzene toluene	-	>60 % - Readily - 28 days	-	-
	-	>70 % - Readily - 28 days	-	-
	-	100 % - Readily - 14 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
xylene	-	-	Readily
ethylbenzene	-	-	Readily
toluene	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
xylene	3.12	8.1 - 25.9	low
ethylbenzene	3.6	-	low
toluene	2.73	90	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : No known data available in our database.

Mobility : No known data available in our database.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

The generation of waste should be avoided or minimized wherever possible. Residues of the product is listed as hazardous waste. Dispose of according to all state and local applicable regulations. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Spillage, remains, discarded clothes and similar should be discarded in a fireproof container.

European waste catalogue no. (EWC) is given below.

European waste catalogue (EWC) : 08 01 11*




Packaging

The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

Transport may take place according to national regulation or ADR for transport by road, RID for transport by train, IMDG for transport by sea, IATA for transport by air.

SECTION 14: Transport information

	14.1 UN no.	14.2 Proper shipping name	14.3 Transport hazard class(es)	14.4 PG*	14.5 Env*	Additional information
ADR/RID Class	UN1263	PAINT RELATED MATERIAL	3 	III	No.	<u>Tunnel code</u> (D/E)
IMDG Class	UN1263	PAINT RELATED MATERIAL	3 	III	No.	<u>Emergency schedules</u> F-E, S-E
IATA Class	UN1263	PAINT RELATED MATERIAL	3 	III	No.	-

PG* : Packing group

Env.* : Environmental hazards

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH) Annex XIV - List of substances subject to authorization - Substances of very high concern

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

Other EU regulations

Seveso category This product is controlled under the Seveso III Directive.

Seveso category
P5c: Flammable liquids 2 and 3 not falling under P5a or P5b

15.2 Chemical Safety Assessment

SECTION 16: Other information

Abbreviations and acronyms :

ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 EUH statement = CLP-specific Hazard statement
 RRN = REACH Registration Number
 DNEL = Derived No Effect Level
 PNEC = Predicted No Effect Concentration

Full text of abbreviated H statements :

H225 Highly flammable liquid and vapor.
 H226 Flammable liquid and vapor.
 H304 May be fatal if swallowed and enters airways.
 H312 Harmful in contact with skin.
 H315 Causes skin irritation.
 H332 Harmful if inhaled.
 H336 May cause drowsiness or dizziness.
 H361d Suspected of damaging the unborn child.
 H373 May cause damage to organs through prolonged or repeated exposure.

SECTION 16: Other information

Full text of classifications [CLP/GHS] :	<input checked="" type="checkbox"/> Acute Tox. 4	ACUTE TOXICITY - Category 4
	Asp. Tox. 1	ASPIRATION HAZARD - Category 1
	Flam. Liq. 2	FLAMMABLE LIQUIDS - Category 2
	Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
	Repr. 2	TOXIC TO REPRODUCTION - Category 2
	Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
	STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
	STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 3

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
<input checked="" type="checkbox"/> FLAMMABLE LIQUIDS ACUTE TOXICITY (dermal) ACUTE TOXICITY (inhalation) SKIN CORROSION/IRRITATION SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) ASPIRATION HAZARD	On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method

Notice to reader

Indicates information that has changed from previously issued version.

The information contained in this safety data sheet is based on the present state of knowledge and EU and national legislation. It provides guidance on health, safety and environmental aspects for handling the product in a safe way and should not be construed as any guarantee of the technical performance or suitability for particular applications.

It is always the duty of the user/employer to ascertain that the work is planned and carried out in accordance with the national regulations.

This document is intended to communicate the conditions of safe use for the product and should always be read in combination with the product's Safety Data Sheet and labels.

General description of the process covered

Indoor painting by professionals by dipping or with brush, roller, putty knife etc. with enhanced ventilation or local exhaust ventilation (LEV)

This safe use information is linked to : Professional low-energy painting, near-industrial setting - Level I
HMP I/PW 02a

Sector(s) of use : Industrial uses - Professional uses

Product category(ies) : Coatings and paints, thinners, paint removers

Operational conditions

Place of use : Indoor use

Range of application/Process conditions : Assumes a good standard of occupational hygiene and safety management has been implemented.

Risk management measures (RMM)

Contributing activity	Process category (ies)	Maximum duration	Ventilation		Respiratory	Eye	Hands
			Type and air changes per hour				
Preparation of material for application	PROC05	More than 4 hours	Enhanced (mechanical) room ventilation	5 - 10	None	Use eye protection according to EN 166.	Wear suitable gloves tested to EN374.
Loading of application equipment and handling of coated parts before curing	PROC08b	More than 4 hours	Enhanced (mechanical) room ventilation	5 - 10	None	Use eye protection according to EN 166.	Wear suitable gloves tested to EN374.
Industrial application of coatings by other than spraying	PROC10	More than 4 hours	Local exhaust ventilation	Refer to relevant technical standards	Wear a respirator conforming to EN140 with an assigned protection factor of at least 10.	Use eye protection according to EN 166.	Wear suitable gloves tested to EN374.
Film formation - force drying, stoving and other technologies	PROC04	More than 4 hours	Enhanced (mechanical) room ventilation	5 - 10	None	None	None
Cleaning	PROC05	More than 4 hours	Enhanced (mechanical) room ventilation	5 - 10	None	Use eye protection according to EN 166.	Wear suitable gloves tested to EN374.
Waste management	PROC08b	More than 4 hours	Enhanced (mechanical) room ventilation	5 - 10	None	Use eye protection according to EN 166.	Wear suitable gloves tested to EN374.

See chapter 8 of this Safety Data Sheet for specifications.



This document is intended to communicate the conditions of safe use for the product and should always be read in combination with the product's Safety Data Sheet and labels.

General description of the process covered

Outdoor painting by professionals by dipping or with brush, roller, putty knife etc.

This safe use information is linked to : Professional low-energy painting, near-industrial setting - Level V
HMP I/PW 06e

Sector(s) of use : Industrial uses - Professional uses

Product category(ies) : Coatings and paints, thinners, paint removers

Operational conditions

Place of use : Outdoor use

Range of application/Process conditions : Assumes a good standard of occupational hygiene and safety management has been implemented.

Risk management measures (RMM)

Contributing activity	Process category (ies)	Maximum duration	Ventilation		Respiratory	Eye	Hands
			Type	air changes per hour			
Preparation of material for application	PROC05	More than 4 hours	Outdoors	3 - 5	Wear a respirator conforming to EN140 with an assigned protection factor of at least 10.	Use eye protection according to EN 166.	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Loading of application equipment and handling of coated parts before curing	PROC08b	More than 4 hours	Outdoors	3 - 5	Wear a respirator conforming to EN140 with an assigned protection factor of at least 10.	Use eye protection according to EN 166.	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Industrial application of coatings by other than spraying	PROC10	More than 4 hours	Outdoors	3 - 5	Use a properly fitted, air-purifying or air-fed respirator. EN 14594 with an assigned protection factor of at least 20.	Use eye protection according to EN 166.	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Film formation - force drying, stoving and other technologies	PROC04	More than 4 hours	Outdoors	3 - 5	None	Use eye protection according to EN 166.	Wear suitable gloves tested to EN374.
Cleaning	PROC05	More than 4 hours	Outdoors	3 - 5	Wear a respirator conforming to EN140 with an assigned protection factor of at least 10.	Use eye protection according to EN 166.	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Waste management	PROC08b	More than 4 hours	Outdoors	3 - 5	Wear a respirator conforming to EN140 with an assigned protection factor of at least 10.	Use eye protection according to EN 166.	Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

See chapter 8 of this Safety Data Sheet for specifications.



Conforms to ANSI Z400.1-2010 Standard - HCS 2012

Protective Clothing	General Hazard	DOT
		

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : HEMPEL'S THINNER 08450
 Product identity : 0845000000
 Product type : thinner

1.2 Relevant identified uses of the substance or mixture and uses advised against

Field of application : yacht, ships and shipyards. buildings and metal industry.
 Identified uses : Industrial/Professional use
 TSCA : **Unless otherwise stated. All components are listed or exempted.**

1.3 Details of the supplier of the safety data sheet

Company details :	HEMPEL (USA), Inc. 600 Conroe Park North Drive Conroe, Texas 77303 Toll free: (800) 678-6641, if outside area codes 713, 281, 409, 936 Regular phone number: (936) 523-6000 E-mail Hempel@Hempel.com	HEMPEL (USA), Inc. 2728 Empire Central Dallas, TX 75235 Phone number: 1-214-353-1600 E-mail: hempel@hempel.com
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1.4 Emergency telephone number (with hours of operation)

For Transportation Emergencies : CHEMTREC: **1-800-424-9300** (Toll-free in the U.S., Canada and the U.S. Virgin Islands) **703-527-3887** (24 hours)
 For calls originating elsewhere (Collect calls are accepted). Contract number: CCN10384
 To preserve the effectiveness of arrangements for providing accurate and timely emergency response information, the basic identifying information (shipper name or contract number) must be included on shipping papers.
 If the purchaser of this product is going to be shipping this product to other locations, the purchaser must arrange for its own Emergency Information Provider to respond to transport incidents. Hempel's 24 hour response contract does not cover non-Hempel shipments.

For all other information : In USA toll free calling available: 1-800- 678-6641 or (936)-523-6000
 (8 AM - 5 PM CST) See Section 4 of the safety data sheet (first aid measures).

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

GHS Classification :
 FLAMMABLE LIQUIDS - Category 3
 ACUTE TOXICITY (dermal) - Category 4
 ACUTE TOXICITY (inhalation) - Category 4
 SKIN IRRITATION - Category 2
 SERIOUS EYE DAMAGE - Category 1
 CARCINOGENICITY - Category 2
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2
 ASPIRATION HAZARD - Category 1

2.2 Label elements

SECTION 2: Hazards identification

Hazard pictograms :



Signal word :

Danger

Hazard statements :

H226 - Flammable liquid and vapor.
 H312 + H332 - Harmful in contact with skin or if inhaled.
 H318 - Causes serious eye damage.
 H315 - Causes skin irritation.
 H351 - Suspected of causing cancer.
 H304 - May be fatal if swallowed and enters airways.
 H335 - May cause respiratory irritation.
 H336 - May cause drowsiness or dizziness.
 H373 - May cause damage to organs through prolonged or repeated exposure. (hearing organs)

Precautionary statements :

General :

Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention :

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Wash hands thoroughly after handling.

Response :

Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Storage :

Store locked up. Store in a well-ventilated place. Keep cool.

Disposal :

Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements :

None known.

2.3 Other hazards

Hazards not otherwise classified : None known.

SECTION 3: Composition/information on ingredients

Product definition :

Mixture

Physical state :

Liquid.

Product/ingredient name	Identifiers	%	GHS Classification
xylene	1330-20-7	≥50 - ≤75	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2
n-butanol	71-36-3	≥10 - ≤25	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

SECTION 3: Composition/information on ingredients

ethylbenzene	100-41-4	≥10 - ≤19	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (inhalation) - Category 4 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2 ASPIRATION HAZARD - Category 1
solvent naphtha (petroleum), light arom.	64742-95-6	≥3 - ≤5	FLAMMABLE LIQUIDS - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1
1,2,4-trimethylbenzene	95-63-6	≥3 - ≤4.8	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
1,2,3-trimethylbenzene Cumene	526-73-8 98-82-8	≥1 - ≤3 ≤0.3	FLAMMABLE LIQUIDS - Category 3 FLAMMABLE LIQUIDS - Category 3 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 ASPIRATION HAZARD - Category 1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Occupational exposure limits, if available, are listed in Section 8.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

SECTION 4: First aid measures

4.1 Description of first aid measures

General :	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 911 and give immediate treatment (first aid).
Eye contact :	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 5 minutes, occasionally lifting the upper and lower eyelids. Seek immediate medical attention.
Inhalation :	Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Give nothing by mouth. If unconscious, place in recovery position and get medical attention immediately.
Skin contact :	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
Ingestion :	If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do not induce vomiting unless directed to do so by medical personnel. Lower the head so that vomit will not re-enter the mouth and throat.
Protection of first-aiders :	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact :	Causes serious eye damage.
Inhalation :	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
Skin contact :	Harmful in contact with skin. Causes skin irritation.
Ingestion :	Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

SECTION 4: First aid measures

Eye contact :	Adverse symptoms may include the following: pain watering redness
Inhalation :	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Skin contact :	Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion :	Adverse symptoms may include the following: stomach pains nausea or vomiting

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician :	Not applicable.
Specific treatments :	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media :	Recommended: alcohol resistant foam, CO ₂ , powders, water spray. Not to be used: waterjet.
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5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture :	Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products :	Decomposition products may include the following materials: carbon oxides

5.3 Advice for firefighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard. Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid all direct contact with the spilled material. Exclude sources of ignition and be aware of explosion hazard. Ventilate the area. Avoid breathing vapor or mist. Refer to protective measures listed in sections 7 and 8. No action shall be taken involving any personal risk or without suitable training. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.2 Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material.

6.3 Methods and materials for containment and cleaning up

SECTION 6: Accidental release measures

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilled product.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air. Prevent the creation of flammable or explosive concentrations of vapors in air and avoid vapor concentrations higher than the occupational exposure limits. In addition, the product should be used only in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. To dissipate static electricity during transfer, ground drum and connect to receiving container with bonding strap. No sparking tools should be used.

Avoid inhalation of vapour, dust and spray mist. Avoid contact with skin and eyes. Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Appropriate personal protective equipment: see Section 8. Always keep in containers made from the same material as the original one.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a cool, well-ventilated area away from incompatible materials and ignition sources. Keep out of the reach of children. Keep away from: Oxidizing agents, strong alkalis, strong acids. No smoking. Prevent unauthorized access. Containers that are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

See separate Product Data Sheet for recommendations or industrial sector specific solutions. This product may be applied using several application techniques and methods of handling may be different for each. Application techniques include [but are not limited to] brushing, rolling, and spray application [conventional, HPLV, airless, pleural component or aerosol can]. Avoid the breathing of vapors and, if spraying, do not breath spray mist or aerosols.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Product/ingredient name	Exposure limit values
xylene	ACGIH TLV (United States, 3/2018). TWA: 100 ppm 8 hours. TWA: 434 mg/m ³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 651 mg/m ³ 15 minutes. OSHA PEL (United States, 5/2018). TWA: 100 ppm 8 hours. TWA: 435 mg/m ³ 8 hours.
n-butanol	ACGIH TLV (United States, 3/2018). TWA: 20 ppm 8 hours. NIOSH REL (United States, 10/2016). Absorbed through skin. CEIL: 50 ppm CEIL: 150 mg/m ³ OSHA PEL (United States, 5/2018). TWA: 100 ppm 8 hours. TWA: 300 mg/m ³ 8 hours.
ethylbenzene	ACGIH TLV (United States, 3/2018). TWA: 20 ppm 8 hours. NIOSH REL (United States, 10/2016). STEL: 545 mg/m ³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 435 mg/m ³ 10 hours. TWA: 100 ppm 10 hours. OSHA PEL (United States, 5/2018).

SECTION 8: Exposure controls/personal protection

solvent naphtha (petroleum), light arom.	TWA: 435 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.
1,2,4-trimethylbenzene	ACGIH TLV (United States). TWA Tentative: 25 ppm 8 hours.
1,2,3-trimethylbenzene	ACGIH TLV (United States, 3/2018). TWA: 123 mg/m ³ 8 hours. TWA: 25 ppm 8 hours.
Cumen	NIOSH REL (United States, 10/2016). TWA: 125 mg/m ³ 10 hours. TWA: 25 ppm 10 hours.
	ACGIH TLV (United States, 3/2018). TWA: 123 mg/m ³ 8 hours. TWA: 25 ppm 8 hours.
	NIOSH REL (United States, 10/2016). TWA: 125 mg/m ³ 10 hours. TWA: 25 ppm 10 hours.
	ACGIH TLV (United States, 3/2018). TWA: 50 ppm 8 hours.
	NIOSH REL (United States, 10/2016). Absorbed through skin. TWA: 245 mg/m ³ 10 hours. TWA: 50 ppm 10 hours.
	OSHA PEL (United States, 5/2018). Absorbed through skin. TWA: 245 mg/m ³ 8 hours. TWA: 50 ppm 8 hours.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

8.2 Exposure controls

Appropriate engineering controls


Provide local exhaust and general ventilation systems to maintain airborne concentrations below OSHA, ACGIH, and manufacturer recommended exposure limits. Local exhaust ventilation is preferred because it prevents contaminant dispersion into work areas by controlling it at its source. Use local and general exhaust ventilation to effectively remove and prevent buildup of mists/vapors/fumes generated from the handling of this product.

Note: Local exhaust ventilation is designed to capture an emitted contaminant at or near its source, before the contaminant has a chance to disperse into the workplace air. General exhaust ventilation, also called dilution ventilation, is different from local exhaust ventilation because instead of capturing emissions at their source and removing them from the air, general exhaust ventilation allows the contaminant to be emitted into the workplace air and then dilutes the concentration of the contaminant to an acceptable level (e.g., to the PEL or below).

Individual protection measures

- General : Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. Safety eyewear should be used when there is a likelihood of exposure.
- Hygiene measures : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.
- Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Hand protection : Wear chemical-resistant gloves in combination with 'basic' employee training. The quality of the chemical-resistant protective gloves must be chosen as a function of the specific workplace concentrations and quantity of hazardous substances.
 Since the actual work situation is unknown. Supplier of gloves should be contacted in order to find the appropriate type. Below listed glove(s) should be regarded as generic advice:
 Recommended: Silver Shield / Barrier / 4H gloves, polyvinyl alcohol (PVA), Viton®
 May be used: nitrile rubber
 Short term exposure: neoprene rubber, butyl rubber, natural rubber (latex), polyvinyl chloride (PVC)

SECTION 8: Exposure controls/personal protection

Body protection :	Personal protective equipment for the body should be selected based on the task being performed and the risks involved handling this product. Wear suitable protective clothing. Always wear protective clothing when spraying.
Respiratory protection :	If working areas have insufficient ventilation, wear half or totally covering mask equipped with gas filter of type Organic Vapor, when grinding use particle filter of type P95, P99 or P100. When spraying use a combined filter (organic vapor / HEPA or organic vapor / P100 type). Be sure to use approved/certified respirator or equivalent. Always wear an air-fed respirator when spraying in a continuous and prolonged work situation (e.g. hood with supply of fresh or compressed air or a full face, powered air purifying filter).
Protective clothing (pictograms) :	 <p>Note: Application of paint products by spraying requires additional safety precautions: Full body suit, Full face respirator with air supplied.</p>

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state :	Liquid.
Odor :	Solvent-like
pH :	Testing not relevant or not possible due to nature of the product.
Melting point/freezing point :	-94.96°C This is based on data for the following ingredient: xylene
Boiling point/boiling range :	Testing not relevant or not possible due to nature of the product.
Flash point :	Closed cup: 25°C (77°F)
Evaporation rate :	Testing not relevant or not possible due to nature of the product.
Flammability :	Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat. Flammable in the presence of the following materials or conditions: oxidizing materials. Slightly flammable in the presence of the following materials or conditions: reducing materials.
Upper/lower flammability or explosive limits :	0.8 - 11.3 vol %
Vapor pressure :	0.893 kPa This is based on data for the following ingredient: xylene
Vapor density :	Testing not relevant or not possible due to nature of the product.
Relative density :	0.857 g/cm ³
Solubility(ies) :	Partially soluble in the following materials: cold water and hot water.
Partition coefficient (LogKow) :	Testing not relevant or not possible due to nature of the product.
Auto-ignition temperature :	Testing not relevant or not possible due to nature of the product.
Decomposition temperature :	Testing not relevant or not possible due to nature of the product.
Viscosity :	<7 x 10 ⁻⁶ m ² /s Kinematic viscosity at 40°C
Explosive properties :	Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Oxidizing properties :	Testing not relevant or not possible due to nature of the product.

9.2 Other information

Solvent(s) % by weight (Included exempt solvent(s)):	100 % (w/w)
Water % by weight :	Weighted average: 0 %
VOC content (Coatings) :	7.15 lbs/gal (856.8 g/l)
VOC content (Regulatory) :	7.15 lbs/gal (857 g/l)

SECTION 9: Physical and chemical properties

TOC Content (Volatile) : Weighted average: 720 g/l
 Solvent Gas : Weighted average: 0.209 m³/l

SECTION 10: Stability and reactivity

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 Incompatible materials

Highly reactive or incompatible with the following materials: oxidizing materials.
 Reactive or incompatible with the following materials: reducing materials.

10.6 Hazardous decomposition products

When exposed to high temperatures (i.e. in case of fire) harmful decomposition products may be formed:

Decomposition products may include the following materials: carbon oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Exposure to component solvent vapor concentrations may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Solvents may cause some of the above effects by absorption through the skin. Symptoms and signs include headaches, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and reversible damage. Accidental swallowing may cause stomach pain. Chemical lung inflammation may occur if the product is taken into the lungs via vomiting.

Aspiration hazard if swallowed. Can enter lungs and cause damage.

Direct contact with the eyes can cause irreversible damage, including blindness.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
xylene	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	6350 ppm	4 hours
	LD50 Dermal	Rabbit	>4200 mg/kg	-
n-butanol	LD50 Oral	Rat	3523 mg/kg	-
	LC50 Inhalation Vapor	Rat	24000 mg/m³	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
ethylbenzene	LD50 Oral	Rat	790 mg/kg	-
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
solvent naphtha (petroleum), light arom.	LC50 Inhalation Vapor	Rat	6193 mg/m³	4 hours
	LD50 Dermal	Rabbit	3160 mg/kg	-
1,2,4-trimethylbenzene	LD50 Oral	Rat	3492 mg/kg	-
	LC50 Inhalation Vapor	Rat	18000 mg/m³	4 hours
	LD50 Oral	Rat	5 g/kg	-
Cumene	LC50 Inhalation Vapor	Rat	39000 mg/m³	4 hours
	LD50 Dermal	Rabbit	12300 uL/kg	-
	LD50 Oral	Rat	1400 mg/kg	-

SECTION 11: Toxicological information

Acute toxicity estimates

Route	ATE value
Oral	3953.95 mg/kg
Dermal	1906.41 mg/kg
Inhalation (gases)	6641.58 ppm
Inhalation (vapors)	15.22 mg/l

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure
xylene	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams
n-butanol	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams
ethylbenzene	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams
	Respiratory - Mild irritant	Rabbit	-	-
solvent naphtha (petroleum), light arom.	Eyes - Mild irritant	Rabbit	-	-
	Eyes - Mild irritant	Rabbit	-	24 hours 100 microliters
Cumene	Respiratory - Mild irritant	Rabbit	-	-
	Skin - Moderate irritant	Rabbit	-	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 100 milligrams

Carcinogen Classification

Product/ingredient name	IARC	NTP	OSHA
xylene	3	-	-
ethylbenzene	2B	-	-
Cumene	2B	Reasonably anticipated to be a human carcinogen.	-

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
n-butanol	Category 3	Not applicable.	Narcotic effects
	Category 3	Not applicable.	Respiratory tract irritation
solvent naphtha (petroleum), light arom.	Category 3	Not applicable.	Narcotic effects
	Category 3	Not applicable.	Respiratory tract irritation
1,2,4-trimethylbenzene	Category 3	Not applicable.	Respiratory tract irritation
Cumene	Category 3	Not applicable.	Respiratory tract irritation
			Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ethylbenzene	Category 2	Not determined	hearing organs

Aspiration hazard

Product/ingredient name	Result
ethylbenzene	ASPIRATION HAZARD - Category 1
solvent naphtha (petroleum), light arom.	ASPIRATION HAZARD - Category 1
Cumene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential chronic health effects

Other information : No additional known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Do not allow to enter drains or watercourses. Harmful to aquatic life with long lasting effects.

When spilled, this product may act as an oil, causing a film, sheen, emulsion, or sludge at or beneath the surface of a body of water. Oils of any kind can cause: (a) drowning of waterfowl due to lack of buoyancy, loss of insulating capacity of feathers, starvation and vulnerability to predators due to lack of mobility; (b) lethal effect on fish by coating gill surfaces, preventing respiration; (c) potential fish kills resulting from alteration in biochemical oxygen demand; (d) asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom; and (e) adverse aesthetic effects of fouled shoreline and beaches.

Product/ingredient name	Result	Species	Exposure
n-butanol	Acute EC50 1328 mg/l	Daphnia	96 hours
	Acute LC50 1.376 mg/l	Fish	96 hours
ethylbenzene solvent naphtha (petroleum), light arom.	Chronic NOEC <1000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 2.6 mg/l	Algae - Pseudokirchneriella subcapitata (green algae)	96 hours
1,2,4-trimethylbenzene	Acute EC50 3.2 mg/l	Daphnia	48 hours
	Acute LC50 9.22 mg/l	Fish - Oncorhynchus mykiss (rainbow trout)	96 hours
Cumene	Acute LC50 4910 µg/l Marine water	Crustaceans - Elasmopus pectinicus - Adult	48 hours
	Acute LC50 7720 µg/l Fresh water	Fish - Pimephales promelas	96 hours
Cumene	Acute EC50 2.6 mg/l	Algae	72 hours
	Acute EC50 7400 - 11290 µg/l Fresh water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 1 - 10 mg/l	Daphnia	48 hours
	Acute LC50 2700 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute NOEC 0.35 mg/l	Algae	21 days

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
xylene n-butanol	-	>60 % - Readily - 28 days	-	-
	OECD 301D Ready Biodegradability - Closed Bottle Test	92 % - 20 days	-	-
ethylbenzene solvent naphtha (petroleum), light arom.	-	>70 % - Readily - 28 days	-	-
	-	>70 % - Readily - 28 days	-	-
	-	>60 % - Readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
xylene	-	-	Readily
n-butanol	-	-	Readily
ethylbenzene	-	-	Readily
solvent naphtha (petroleum), light arom.	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
xylene	3.12	8.1 - 25.9	low
n-butanol	1	3.16	low
ethylbenzene	3.6	-	low
solvent naphtha (petroleum), light arom.	-	10 - 2500	high
1,2,4-trimethylbenzene	3.63	243	low
1,2,3-trimethylbenzene	3.66	194.98	low
Cumene	3.55	35.48	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}): No known data available in our database.

Mobility: No known data available in our database.

12.5 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7 and Section 8 for additional handling information and protection of employees.

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.






RCRA classification : D001 [Ignitable]

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Xylene 1-Butanol (I); n-Butyl alcohol (I)	1330-20-7 71-36-3	Listed Listed	U239 U031

SECTION 14: Transport information

Transport may take place according to national regulation or DOT for transport by road and by train, IMDG for transport by sea, IATA for Air shipment. Refer to specific Dangerous Goods Transport requirements under 49CFR, ICAO and IATA.

	14.1 UN no.	14.2 Proper shipping name	14.3 Transport hazard class(es)	14.4 PG*	14.5 Env*	14.5 Additional information
DOT Code	UN1263	PAINT RELATED MATERIAL	3 - 	III	No.	ERG : 128 Reportable quantity (xylene, ethylbenzene) 173.31 lbs / 78.683 kg [24.254 gal / 91.812 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
TDG Code	UN1263	PAINT RELATED MATERIAL	3 - 	III	No.	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3).
SCT Code	UN1263	PAINT RELATED MATERIAL	3 - 	III	No.	-
IMDG Code	UN1263	PAINT RELATED MATERIAL	3 - 	III	No.	Emergency schedules F-E, S-E
IATA Code	UN1263	PAINT RELATED MATERIAL	3 - 	III	No.	-

Code : Classification

PG* : Packing group

Env.* : Environmental hazards

14.6 Special precautions for user

SECTION 14: Transport information

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal regulations : All components are listed or exempted.

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 307: ethylbenzene; benzene

Clean Water Act (CWA) 311: xylene; ethylbenzene; benzene

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Product/ingredient name	CAS number	Concentration
xylene	1330-20-7	57.7
ethylbenzene	100-41-4	12.625
Cumen	98-82-8	0.15
benzene	71-43-2	0.005

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 311/312 Classification :

FLAMMABLE LIQUIDS - Category 3
 ACUTE TOXICITY (dermal) - Category 4
 ACUTE TOXICITY (inhalation) - Category 4
 SKIN IRRITATION - Category 2
 SERIOUS EYE DAMAGE - Category 1
 CARCINOGENICITY - Category 2
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2
 ASPIRATION HAZARD - Category 1

Product/ingredient name	%	Classification
xylene	≥50 - ≤75	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2
n-butanol	≥10 - ≤25	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
ethylbenzene	≥10 - ≤19	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (inhalation) - Category 4 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2 ASPIRATION HAZARD - Category 1
solvent naphtha (petroleum), light arom.	≥3 - ≤5	FLAMMABLE LIQUIDS - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1
1,2,4-trimethylbenzene	≥3 - ≤4.8	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
1,2,3-trimethylbenzene Cumen	≥1 - ≤3 ≤0.3	FLAMMABLE LIQUIDS - Category 3 FLAMMABLE LIQUIDS - Category 3 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 ASPIRATION HAZARD - Category 1

SECTION 15: Regulatory information

SARA 313 : SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

Form R - Reporting requirements :

Product/ingredient name	CAS number	Concentration
xylene	1330-20-7	50 - 100
n-butanol	71-36-3	10 - 20
ethylbenzene	100-41-4	10 - 20
1,2,4-trimethylbenzene	95-63-6	3 - 5

Supplier notification :

Product/ingredient name	CAS number	Concentration
xylene	1330-20-7	50 - 100
n-butanol	71-36-3	10 - 20
ethylbenzene	100-41-4	10 - 20
1,2,4-trimethylbenzene	95-63-6	3 - 5

State regulations :

Connecticut Carcinogen Reporting: None of the components are listed.
Connecticut Hazardous Material Survey: None of the components are listed.
Florida substances: None of the components are listed.
Illinois Chemical Safety Act: None of the components are listed.
Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.
Louisiana Reporting: None of the components are listed.
Louisiana Spill: None of the components are listed.
Massachusetts Spill: None of the components are listed.
Massachusetts Substances: The following components are listed: XYLENE; DIMETHYLBENZENE; ETHYL BENZENE; ETHYLBENZENE; N-BUTYL ALCOHOL; 1-BUTANOL; TRIMETHYL BENZENE; PSEUDOCUMENE
Michigan Critical Material: None of the components are listed.
Minnesota Hazardous Substances: None of the components are listed.
New Jersey Hazardous Substances: The following components are listed: XYLENES; BENZENE, DIMETHYL-; ETHYL BENZENE; BENZENE, ETHYL-; n-BUTYL ALCOHOL; 1-BUTANOL; TRIMETHYL BENZENE (mixed isomers); BENZENE, TRIMETHYL-; CUMENE; BENZENE, (1-METHYLETHYL-); PSEUDOCUMENE; 1,2,4-TRIMETHYL BENZENE
New Jersey Spill: None of the components are listed.
New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.
New York Acutely Hazardous Substances: The following components are listed: Xylene mixed; Ethylbenzene; Butyl alcohol; 1-Butanol; Cumene; Benzene, 1-methylethyl-
New York Toxic Chemical Release Reporting: None of the components are listed.
Pennsylvania RTK Hazardous Substances: The following components are listed: BENZENE, DIMETHYL-; BENZENE, ETHYL-; 1-BUTANOL; BENZENE, (1-METHYLETHYL-); PSEUDOCUMENE
Rhode Island Hazardous Substances: None of the components are listed.

California Prop. 65 PFF : **WARNING:** This product can expose you to chemicals including Benzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. This product can expose you to chemicals including Ethylbenzene and Cumene, which are known to the State of California to cause cancer, and 1-ethyl-2-methylbenzene, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Product/ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
ethylbenzene	Yes.	No.	Yes.	
1-ethyl-2-methylbenzene	No.	Yes.		
Cumen	Yes.	No.		
benzene	Yes.	Yes.	Yes.	Yes.

SECTION 16: Other information

Remarks : Note: In USA, consult Code of Federal Regulations, Title 29, Labor, Parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable Federal, State or local regulations that apply to safe practices in coating operations.
Warning! If you scrape, sand, or remove old paint, you may release lead dust. LEAD is TOXIC.

Validation : Validated by US - HSE Products Coordinator on 25 June 2019

GHS Classification

Procedure used to derive the classification.

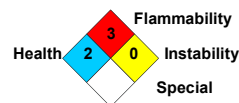
SECTION 16: Other information

Classification	Justification
FLAMMABLE LIQUIDS - Category 3	On basis of test data
ACUTE TOXICITY (dermal) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
SKIN IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE - Category 1	Calculation method
CARCINOGENICITY - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2	Calculation method
ASPIRATION HAZARD - Category 1	Calculation method

Hazardous Material Information System (U.S.A.)

Health	* 3
Fire hazard	3
Physical hazards	0
Personal protection	X

National Fire Protection Association (U.S.A.)



Personal Protective Equipment (PPE) shown in this section is a suggestion. Since conditions vary from one work location to another consult the facility safety & health program. Customer or end user is responsible to evaluate worker exposure conditions at the site of application and determine the appropriate PPE suitable for workers at that particular facility or location.

Abbreviations and acronyms :

ANSI = American National Standards Institute

HCS = Hazardous Communication System

TSCA = Toxic Substances Control Act

CFR = Code of federal Regulations

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

OSHA = United States Occupational Health and Safety Administration

NIOSH = National Institute for Occupational Safety and Health

ACGIH = American Conference of Industrial Hygienists

IARC = International Agency for Research on Cancer.

NTP = National Toxicology Program

ATE = Acute Toxicity Estimate

OECD = Organisation for Economic Co-operation and Development

BCF = Bioconcentration Factor

DOT = United States Department of Transportation

ERG = Emergency Response Guide

TDG = Transport of Dangerous Goods, Canada

SCT = Transportation & Communications Ministry, Mexico

IMDG = International Maritime Dangerous Goods

IATA = International Air Transport Association

SARA = Superfund Amendments Reauthorization Act



EPCRA = Emergency Planning and Community Right to Know Act

Notice to reader

 Indicates information that has changed from previously issued version.

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Conforms to ANSI Z400.1-2010 Standard - HCS 2012

Protective Clothing	General Hazard	DOT
		

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : **HEMPEL'S ZINC METAL PIGMENT 97170**
 Product identity : **97170XXXX0**
 Product type : Zinc. powder

1.2 Relevant identified uses of the substance or mixture and uses advised against

Field of application : metal industry, ships and shipyards.
 Identified uses : Industrial/Professional use
 TSCA : **Unless otherwise stated. All components are listed or exempted.**

1.3 Details of the supplier of the safety data sheet

Company details :	HEMPEL (USA), Inc. 600 Conroe Park North Drive Conroe, Texas 77303 Toll free: (800) 678-6641, if outside area codes 713, 281, 409, 936 Regular phone number: (936) 523-6000 E-mail Hempel@Hempel.com	HEMPEL (USA), Inc. 2728 Empire Central Dallas, TX 75235 Phone number: 1-214-353-1600 E-mail: hempel@hempel.com
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1.4 Emergency telephone number (with hours of operation)

For Transportation Emergencies : CHEMTREC: **1-800-424-9300** (Toll-free in the U.S., Canada and the U.S. Virgin Islands) **703-527-3887** (24 hours)
 For calls originating elsewhere (Collect calls are accepted). Contract number: CCN10384
 To preserve the effectiveness of arrangements for providing accurate and timely emergency response information, the basic identifying information (shipper name or contract number) must be included on shipping papers.
 If the purchaser of this product is going to be shipping this product to other locations, the purchaser must arrange for its own Emergency Information Provider to respond to transport incidents. Hempel's 24 hour response contract does not cover non-Hempel shipments.

For all other information : In USA toll free calling available: 1-800- 678-6641 or (936)-523-6000
 (8 AM - 5 PM CST) See Section 4 of the safety data sheet (first aid measures).

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

GHS Classification : Not classified.

2.2 Label elements

Hazard pictograms :
 Signal word : No signal word.
 Hazard statements : No known significant effects or critical hazards.
 Precautionary statements :
 Supplemental label elements : Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat. Do not get in eyes, on skin, or on clothing. IF ON SKIN: Wash with plenty of soap and water. IF IN EYES: Remove contact lenses, if present and easy to do. Continue rinsing.

SECTION 2: Hazards identification

2.3 Other hazards

Hazards not otherwise classified : Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

SECTION 3: Composition/information on ingredients

Product definition : Mixture

Physical state : Solid. [Powder.]

Product/ingredient name	Identifiers	%	GHS Classification
zinc powder - zinc dust (stabilized) zinc oxide	7440-66-6 1314-13-2	≥90 ≥5 - ≤10	Not classified. Not classified.

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Occupational exposure limits, if available, are listed in Section 8.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

SECTION 4: First aid measures

4.1 Description of first aid measures

General : In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.
If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 911 and give immediate treatment (first aid).

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. In all cases of doubt, or when symptoms persist, seek medical attention.

Inhalation : Remove to fresh air. Keep person warm and at rest. If unconscious, place in recovery position and seek medical advice.

Skin contact : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.

Ingestion : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do not induce vomiting unless directed to do so by medical personnel. Lower the head so that vomit will not re-enter the mouth and throat.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

Inhalation : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
irritation
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact : No specific data.

Ingestion : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

SECTION 4: First aid measures

Notes to physician : Not applicable.
Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Extinguishing media : Recommended: Approved Class D extinguisher or smother with dry sand, dry clay or dry ground limestone.
NOT TO BE USED: WATER. Risk of formation of very flammable and explosive vapours.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products : Decomposition products may include the following materials: metal oxide/oxides

5.3 Advice for firefighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Exposure to decomposition products may cause a health hazard. Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not use water. Violent reaction may occur. Refer to protective measures listed in sections 7 and 8. No action shall be taken involving any personal risk or without suitable training. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.2 Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and materials for containment and cleaning up

Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Open with care, danger of overpressure.
Avoid inhalation of vapour, dust and spray mist. Avoid contact with skin and eyes. Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Appropriate personal protective equipment: see Section 8. Always keep in containers made from the same material as the original one.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations for flammable liquids. Store in a cool, well-ventilated area away from incompatible materials and ignition sources. Keep out of the reach of children. Keep away from: Oxidizing agents, strong alkalis, strong acids as well as of amines, alcohols and water. No smoking. Prevent unauthorized access. Containers that are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

SECTION 7: Handling and storage

See separate Product Data Sheet for recommendations or industrial sector specific solutions.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Product/ingredient name	Exposure limit values
Zinc oxide	<p>NIOSH REL (United States, 10/2016). CEIL: 15 mg/m³ Form: Dust TWA: 5 mg/m³ 10 hours. Form: Dust and fumes STEL: 10 mg/m³ 15 minutes. Form: Fume</p> <p>OSHA PEL (United States, 6/2016). TWA: 5 mg/m³ 8 hours. Form: Fume TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</p> <p>ACGIH TLV (United States, 3/2017). STEL: 10 mg/m³ 15 minutes. Form: Respirable fraction TWA: 2 mg/m³ 8 hours. Form: Respirable fraction</p>

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

8.2 Exposure controls

Appropriate engineering controls

Provide local exhaust and general ventilation systems to maintain airborne concentrations below OSHA, ACGIH, and manufacturer recommended exposure limits. Local exhaust ventilation is preferred because it prevents contaminant dispersion into work areas by controlling it at its source. Use local and general exhaust ventilation to effectively remove and prevent buildup of mists/vapors/fumes generated from the handling of this product.

Note: Local exhaust ventilation is designed to capture an emitted contaminant at or near its source, before the contaminant has a chance to disperse into the workplace air. General exhaust ventilation, also called dilution ventilation, is different from local exhaust ventilation because instead of capturing emissions at their source and removing them from the air, general exhaust ventilation allows the contaminant to be emitted into the workplace air and then dilutes the concentration of the contaminant to an acceptable level (e.g., to the PEL or below).

Individual protection measures

- General : Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. Safety eyewear should be used when there is a likelihood of exposure.
- Hygiene measures : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.
- Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. If operating conditions cause high dust concentrations to be produced, use dust goggles.
- Hand protection : Wear chemical-resistant gloves in combination with 'basic' employee training. The quality of the chemical-resistant protective gloves must be chosen as a function of the specific workplace concentrations and quantity of hazardous substances.
 Since the actual work situation is unknown. Supplier of gloves should be contacted in order to find the appropriate type.
- Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved handling this product.
- Respiratory protection : Use appropriate respiratory protection if there is a risk of exceeding any exposure limits. Use dust protection mask, when there is a risk for dust.
- Protective clothing (pictograms) :



Note: Application of paint products by spraying requires additional safety precautions: Full body suit, Full face respirator with air supplied.

SECTION 8: Exposure controls/personal protection

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state :	Powder.
Odor :	Non-characteristic.
pH :	Testing not relevant or not possible due to nature of the product.
Melting point/freezing point :	419.85°C This is based on data for the following ingredient: Zinc
Boiling point/boiling range :	Testing not relevant or not possible due to nature of the product.
Flash point :	Non-flammable.
Evaporation rate :	Testing not relevant or not possible due to nature of the product.
Flammability :	Non-flammable.
Upper/lower flammability or explosive limits :	No specific data.
Vapor pressure :	Testing not relevant or not possible due to nature of the product.
Vapor density :	Testing not relevant or not possible due to nature of the product.
Relative density :	7.1 g/cm ³
Solubility(ies) :	
Partition coefficient (LogKow) :	Testing not relevant or not possible due to nature of the product.
Auto-ignition temperature :	Testing not relevant or not possible due to nature of the product.
Decomposition temperature :	Testing not relevant or not possible due to nature of the product.
Viscosity :	Testing not relevant or not possible due to nature of the product.
Explosive properties :	Slightly explosive in the presence of the following materials or conditions: moisture.
Oxidizing properties :	Testing not relevant or not possible due to nature of the product.

9.2 Other information

Solvent(s) % by weight (Included exempt solvent(s)):	0 % (w/w)
Water % by weight :	Weighted average: 0 %
VOC content (Coatings) :	0 lbs/gal (0 g/l)
VOC content (Regulatory) :	0 lbs/gal (0 g/l)
TOC Content (Volatile) :	Weighted average: 0 g/l
Solvent Gas :	Weighted average: 0 m ³ /l

SECTION 10: Stability and reactivity

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

SECTION 10: Stability and reactivity

No specific data.

10.5 Incompatible materials

Highly reactive or incompatible with the following materials: oxidizing materials and acids.
Reactive or incompatible with the following materials: reducing materials, organic materials, alkalis and moisture.

10.6 Hazardous decomposition products

When exposed to high temperatures (i.e. in case of fire) harmful decomposition products may be formed:
Decomposition products may include the following materials: metal oxide/oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Repeated inhalation of dust can produce varying degrees of respiratory irritation or lung damage.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
zinc powder - zinc dust (stabilized) zinc oxide	LC50 Inhalation Dusts and mists	Rat	5.41 mg/l	4 hours
	LD50 Oral	Rat	>2000 mg/kg	-
	LC50 Inhalation Vapor	Rat	>5.7 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-

Acute toxicity estimates

Route	ATE value
No known significant effects or critical hazards.	

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure
zinc powder - zinc dust (stabilized) zinc oxide	Skin - Mild irritant	Human	-	72 hours 300 Micrograms Intermittent
	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential chronic health effects

Other information : No additional known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Do not allow to enter drains or watercourses. Very toxic to aquatic life with long lasting effects.

When spilled in water or drains, this product can cause: (a) contribute to suspended solid loading of the water body; (b) turbidity and reduce penetration of light into the water column; (c) alter water pH and/or alkalinity; (d) contribute to sediments at bottom of water column; (e) add colour to the sediment. When spilled to land surface with no runoff due to precipitation, this product can cause: (a) fines present may become air-borne and be transported by wind; (b) contribute to accumulation of surface "dirt"; (c) colour changes to surfaces on which it is spilled.

Product/ingredient name	Result	Species	Exposure
zinc powder - zinc dust (stabilized)	Acute EC50 0.3 mg/l Marine water	Algae	72 hours
	Acute EC50 0.354 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 0.238 - 0.269 mg/l Fresh water	Fish	96 hours
	Chronic EC10 27.3 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
		- Exponential growth phase	
	Chronic EC10 59.2 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 9 mg/l Fresh water	Aquatic plants - Ceratophyllum demersum	3 days
	Chronic NOEC 178 µg/l Marine water	Crustaceans - Palaemon elegans	21 days
	Chronic NOEC 2.6 µg/l Fresh water	Fish - Cyprinus carpio	4 weeks

SECTION 12: Ecological information

zinc oxide	Acute EC50 0.17 mg/l	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Acute EC50 1 mg/l	Daphnia - Pseudokirchneriella subcapitata - Exponential growth phase	48 hours
	Acute LC50 24600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours

12.2 Persistence and degradability

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
zinc oxide	2.2	60960	high

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : No known data available in our database.

Mobility : No known data available in our database.

12.5 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7 and Section 8 for additional handling information and protection of employees.









The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

Transport may take place according to national regulation or DOT for transport by road and by train, IMDG for transport by sea, IATA for Air shipment. Refer to specific Dangerous Goods Transport requirements under 49CFR, ICAO and IATA.

14.1 UN no.	14.2 Proper shipping name	14.3 Transport hazard class(es)	14.4 PG*	14.5 Env*	14.5 Additional information
DOT Code UN3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc). (zinc powder - zinc dust (stabilized))	9 -	III	Yes.	ERG : 171 The marine pollutant mark is not required when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes. Reportable quantity (Zinc, zinc powder - zinc dust (stabilized)) 20.4 lbs / 463.27 kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

SECTION 14: Transport information

TDG Code	UN3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc). (zinc powder - zinc dust (stabilized))	9 -	 	III Yes.	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.43-2.45 (Class 9), 2.7 (Marine pollutant mark). Non-bulk packages of this product are not regulated as dangerous goods when transported by road or rail.
SCT Code	UN3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc)	9 -	 	III Yes.	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
IMDG Code	UN3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc). (Zinc)	9 -	 	III Yes.	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. Emergency schedules F-A, S-F
IATA Code	UN3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc)	9 -	 	III Yes.	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.

Code : Classification
PG* : Packing group
Env.* : Environmental hazards

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal regulations :

All components are listed or exempted.

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 307: Zinc; zinc powder - zinc dust (stabilized); zinc oxide

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304 - SARA 311/312:

SARA 302/304: chlorine

SARA 311/312 Hazards identification: Delayed (chronic) health hazard

SARA 313 :

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

Form R - Reporting requirements :

Product/ingredient name	CAS number	Concentration
Zinc zinc powder - zinc dust (stabilized) zinc oxide	Sec. (7440-66-6) 7440-66-6 1314-13-2	50 - 100 50 - 100 5 - 10

Supplier notification :

Product/ingredient name	CAS number	Concentration
Zinc powder - zinc dust (stabilized) zinc oxide	7440-66-6 1314-13-2	50 - 100 5 - 10

SECTION 15: Regulatory information

State regulations :

Connecticut Carcinogen Reporting: None of the components are listed.
Connecticut Hazardous Material Survey: None of the components are listed.
Florida substances: None of the components are listed.
Illinois Chemical Safety Act: None of the components are listed.
Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.
Louisiana Reporting: None of the components are listed.
Louisiana Spill: None of the components are listed.
Massachusetts Spill: None of the components are listed.
Massachusetts Substances: The following components are listed: ZINC; ZINC OXIDE FUME
Michigan Critical Material: None of the components are listed.
Minnesota Hazardous Substances: None of the components are listed.
New Jersey Hazardous Substances: The following components are listed: ZINC; ZINC OXIDE
New Jersey Spill: None of the components are listed.
New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.
New York Acutely Hazardous Substances: The following components are listed: Zinc
New York Toxic Chemical Release Reporting: None of the components are listed.
Pennsylvania RTK Hazardous Substances: The following components are listed: ZINC COMPOUNDS; ZINC OXIDE; ZINC OXIDE FUME
Rhode Island Hazardous Substances: None of the components are listed.

California Prop. 65 PFF :

WARNING: This product contains less than 0.1% of a chemical known to the State of California to cause cancer. **WARNING:** This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Product/ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Cadmium	Yes.	Yes.		

SECTION 16: Other information

Remarks :

Note: In USA, consult Code of Federal Regulations, Title 29, Labor, Parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable Federal, State or local regulations that apply to safe practices in coating operations.
 Warning! If you scrape, sand, or remove old paint, you may release lead dust. LEAD is TOXIC.

Validation :

Validated by US - HSE Products Coordinator on 1 February 2018

GHS Classification

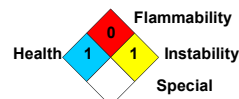
Procedure used to derive the classification.

Classification	Justification
Not classified.	

Hazardous Material Information System (U.S.A.)

Health	/ 0
Fire hazard	0
Physical hazards	1
Personal protection	E

National Fire Protection Association (U.S.A.)



Personal Protective Equipment (PPE) shown in this section is a suggestion. Since conditions vary from one work location to another consult the facility safety & health program. Customer or end user is responsible to evaluate worker exposure conditions at the site of application and determine the appropriate PPE suitable for workers at that particular facility or location.

Abbreviations and acronyms :

ANSI = American National Standards Institute
 HCS = Hazardous Communication System
 TSCA = Toxic Substances Control Act
 CFR = Code of federal Regulations
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 OSHA = United States Occupational Health and Safety Administration
 NIOSH = National Institute for Occupational Safety and Health
 ACGIH = American Conference of Industrial Hygienists
 IARC = International Agency for Research on Cancer.
 NTP = National Toxicology Program
 ATE = Acute Toxicity Estimate

OECD = Organisation for Economic Co-operation and Development
 BCF = Bioconcentration Factor
 DOT = United States Department of Transportation
 ERG = Emergency Response Guide
 TDG = Transport of Dangerous Goods, Canada
 SCT = Transportation & Communications Ministry, Mexico
 IMDG = International Maritime Dangerous Goods
 IATA = International Air Transport Association
 SARA = Superfund Amendments Reauthorization Act
 EPCRA = Emergency Planning and Community Right to Know Act

Notice to reader

Indicates information that has changed from previously issued version.

SECTION 16: Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET



Methyl Ethyl Ketone

Section 1. Identification

GHS product identifier	: Methyl Ethyl Ketone
Chemical name	: 2-Butanone
Other means of identification	: Not available.
Product type	: Liquid.
Supplier's details	: Barton Solvents, Inc. 1920 NE Broadway PO Box 221 Des Moines, IA 50306-0221 (515) 265-7998
Emergency telephone number	: CHEMTREC (800) 424-9300 (AVAILABLE 24 HOURS A DAY)

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: FLAMMABLE LIQUIDS - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Narcotic effects] - Category 3

GHS label elements

Hazard pictograms



Signal word	: Danger
Hazard statements	: Highly flammable liquid and vapor. Causes serious eye irritation. May cause drowsiness and dizziness.

Precautionary statements

General	: Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.
Prevention	: Wear protective gloves. Wear eye or face protection. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid breathing vapor. Wash hands thoroughly after handling.
Response	: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
Storage	: Store locked up. Store in a well-ventilated place. Keep cool.
Disposal	: Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazards not otherwise classified	: None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Substance
Chemical name	: 2-Butanone
Other means of identification	: Not available.

CAS number/other identifiers

Section 3. Composition/information on ingredients

CAS number : 78-93-3

Product code : 0500005

Ingredient name	%	CAS number
2-Butanone	100	78-93-3

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

Section 4. First aid measures

- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

- Specific hazards arising from the chemical** : Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

- Hazardous thermal decomposition products** : No specific data.

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

2-Butanone

OSHA PEL (United States).

TWA: 200 ppm

ACGIH TLV (United States).

TWA: 200 ppm

STEL: 300 ppm

- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

- : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection

- : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Section 8. Exposure controls/personal protection

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Colorless.
- Odor** : Pungent.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : 79°C (174.2°F)
- Flash point** : Closed cup: -5°C (23°F). (Tagliabue.)
- Burning time** : Not applicable.
- Burning rate** : Not applicable.
- Evaporation rate** : 3.8 compared with Butyl acetate.
- Flammability (solid, gas)** : Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
- Lower and upper explosive (flammable) limits** : Lower: 1% Upper: 11%
- Vapor pressure** : 10.4 kPa (78 mm Hg) (at 20°C)
- Vapor density** : 2.5 (Air = 1)
- Relative density** : 0.8101 (Water = 1)
- Solubility** : Easily soluble in the following materials: methanol, acetone.
Partially soluble in the following materials: hot water.
Very slightly soluble in the following materials: cold water.
- Solubility in water** : Not available.
- Partition coefficient: n-octanol/water** : 0.3
- Auto-ignition temperature** : 404°C (759.2°F)
- Decomposition temperature** : Not available.
- SADT** : Not available.
- Viscosity** : Kinematic: 0.51 cSt

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

Section 10. Stability and reactivity

Incompatible materials : Reactive or incompatible with the following materials:
oxidizing materials

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2-Butanone	LC50 Inhalation Gas.	Rat	>5000 ppm	1 hours
	LD50 Dermal	Rabbit	>500 mg/kg	-
	LD50 Oral	Rat	2193 mg/kg	-

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
2-Butanone	-	4	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
2-Butanone	Category 3	Not applicable.	Narcotic effects

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness

Section 11. Toxicological information

- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Not available.

- General** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil


- Soil/water partition coefficient (K_{oc})** : Not available.

- Other adverse effects** : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN number	UN proper shipping name	Transport hazard class(es)	Packing group	Environmental hazards	Additional information
DOT Classification	UN1193	Methyl Ethyl Ketone	3 	II	No.	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
United States inventory (TSCA 8b): This material is listed or exempted.
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
 Immediate (acute) health hazard
 Delayed (chronic) health hazard

Canada inventory : Not determined.

International regulations

Section 15. Regulatory information

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	2
Flammability	3
Physical hazards	0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 5/29/2015.
Revision Date : 8/24/05; 8/8/09; 5/29/15
Revision comments : Removal from SARA 313 list, 08/24/2005; MSDS Update 8/8/09; GHS Update 5/29/15
Version : 1
Prepared by : Daytime Phone - (515) 265-7998
Key to abbreviations : ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations

References : Not available.

Notice to reader

Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

ATTACHMENT F

Material Data Sheets

NUCOR[®]

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name: Carbon and Alloy Steels

CAS Number: Not applicable

Synonyms: Steels

Use/Description: Plate products

Company Identification:	24 Hour Contact – CHEMTREC 1-800-424-9300
Nucor Steel Hertford County PO Box 279 Winton, North Carolina 27986	Safety Officer [8:00 am – 5:00 pm]: 1-252-356-3929
Nucor Steel Tuscaloosa, Inc. 1700 Holt Road, N.E. Tuscaloosa, Alabama 35404	Safety Officer [8:00 am – 5:00 pm]: 1-205-562-1244
Nucor Steel Longview LLC 5400 W. Loop 281, Bldg 52 Longview, TX 75603	Safety Officer [8:00 am – 5:00 pm]: 1-903-653-1647

For general product information, contact facility as listed above. For emergencies, use the 24 Hour Contact.

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

STEEL PRODUCTS AS SOLD BY NUCOR ARE NOT HAZARDOUS PER OSHA GHS 29 CFR 1910, 1915, 1926. However, individual customer processes, (such as welding, sawing, brazing, grinding, abrasive blasting, and machining) may result in the formation of fumes, dust (combustible or otherwise), and/or particulate that may present the following hazards:

OSHA Hazards: Carcinogen
Skin Sensitizer
Target Organ Effect – Lungs

GHS Classification: Carcinogenicity (Category 2)
Skin Sensitization (Category 1)
Specific Target Organ Toxicity-Repeated Exposure (Category 1)

Pictogram(s):



Signal Word: Danger

Hazard Statement(s)

H317: Dust/fumes may cause an allergic skin reaction.

H351: Dust/fumes suspected of causing cancer via inhalation.

Carbon and Alloy Steels

H372: Inhalation of dust/fumes causes damage to respiratory tract through prolonged or repeated exposure

Precautionary Statement(s)

P202: Do not handle until all safety precautions have been read and understood.

P261: Avoid breathing dust/fumes.

P281: Use personal protective equipment as required.

P308+P313: If exposed or concerned: Get medical advice/attention.

Potential Health Effects

Eye Contact

Dusts or particulates may cause mechanical irritation including pain, tearing, and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

Skin Contact

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals (see Section 16 for additional information.) Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Contact with heated material may cause thermal burns.

Inhalation

Dusts may cause irritation of the nose, throat, and lungs. Excessive inhalation of metallic fumes and dusts may result in metal fume fever, an influenza-like illness. It is characterized by a sweet or metallic taste in the mouth, accompanied by dryness and irritation of the throat, cough, shortness of breath, pulmonary edema, general malaise, weakness, fatigue, muscle and joint pains, blurred vision, fever and chills. Typical symptoms last from 12 to 48 hours.

Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

Potential Fire and Explosion Hazards

Under normal conditions, steel products do not present fire or explosion hazards, and dust generated by handling steel products is oxidized and not combustible. Processing of steel product by some individual customers may produce potentially combustible dust that may represent a fire or explosion hazard.

Chronic or Special Toxic Effects

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur. Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NTP, OSHA, or IARC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic, and beryllium. See Section 11, for additional, specific information on effects noted above.

Target Organs

Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

Medical Conditions Aggravated by Exposure

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

Carbon and Alloy Steels

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS No.	% Weight	Exposure Limits			
			ACGIH TLV (mg/m ³)		OSHA PEL (mg/m ³)	
Base Metal:						
Iron (Fe)	7439-89-6	Balance	5	Oxide Dust/Fume	10	Oxide Dust/Fume
Alloying Elements						
Chromium (Cr)	7440-47-3	0.01-5.5	0.5	Metal	1	Metal
Copper (Cu)	7440-50-8	<1.75	1	Dust Fume	1	Dust Fume
			0.2		0.1	
Manganese (Mn)	7439-96-5	0-2	0.2	Elemental Mn and Inorg Compounds	5	Fume (Ceiling)
		0.01-3.65				
Nickel (Ni)	7440-02-0		1.5	Metal	1	Metal and Insoluble Compounds
Components	CAS No.	% Weight	Exposure Limits			
			ACGIH TLV (mg/m ³)		OSHA PEL (mg/m ³)	

NOTE: No permissible exposure limits (PEL) or threshold limit values (TLV) exist for steel. The above listing is a summary of elements used in alloying Nucor Steel Products. **Various grades of steel will contain different combinations of these elements and/or trace materials. Exact specifications may be found by calling the division and asking for a specifications sheet.**

4. FIRST AID MEASURES

Eye Contact- In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

Skin Contact - In case of overexposure to dusts or particulates, wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

Inhalation - In case of overexposure to dusts or fumes, remove to fresh air. Get immediate medical attention if symptoms described in this Safety Data Sheet (SDS) develop.

Ingestion - Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

Notes to Physician - Inhalation of metal fume or metal oxides may produce an acute febrile state, with cough, chills, weakness, and general malaise, nausea, vomiting, muscle cramps, and remarkable leukocytosis. Treatment is symptomatic, and condition is self limited in 24-48 hours. Chronic exposure to dusts may result in pneumoconiosis of mixed type.

5. FIRE FIGHTING MEASURES

Flash Point (Method) - Not applicable

Flammable Limits (% volume in air) - Not applicable

Auto ignition Temperature - Not applicable

Extinguishing Media - For molten metal, use dry powder or sand. For steel dust use or dry sand, water, foam, argon or nitrogen.

Carbon and Alloy Steels

Special Fire Fighting Procedures - Do not use water on molten metal. Do not use Carbon Dioxide (CO₂). Firefighters should not enter confined spaces without wearing NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

Unusual Fire or Explosion Hazards - Steel products do not present fire or explosion hazards under normal conditions. Any non-oxidized fine metal particles/ dust generated by grinding, sawing, abrasive blasting, or individual customer processes may produce materials that the customer should test for combustibility and other hazards in accordance with applicable regulations. High concentrations of combustible metallic fines in the air may present an explosion hazard.

6. ACCIDENTAL RELEASE MEASURES

Precautions if Material is Spilled or Released - Emergency response is unlikely unless in the form of combustible dust. Avoid inhalation, eye, or skin contact of dusts by using appropriate precautions outlined in this SDS (see section 8). Fine turnings and small chips should be swept or vacuumed and placed into appropriate disposable containers. Keep fine dust or powder away from sources of ignition. Scrap should be reclaimed for recycling. Prevent materials from entering drains, sewers, or waterways. Specific standards and regulations may be applicable to materials generated by individual customer processes. As appropriate, these standards and regulations should be consulted for applicability.

Fire and Explosion Hazards

Some customer processes may generate combustible dust that may require specific precautions when cleaning spills or releases of dust.

Environmental Precautions - Some grades of steel may contain reportable quantities of alloying elements. See Section 15 for additional information.

Waste Disposal Methods - Dispose used or unused product in accordance with applicable Federal, State, and Local regulations. Please recycle.

7. HANDLING AND STORAGE

Storage Temperatures - Stable under normal temperatures and pressures.

Precautions to be Taken in Handling and Storing - Store away from strong oxidizers. Dusts and/or powders, alone, or combined with process specific fluids, may form explosive mixtures with air. Applicable Federal, state and local laws and regulations may require testing dust generated from processing of steel products to determine if it represents a fire or explosion hazard and to determine appropriate protection methods. Avoid breathing dusts or fumes.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Operations with potential for generating high concentrations of airborne particulates or fumes should be evaluated and controlled as necessary.

Eye Protection - Use safety glasses. Dust resistant safety goggles are recommended under circumstances where particles could cause mechanical injury such as grinding or cutting. Face shield should be used when welding or cutting.

Skin - Appropriate protective gloves should be worn as necessary. Good personal hygiene practices should be followed including cleansing exposed skin several times daily with soap and water, and laundering or dry cleaning soiled work clothing.

Respiratory Protection - NIOSH/MSHA approved dust/fume/mist respirator should be used to avoid excessive exposure. See Section 3 for component material information exposure limits. If such concentrations are sufficiently high that this respirator is inadequate, or high enough to cause oxygen deficiency, use a positive pressure self-contained breathing apparatus (SCBA). Follow all applicable respirator use, fitting, and training standards and regulations.

Ventilation - Provide general and/or local exhaust ventilation to control airborne levels of dust or fumes below exposure limits.

Carbon and Alloy Steels

Exposure Guidelines - No permissible exposure limits (PEL) or threshold limit values (TLV) exist for steel. See Section 3 for component materials. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor - Silver grey to grey black with metallic luster.

Boiling Point - Not applicable

Melting Point - Approximately 2800°F

pH - Not applicable

Specific Gravity (at 15.6°C) - Not applicable

Density (at 15.6 °C) - Not applicable

Vapor Pressure - Not applicable

Vapor Density (air = 1) - Not applicable %

Volatile, by Volume - Not applicable

Solubility in Water - Insoluble.

Evaporation Rate (Butyl Acetate = 1) - Not applicable

Other Physical and Chemical Data - None

10. STABILITY AND REACTIVITY

Stability - Stable

Conditions to Avoid - Steel at temperatures above the melting point may liberate fumes containing oxides of iron and alloying elements. Avoid generation of airborne fume.

Hazardous Polymerization - Will not occur.

Incompatibility (Materials to Avoid) - Reacts with strong acids to form hydrogen gas. Do not store near strong oxidizers.

Hazardous Decomposition Products - Metallic fumes may be produced during welding, burning, grinding, and possibly machining or any situation with the potential for thermal decomposition. Refer to ANSI Z49.1

11. TOXICOLOGICAL INFORMATION

The primary component of this product is iron. Long-term exposure to iron dusts or fumes can result in a condition called siderosis which is considered to be a benign pneumoconiosis. Symptoms may include chronic bronchitis, emphysema, and shortness of breath upon exertion. Penetration of iron particles in the skin or eye may cause an exogenous or ocular siderosis which may be characterized by a red-brown pigmentation of the affected area. Ingestion overexposures to iron may affect the gastrointestinal, nervous, and hematopoietic system and the liver. Iron and steel founding, but not iron or iron oxide, has been listed as carcinogenic (Group 1) by IARC.

When this product is welded, fumes are generated. Welding fumes may be different in composition from the original welding product, with the chief component being ordinary oxides of the metal being welded. Chronic health effects (including cancer) have been associated with the fumes and dusts of individual component metals (see above), and welding fumes as a general category have been listed by IARC as a carcinogen (Group 2B). There is also limited evidence that welding fumes may cause adverse reproductive and fetal effects. Evidence is stronger where welding materials contain known reproductive toxins, e.g., lead which may be present in the coating material of this product.

Breathing fumes or dusts of this product may result in metal fume fever, which is an illness produced by inhaling metal oxides. These oxides are produced by heating various metals including cadmium, zinc, magnesium, copper, antimony, nickel, cobalt, manganese, tin, lead, beryllium, silver, chromium, aluminum, selenium, iron, and arsenic. The most common agents involved are zinc and copper.

Carbon and Alloy Steels

This product may contain small amounts of manganese. Prolonged exposure to manganese dusts or fumes is associated with "manganism", a Parkinson-like syndrome characterized by a variety of neurological symptoms including muscle spasms, gait disturbances, tremors, and psychoses.

This product may contain small amounts of cadmium. Primary target organs for cadmium overexposure are the lung and the kidney. Because of its cumulative nature, chronic cadmium poisoning can cause serious disease which takes many years to develop and may continue to progress despite cessation of exposure. Progression of the disease may not reflect current exposure conditions. It is also capable of causing a painful osteomalacia called "Itai-Itai" in postmenopausal women, and has caused developmental effects and/or reproductive effects in male and female animals. Cadmium is a listed carcinogen by NTP, OSHA, and IARC (Group 1).

This product may contain small amounts of chromium. Prolonged and repeated overexposure to chromium dusts or fumes may cause skin ulcers, nasal irritation and ulceration, kidney damage and cancer of the respiratory system. Chromium is skin sensitizer. Cancer is generally attributed to the hexavalent (+6) form of chromium which is listed as a carcinogen by NTP and IARC (Group 1).

This product may contain small amounts of nickel. Prolonged and repeated contact with nickel may cause sensitization dermatitis. Inhalation of nickel compounds has caused lung damage as well as sinus, nasal and lung cancer in laboratory animals. Nickel is a listed carcinogen by NTP and IARC (Group 1).

This product may contain small amounts of vanadium. Adverse effects from dermal, inhalation or parenteral exposure to various vanadium compounds have been reported. The major target for vanadium pentoxide toxicity is the respiratory tract. Fumes or dust can cause severe eye and respiratory irritation, and systemic effects. Chronic bronchitis, green tongue, conjunctivitis, pharyngitis, rhinitis, rales, chronic productive cough, and tightness of the chest have been reported following overexposure. Allergic reactions resulting from skin and inhalation exposures have also been reported. A statistical association between vanadium air levels and lung cancer has been suggested, but vanadium currently is not regarded as a human carcinogen.

This product may contain small amounts of lead. Lead can accumulate in the body. Consequently, exposure to fumes or dust may produce signs of polyneuritis, diminished vision and peripheral neuropathy, such as tingling and loss of feeling in fingers, arms and legs. Lead is a known reproductive and developmental toxin. It is also associated with central nervous system disorders, anemia, kidney dysfunction and neurobehavioral abnormalities. The brain is a major target organ for lead exposure. Elemental lead is listed as an IARC 2B carcinogen.

The product may contain small amounts of copper. Copper dust and fumes can irritate the eyes, nose and throat causing coughing, wheezing, nosebleeds, ulcers and metal fume fever. Other effects from repeated inhalation of copper fumes include a metallic or sweet taste, and discoloration of skin, teeth or hair. Copper also may cause an allergic skin reaction. Overexposure to copper can affect the liver.

12. ECOLOGICAL INFORMATION

Aquatic Ecotoxicological Data - No specific information available on this product.

Environmental Fate Data - No specific information available on this product.

13. DISPOSAL CONSIDERATIONS

Recovery and reuse, rather than disposal, should be the ultimate goal of handling efforts. Dispose in accordance with federal, state, and local health and environmental regulations. Prevent materials from entering drains, sewers, or waterways.

Carbon and Alloy Steels

14. TRANSPORT INFORMATION

DOT Proper Shipping Name - Not regulated
DOT Hazard Classification - Not regulated
UN/NA Number - Not applicable
DOT Packing Group - Not applicable
Labeling Requirements - Not applicable
Placards - Not applicable
DOT Hazardous Substance - Not applicable
DOT Marine Pollutant - Not applicable

15. REGULATORY INFORMATION

This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, dusts and fumes from this product may be combustible or hazardous and require protection to comply with applicable Federal, state and local laws and regulations.

California Proposition 65:

⚠ WARNING: This product can expose you to chemicals including antimony [oxide], arsenic, beryllium, chromium [hexavalent], cobalt, cadmium, lead, and nickel which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Massachusetts Substance List: Aluminum, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Hydrochloric acid, Lead, Magnesium, Manganese, Molybdenum, Nickel, Nitrogen, Phosphorus, Selenium, Silicon, Sulfur, Tin, Titanium, Tungsten, Vanadium, Zinc

Pennsylvania Hazardous Substance List: Aluminum, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Hydrochloric acid, Lead, Magnesium, Manganese, Molybdenum, Nickel, Nitrogen, Phosphorus, Selenium, Silicon, Sulfur, Tin, Titanium, Tungsten, Vanadium, Zinc

New Jersey Hazardous Substance List: Aluminum, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Hydrochloric acid, Lead, Magnesium, Manganese, Molybdenum, Nickel, Nitrogen, Phosphorus, Selenium, Silicon, Sulfur, Tin, Titanium, Tungsten, Vanadium, Zinc

Toxic Substances Control Act (TSCA)

Components of this product are listed on the TSCA Inventory.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

Steel is not reportable, however, it contains hazardous substances that may be reportable if released in pieces with diameters less than or equal to 0.004 inches.

<u>Chemical Name</u>	<u>Reportable Quantity (in lb)</u>
Chromium	5,000
Copper	5,000
Nickel	100

Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III

SECTION 311/312 HAZARD CATEGORIES: Immediate Health Effect, Delayed Health Effect

This product contains the following EPCRA Section 313 chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right – To – Know Act of 1986 (40 CFR 372):

SECTION 313 REPORTABLE INGREDIENTS:

Carbon and Alloy Steels

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Concentration (% by weight)</u>	<u>Reportable</u>
Chromium	7440-47-3	0.01-5.5	Yes – Greater than 1%
Copper	7440-50-8	<1.75	Yes – Greater than 1%
Manganese	7439-96-5	0-2	Yes – Greater than 1%
Nickel	7440-02-0	0.01-3.65	Yes – Greater than 0.1%

Concentrations based on analytical data and process knowledge of typical products distributed by the facility.

16. OTHER INFORMATION

This SDS covers Nucor product as delivered from the Nucor facility, but does not include chemicals that may be applied by subsequent handlers and/or distributors of this product. This could include a variety of materials including oils, paints, galvanization, etc. that are not included in this SDS. Additionally, specialty orders may require application of coating material not listed in this SDS. SDSs for any Nucor-applied specialty coating will be provided separately. During welding, precautions should be taken for airborne contaminants that may originate from components of the welding rod. Arc or spark generated when welding or burning could be a source of ignition for combustible and/or flammable materials. The information in this SDS was obtained from sources which we believe are reliable; however, the information is provided without any representation or warranty, expressed or implied, regarding the accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of this product.

NS Plus[®] and NS CopperFree[™] CARBON WELDING WIRES

TYPICAL WIRE CHEMISTRY PERCENTAGES (as required per AWS)

		C	Mn	Si	P	S	Cu	Ni	Cr	Mo	V
101	NS Plus [®] -101 Typ.	0.09	1.17	0.59	0.009	0.009	0.16	0.04	0.04	0.012	0.005
	NS 101 CopperFree [™] Typ.	0.09	1.17	0.60	0.012	0.014	0.07	0.06	0.07	0.008	0.005
	AWS A5.18/A5.18M	0.06/0.15	0.90/1.40	0.45/0.70	0.025 (max.)	0.035 (max.)	0.50 (max.)	0.15 (max.)	0.15 (max.)	0.15 (max.)	0.03 (max.)
	AWS A5.17/A5.17M	0.06/0.16	0.90/1.40	0.35/0.75	0.030 (max.)	0.030 (max.)	0.35 (max.)	-	-	-	-
102	NS Plus [®] -102 Typ.	0.09	1.76	0.66	0.009	0.01	0.14	0.07		0.46	
	NS 102 CopperFree [™] Typ.	0.1	1.81	0.63	0.016	0.016	0.06	0.06		0.47	
	AWS A5.28/A5.28M	0.07/0.12	1.60/2.10	0.50/0.80	0.025 (max.)	0.025 (max.)	0.50 (max.)	0.15 (max.)		0.40/0.60	
	AWS A5.23/A5.23M	0.05/0.15	1.60/2.10	0.50/0.80	0.025 (max.)	0.025 (max.)	0.35 (max.)			0.40/0.60	
115	NS Plus [®] -115 Typ.	0.08	1.49	0.9	0.011	0.01	0.14	0.05	0.04	0.008	0.006
	NS 115 CopperFree [™] Typ.	0.09	1.52	0.91	0.012	0.011	0.07	0.06	0.06	0.01	0.01
	AWS A5.18/A5.18M	0.06/0.15	1.40/1.85	0.80/1.15	0.025 (max.)	0.035 (max.)	0.50 (max.)	0.15 (max.)	0.15 (max.)	0.15 (max.)	0.03 (max.)
	AWS A5.17/A5.17M	0.06/0.15	1.40/1.85	0.80/1.15	0.030 (max.)	0.030 (max.)	0.35 (max.)				

BÖHLER HL 51 L-MC

Laser-sealed

Ultra low-hydrogen metal-cored wire for welding structural steel up to of 460 MPa YS



Features	User benefits
» Ultra low-hydrogen weld metal	» Optimal protection against hydrogen cracking
» Wide parameter envelop	» Easy arc setting » More spray arc welding
» Dependable starting	» No starting defects
» Stable arc / no spatter	» No weld cleaning
» Excellent feedability	» Stable arc » Less downtime for maintenance
» Low contact tip wear	» Less downtime for maintenance
» Straight welds with smooth tie-in	» High fatigue resistance
» Low amount of silicate islands	» No weld cleaning
» No undercut at high travel speed	» Productive welding



Exceptional weldability, productivity and low-hydrogen performance


BÖHLER HL 51 L-MC is a seamless, laser-sealed metal-cored wire from the Diamond Spark range. It has been developed for the high duty cycle, mechanized and robotic welding of unalloyed and fine-grained constructional steel up to 460 MPa yield and impact requirements down to -40°C. The ultra-low weld metal hydrogen content – at the level of solid wires – combined with absolute resistance against moisture reabsorption during storage and use – gives the best possible protection against hydrogen assisted / induced cracking.

BÖHLER HL 51 L-MC is especially designed for semi-automatic and fully automatic welding of constructional steels. It has an extra high weld recovery of 95-97% and allows easy arc setting and spray arc welding over a wider envelop of welding parameters than solid wire. The high rigidity, controlled cast & helix and perfect surface finish of the wire result in excellent feedability, low contact tip wear, an extremely stable, spatter-free arc and perfectly positioned, straight welds with smooth tie-in. High resistance to weld porosity.

Minimum oxide residues permit the welding of multi passes without the need for inter-run cleaning. Ideal for horizontal and flat fillet welds. Typical applications are long, straight fillet welds in bridges, building and vehicles.

With the innovative laser-sealed cored wires, fabricators have the ultimate precision tool for the most demanding of welding applications at their disposal. These advanced products yield ultra-low hydrogen weld metal – at the level of solid wires – and perform at high levels of welding productivity, while the unique fabrication technology and product concept enable superb characteristics for high duty cycle welding in mechanized and robotic applications.

BÖHLER HL 51 L-MC

Classifications		Operating data		
EN ISO 17632-A	AWS A5.36	Allows welding with standard power sources		
T46 4 M M21 1 H5	E71T15-M21A4-CS2-H4 E71T15-M20A4-CS2-H4	Welding positions	Polarity	Shielding gas
			DC+	EN ISO 14175: M20, M21

Typical chemical composition, all weld metal, wt. %			
Shielding gas	C	Si	Mn
M21	0.07	0.7	1.5

Mechanical properties, all weld metal (single values typical)							
Shielding gas	Condition	Yield strength $R_{p0.2\%}$ MPa	Tensile strength R_m MPa	Elongation A_5 %	CVN Impact toughness ISO-V KV J		
					+20 °C	-40 °C	-46 °C
Ar + 5 - 25 % CO ₂	as welded	490 (≥ 460)	600 (550 - 740)	27 (≥ 20)	170	120 (≥ 47)	70 (≥ 27)
PWHT	620 °C / 2 h	450	550	29	180	100	

Steels to be welded	
EN	ASTM
Steels up to a yield strength of 460 MPa	Steels up to a yield strength of 67 ksi

Approvals
TÜV, DB, ABS, BV, CWB, DNV-GL, LR, CE

Hydrogen performance	
» BÖHLER HL51 L-MC shows a solid wire like low-hydrogen performance 2 - 3 ml / 100 g.	» The wire stays factory dry beyond 75 hours of unprotected exposure.

Overview diameters and packaging			
BS 300 16 kg		EcoDrum 250 kg	
	Wire basket Precision layer wound		Octagonal drum Weight: 250 kg Flux cored wire
	Dimensions: ø external 300 mm ø internal 180 mm Width 100 mm		Dimensions: Height 780 mm ø 510 mm
	Available diameters: 1.0 mm 1.4 mm 1.2 mm 1.6 mm		Available diameters: 1.0 mm 1.4 mm 1.2 mm 1.6 mm

Accessories for safe and efficient internal transport and installation of drums			
A range of accessories for efficient internal transport and installation of the drums is available, including a choice of four different "click and go" liner types to connect the drums with the wire feed unit.			

ULTRACORE® 712A80-H PLUS

Mild Steel, All Positions ▪ AWS E71T-12M-JH4, E71T1-M21A6-CS2-H4, E81T1-GM

KEY FEATURES

- Innovative design capable of superior toughness at -50°F in both the as-welded and stress-relieved conditions
- Designed for welding with 75-80% Argon/Balance CO₂ shielding gas
- H4 diffusible hydrogen levels
- Q2 Lot® - Certificate showing actual deposit chemistry and mechanical properties per lot available online
- ProTech® foil bag packaging

CONFORMANCES

AWS A5.20/A5.20M:	E71T-12M-JH4
AWS A5.36/A5.36M:	E71T1-M21A6-CS2-H4, E71T1-M21P5-CS2-H4
AWS A5.29/A5.29M:	E81T1-GM
ASME SFA-5.20/SFA-5.20M:	E71T-12M-JH4
ABS:	4YSA H5
Lloyds Register:	4YS H5
DNV Grade:	IV YMS H5
CWB/CSA W48-06:	E491T-12MJ H4

WELDING POSITIONS

All

SHIELDING GAS

75-80% Argon / Balance CO₂
Flow Rate: 40-50 CFH

TYPICAL APPLICATIONS

- Offshore Platforms & Pipe Systems
- Oil & Gas Pipelines
- Petrochemical Pipelines
- Pressure Vessels
- Bridge Fabrication

DIAMETERS / PACKAGING

Diameter in (mm)	33 lb (15kg) Plastic Spool
0.045 (1.1)	ED034845
0.052 (1.3)	ED034846
1/16 (1.6)	ED034847

MECHANICAL PROPERTIES⁽¹⁾

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Charpy V-Notch J (ft·lbf)		
				-40°C (40°F)	-45°C (-50°F)	@ -51°C (-60°F)
Requirements						
AWS A5.20: E71T-12M-JH4 As-Welded with 75-80% Ar/balance CO ₂	400 (58) min	480-620 (70-90)	22 min	27 (20) min	-	-
AWS A5.36: E71T1-M21A6-CS2-H4 As-Welded with 75-80% Ar/balance CO ₂	400 (58) min	480-655 (70-95)	22 min	-	-	27 (20) min
AWS A5.36: E71T1-M21P5-CS2-H4 Stress Relieved with 75-80% Ar/ balance CO ₂ for 1 hr @ 621°C (1150°F)	400 (58) min	480-655 (70-95)	22 min	-	27 (20) min	-
AWS A5.29: E81T1-GM As-Welded with 75-80% Ar/balance CO ₂	470 (68) min	550-690 (80-100)	19 min	-	-	-
Typical Results⁽³⁾						
As-Welded with 75-80% Ar/balance CO ₂	530-545 (77-79)	590-605 (86-88)	26-28	95-150 (69-112)	65-145 (49-106)	75-140 (55-102)
Stress Relieved with 75-80% Ar/balance CO ₂ for 1 hr @ 621°C (1150°F)	445-470 (65-68)	545-565 (79-82)	31-33	85-150 (62-109)	60-125 (43-91)	-

⁽¹⁾ Typical all weld metal. ⁽²⁾ Measure with 0.2% offset. ⁽³⁾ See test results disclaimer

DEPOSIT COMPOSITION⁽¹⁾

	%C	%Mn	%Si	%S
Requirements AWS A5.20: E71T-12M-JH4	0.12 max	1.60 max	0.90 max	0.03 max
AWS A5.36: E71T1-M21A6-CS2-H4, E71T1-M21P5-CS2-H4 AWS A5.29: E81T1-GM				0.030 max
Typical Results⁽³⁾ with 75-80% Ar / Balance CO ₂				0.008
	%P	%Ni	Diffusible Hydrogen (mL/100g weld deposit)	
Requirements AWS A5.20: E71T-12M-JH4	0.03 max	0.50 max	4.0 max	
AWS A5.36: E71T1-M21A6-CS2-H4, E71T1-M21P5-CS2-H4 AWS A5.29: E81T1-GM	0.030 max		4 max	
Typical Results⁽³⁾ with 75-80% Ar / Balance CO ₂	0.015		2-4	

TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD ⁽⁴⁾ mm (in)	Wire Feed Speed m/min (in/min)	Voltage (Volts)	Approx. Current (amps)	Melt-Off Rate kg/hr (lb/hr)	Deposition Rate kg/hr (lb/hr)	Efficiency (%)
0.045 in (1.1 mm), DC+ 75-80% Ar/balance CO ₂							
Optimal Settings	22 (7/8)	11.2 (440)	28	220	1.8-5.2 (4.0-11.4)	1.6-4.7 (3.5-10.4)	84-91
Min - Max	19-25 (3/4-1)	4.4-12.7 (175-500)	21-33	140-275			
0.052 in (1.3 mm), DC+ 75-80% Ar/balance CO ₂							
Optimal Settings	25 (1)	8.6 (340)	29	235	2.0-5.4 (4.5-12.0)	1.8-4.7 (3.9-10.4)	84-87
Min - Max	19-25 (3/4-1)	3.8-10.2 (150-400)	21-33	150-310			
1/16 in (1.6 mm), DC+ 75-80% Ar/balance CO ₂							
Optimal Settings	25 (1)	7.6 (300)	27	295	2.9-6.7 (6.3-14.7)	2.5-5.8 (5.5-12.8)	83-87
Min - Max	19-25 (3/4-1)	3.8-8.9 (150-350)	22-33	200-365			

⁽¹⁾ Typical all weld metal. ⁽³⁾ See test results disclaimer ⁽⁴⁾ To estimate ESO, subtract 1/4 in (6.0 mm) from CTWD.

Material Safety Data Sheets (MSDS) and Certificates of Conformance are available on our website at www.lincolnelectric.com

TEST RESULTS

Test results for mechanical properties, deposit or electrode composition and diffusible hydrogen levels were obtained from a weld produced and tested according to prescribed standards, and should not be assumed to be the expected results in a particular application or weldment. Actual results will vary depending on many factors, including, but not limited to, weld procedure, plate chemistry and temperature, weldment design and fabrication methods. Users are cautioned to confirm by qualification testing, or other appropriate means, the suitability of any welding consumable and procedure before use in the intended application.

CUSTOMER ASSISTANCE POLICY

The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.

OK Flux 10.72

Agglomerated aluminate-basic flux for Submerged Arc Welding especially for applications with toughness requirements at low temperature. Excellent slag removal also in narrow V-joints. For wind tower productions, pressure vessels, general constructions etc. Extremely high current carrying capacity. For single or multi wire procedures. Suitable for DC and AC welding. Single layer and multi layer welding of unlimited plate thickness.

Classifications	EN ISO 14174 : S A AB 1 57 AC H5
Approvals	CE EN 13479 DB 51.039.12

Approvals are based on factory location. Please contact ESAB for more information.

Diffusible Hydrogen	max 5 ml H/100g weld metal (Redried flux)
Slag Type	Aluminate-basic
Alloy Transfer	No Silicon and moderately Manganese alloying
Density	nom 1.2 kg/dm ³
Basicity Index	nom 1.9
Grain Size	0.315-2.0 mm (9x48 mesh)

Flux Consumption

Volts	kg Flux / kg Wire DC+	kg Flux / kg Wire AC
26 V	0.7 kg	0.6 kg
30 V	1.0 kg	0.9 kg
34 V	1.3 kg	1.2 kg
38 V	1.6 kg	1.4 kg

Dimensions	Amps	Travel Speed
Ø 4.0 mm	580 A	55 cm/min

Classifications

Wire	AWS/EN	AWS - As Welded	AWS - PWHT
OK Autrod 12.20	A5.17:EM12/ 14171-A:S2	A5.17: F7A8-EM12	A5.17: F6P8-EM12
OK Autrod 12.22	A5.17:EM12K/ 14171-A:S2Si	A5.17: F7A8-EM12K	A5.17: F6P8-EM12K
OK Autrod 12.24	A5.23:EA2/ 14171-A:S2Mo; 24598-A:S S Mo	A5.23: F8A5-EA2-A3	A5.23: F8P5-EA2-A3
OK Autrod 13.24	A5.23:ENi6/ 14171-A:S3Ni1Mo0,2		
OK Autrod 13.27	A5.23:ENi2/ 14171-A:S2Ni2	A5.23: F8A8-ENi2-Ni2	A5.23: F7P8-ENi2-Ni2
OK Autrod 13.62	A5.23:EG/ 14171-A:SZ3TiB		
OK Autrod 13.64	A5.23:EA2TiB/ 14171-A:S2MoTiB	A5.23: F8TA8-EA2TiB	

Approvals

Combined with Wire	DNV	GL	DB	CE	CWB	VdTUV
OK Autrod 12.20	-	-	•	•	-	•
OK Autrod 12.22	•	•	•	•	•	•
OK Autrod 12.24	-	-	•	•	-	•
OK Autrod 13.27	-	-	-	•	-	-

Typical Mechanical Properties

Combined with Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
Spoolarc 75	As Welded	550 MPa (76 ksi)	655 MPa (89 ksi)	28 %	149 J @ -40°C (110 ft-lb @ -40°F)
Spoolarc 81	As Welded	425 MPa (62 ksi)	515 MPa (75 ksi)	30 %	50 J @ -62°C (35 ft-lb @ -80°F)
Spoolarc 81	Stress Relieved 1 hr @ 621C (1150F)	405 MPa (59 ksi)	510 MPa (74 ksi)	32 %	50 J @ -62°C (35 ft-lb @ -80°F)



OK Flux 10.72

Typical Mechanical Properties

Combined with Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
Spoolarc 81	Stress Relieved 8 hrs @ 621C (1150F)	400 MPa (58 ksi)	510 MPa (74 ksi)	34 %	163 J @ -46°C (120 ft-lb @ -50°F)
Spoolarc ENi4	As Welded	585 MPa (85 ksi)	680 MPa (96 ksi)	26 %	156 J @ -40°C (115 ft-lb @ -40°F)

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni	Mo	Cu
Spoolarc 75							
0.06	1.80	0.50	0.009	0.013	0.90	-	-
Spoolarc 81							
0.06	1.60	0.30	0.0069	0.013	-	-	-
Spoolarc ENi4							
0.07	1.60	0.20	0.006	0.012	1.80	0.15	0.15



Spoolarc 81

Medium manganese and silicon wire - nominal rust and mill scale tolerance. Developed for general purpose welding on low and medium carbon steels. Applications include structural steels, medium strength pressure vessels, ship, barge and offshore oil rig fabrication. Use with OK Flux 429, 231, 350, 10.71, 10.72, and 10.62.

Classifications	AWS A5.17 : EM12K ASME SFA 5.17
Approvals	ABS AWS A5.17: EM12K CWB CSA W48
Industry	Offshore Oil Pressure Vessels Ship and Offshore Yards Structural Steel Fabrication Windtower

Approvals are based on factory location. Please contact ESAB for more information.

Typical Wire Composition %

C	Mn	Si	S	P
0.09	0.95	0.26	0.01	0.01



W Abrasives[®]

MATERIAL SAFETY DATA SHEET

CAST STEEL ABRASIVES

Date of Preparation: October 5, 2009

Section 1. PRODUCT IDENTIFICATION.

Product Name:	Steel Shot, Steel Grit, Steel Shot/Grit blend.	Manufacturer:	Wheelabrator Abrasives, Inc. 1 Abrasive Avenue Bedford, Virginia 24523 USA www.wabrasives.com
Chemical Name:	Steel	Emergency Phone:	(540) 586-0856
Chemical Family:	Metals		
Formula:	Not Applicable (N/A)		

Section 2. HAZARDOUS INGREDIENTS.

Round or angular steel pellets used primarily for impact treatment of metallic surfaces. There are no threshold limit values (TLV) or permissible exposure limits (PEL) for cast steel abrasives.

CHEMICAL NAME	CAS NUMBER	% WEIGHT	ACGIH LEVEL (mg/m3)	OSHA PEL (mg/m3)
Iron – Fe Oxide & Fume, as Fe	7439-89-6	>95	5	10
Manganese – Mn Inorganic compounds, as Mn Fume, as Mn	7439-96-5	<1.2	0.2	5 (ceiling) 5 (ceiling)
Silicon – Si Total Dust Respirable Fraction	7440-21-3	<1.2	10	15 5
Carbon – C	1333-86-4	<1.2	3.5	3.5
Chromium – Cr Metal Cr II compounds, as Cr Cr III compounds, as Cr Cr VI compounds, water soluble Cr VI compounds, insoluble	7440-47-3	<0.8	0.5 0.5 0.05 0.01	0.5 0.5 0.5
Nickel – Ni Metal & other compounds, as Ni Elemental Soluble inorganic compounds Insoluble inorganic compounds	7440-02-0	<0.2	1.5 0.1 0.2	1

Note: This product is manufactured from recycled steel scrap and may contain hazardous materials not listed above. The following is a list of typical chemicals that may be found in recycled steel scrap (this list is not all inclusive): aluminum, antimony, arsenic, bismuth, cadmium, chromium, cobalt, copper, lead, magnesium, molybdenum, nickel, phosphorus, potassium, selenium, sodium, sulfur, tin, vanadium, zinc.

Section 3. PHYSICAL DATA.

Melting Point:	1371-1482°C
Vapor Pressure:	Not applicable
Vapor density:	Not applicable
Solubility in water:	Negligible
Specific gravity:	> 7 g/cc
% Volatile:	N/A
Evaporation rate:	N/A
Appearance and odor:	Metallic gray to blue odorless spherical and/or angular pellets.

Section 4. FIRE AND EXPLOSION HAZARD DATA.

Flash Point:	Not applicable
Flammable limits:	Not applicable
Autoignition Temperature (of solid iron exposed to oxygen):	930°C
Extinguishing media:	Select media appropriate for the surrounding area, including dry chemical, soda ash etc. Note: Do not use water, CO, or form of Iron Oxide fume/dust materials.
Unusual fire and explosion hazards:	Dusts generated from use may be explosive.
Special fire fighting equipment:	Dry chemicals, dry sand, soda ash or lime.

Section 5. REACTIVITY DATA.

Stability:	Stable
Incompatibility:	Strong Acids
Hazardous Polymerization:	Not applicable
Conditions to avoid:	None

Section 6. HEALTH HAZARD DATA.

There is no applicable statutory or recommended occupational exposure limits for cast steel abrasives. However, operations that elevate the temperature of the product or the dust to above its melting point, generate metal fumes and result in the breaking down of the product into dusts may present hazards. These operations should be performed in well-ventilated areas. The major exposure hazard is inhalation.

Inert or nuisance dust:	OSHA PEL:
Respirable fraction:	5 mg/m ³
Total dust:	15 mg/m ³

Carcinogenicity:

Chromium and Nickel are confirmed human carcinogens according to the ACGIH.

Carbon and Nickel are potential occupational carcinogens according to the NIOSH Pocket Guide to Chemical Hazards.

The NIOSH Pocket Guide to Chemical Hazards list the following symptoms for chronic or prolonged inhalation of fumes or dust:

Iron oxide: Benign pneumoconiosis with X-ray shadows indistinguishable from fibrotic pneumoconiosis (siderosis).

Manganese: Parkinson's; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever; lower back pain; vomiting; malaise (vague feeling of discomfort); fatigue; kidney damage.

Silicon: irritation eyes, skin, upper respiratory system; cough.

Carbon: cough, irritation eyes.

Chromium: irritation eyes, skin; lung fibrosis (histologic); sensitization dermatitis.

Nickel: sensitization dermatitis, allergic asthma, pneumonitis.

Copper: irritation eyes, upper respiratory system, nose, pharynx; nasal septum perforation; dermatitis; metal fume fever: chills, muscle ache, nausea, fever, dry throat, cough, weakness, lassitude (weakness, exhaustion); metallic or sweet taste; discoloration skin, hair.

Lead: weakness, lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypotension.

Section 6a. EMERGENCY AND FIRST AID PROCEDURES.

- If inhaled, move to fresh air, and if symptoms persist, consult a qualified medical person.
- If shot, grit or dust particles get in the eyes, flush eyes with running water for at least 15 minutes and have any remaining particles removed from eyes by a qualified medical person.
- Wash with soap and water after contact with dust.

Section 7. SPILL OR LEAK PROCEDURES.

Shot and/or grit spilled or leaked onto floors can create hazardous walking conditions. In case material is released or spilled, sweep up and collect for reclamation or disposal.

Waste disposal method: the material may be reused or disposed of in sanitary landfills in compliance with local, federal and state regulations. The dust generated by the use of the material may be classified as hazardous and therefore must be disposed of according to local, federal and state regulations.

Section 8. SPECIAL PROTECTION INFORMATION.

- Ventilation: adequate ventilation and exhaust of the dust and fumes generated during operations should be provided to reduce the exposure levels.
- Respiratory protection: NIOSH approved respirator is recommended.
- Eye protection: Approved safety eye protection (ANSI-Z87) with side shields should be worn.

Section 9. SPECIAL PRECAUTIONS.

Precautions to be taken in handling and storing: keep dry to reduce rusting.

Section 10. NOTIFICATION ABOUT TOXIC CHEMICALS.

This product contains the following chemicals subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372:

Chemical Abstract Nb	Chemical Name	% By Weight
7440-47-43	Chromium	< 0.8%
7439-96-5	Manganese	< 1.2%
7440-02-0	Nickel	< 0.2%
1336-86-4	Carbon	< 1.2%

This notification must not be detached from this MSDS and must be included in all MSDS's that are copied and distributed for this product.

DISCLAIMER.

The information contained in this Material Safety Data Sheet was obtained from sources W Abrasives believes to be reliable. However, W Abrasives makes no guarantee, representation or warranty as to the correctness or accuracy of the information.

The information in this Material Safety Data Sheet is intended as a guide to be used in safety training and education. It is the responsibility of the user to provide a safe workplace, and to determine if precautions in addition to those described herein are required.

Compliance with all applicable federal, state and local laws and regulations is the responsibility of the user. The user assumes all risk and liability for any use. W Abrasives does not assume responsibility and disclaims liability for any losses, damages or expense associated with the use of these products.

1. Product and company identification

- a) Product Name : P963S
- b) Recommended use of the chemical and restrictions on use
 - Recommended use : Coated Abrasives. Used for sanding materials.
 - Restrictions on use : Use only for intended purpose, Sanding.
- c) Manufacturer/Supplier/Distributor Information
 - Manufacturer : SUN ABRASIVES CO.,LTD
 - Address : SONGKOG-DONG ANSAN-CITY, KYONGGI-DO, KOREA (425-110)
 - Emergency phone number : + 82-31-495-6076 / Fax number : + 82-31-494-6878
 - Issued date : 2014. 07. 30
 - Supersedes date : 2018. 05. 17

2. Hazards identification

- a) Hazard Risk Classification : N/A.
- b) Label elements including precautionary statements
 - Symbol : N/A.
 - Signal Word : N/A.
 - Hazard Risk Statement : N/A.
 - Precautionary Statement
 - Prevention : N/A.
 - Opposition : N/A.
 - Storage : N/A.
 - Abolition : Contaminated coated abrasives should be disposed according to Local Waste Control laws.
- c) Other Hazard Risks which are not included in the classification criteria
 - Coated abrasives are inert products which do not create any risk when handled or stored. When used on grinding machines they require specific measures to protect the operators. During the grinding operation 90% or more of the particulates of the dust come from the material being ground and, for wet grinding, from aerosols generated by grinding fluid. Specific attention must therefore be given to the nature of the part and of the fluid and the appropriate protection devices must be installed.
 - Eye contact : Signs / symptoms may include pain, redness, tearing and corneal abrasion..
 - Skin contact : Signs / symptoms may include abrasion, redness, pain and itching.

- Inhalation : Dust from grinding, sanding or machining may cause irritation of the respiratory system. Signs / symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.
- Ingestion : No health effects are expected, but not recommended to eat.

3. Composition/Information on ingredients

Component	Material	CAS No.	Percent (%)
Backing	Polyester	N/A	20 ~ 50
Abrasives Grain	Aluminum Oxide	1344-28-1	20 ~ 45
Bonding Resin	Cured Phenolic Resin	9003-35-4	5 ~ 15
Filler	Calcium Carbonate	16389-88-1	2 ~ 7
	Cryolite	13775-53-6	2 ~ 12
	Potassium Floroborate	14075-53-7	0 ~ 12

4. First aid measures

- a) Eye contact : Not possible, due to the form of the product.
- b) Skin contact : No harmful effects known.
- c) Inhalation : Not possible, due to the form of the product.
- d) Ingestion : Not likely, due to the form of the product; if necessary contact physician.
- e) Indication of immediate medical attention and notes for physician : Not available.

5. Fire-Fighting measures

- a) Suitable(and unsuitable) extinguishing media
 - Use normal fire extinguishing agent or sprinkle with little amount of water.
- b) Specific hazards arising from the chemical
 - N/A.
- c) Special protective equipment and precautions for fire-fighters
 - Do not inhale the substance or the product of combustion.

6. Accidental release measures

- a) Personal precautions, protective equipment and emergency procedures : N/A.
- b) Environmental precautions and protective procedures : N/A.
- c) Methods and materials for containment and cleaning up : N/A.

7. Handling and storage

- a) Precautions for safe handling : N/A.
- b) Conditions for safe storage(including any incompatibilities)

- Keep the materials out of direct sunlight.
- Do not place the materials on ground and concrete floor.
- Avoid humid place and heating element such as heater and radiator.
- Keep it in condition of Temperature, 15°C~27°C and Humidity, 40%~50%.

8. Exposure controls & personal protection

- a) Control parameters : N/A.
- b) Appropriate Engineering Controls : Ventilator
 - Local Ventilation System : Use general dilution ventilation and / or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits and / or control dust, fume, or airborne particles.
 - Electric Precipitator : Use when there are more atmospheric pollutants than the allowable limit
- c) Personal protective equipment
 - Respiratory protection : Use respiratory protective equipment.
 - Eye protection : Wear protective goggles or face shield.
 - Hand protection : Wear protective gloves.
 - Hearing protection : Use hearing protection.
 - Note : Hazardous dust of the work piece material may be generated during grinding and/or sanding operation
National regulations for dust exposure limit values have to be taken into consideration.

9. Physical and chemical Properties

a) Appearance	Solid
b) Odor	N/A
c) Odor threshold	N/A
d) pH	N/A
e) Melting point/Freezing point	N/A
f) Initial boiling point and boiling range	N/A
g) Flashing point	N/A
h) Evaporation	N/A
i) Flammability(solid, gas)	N/A
j) Upper/lower flammability or explosive limits	N/A
k) Vapor pressure	N/A
l) Solubility	N/A
m) Vapor density	N/A
n) Relative density	N/A
o) Partition coefficient(n-octanol/water)	N/A
p) Auto-ignition temperature	N/A
q) Decomposition temperature	N/A
r) Viscosity	N/A
s) Formula mass	N/A

10. Stability and Reactivity

- a) Chemical stability and possibility of hazardous reactions : Stable.
- b) Conditions to avoid : None
- c) Incompatible material : Strong acids, Strong bases & Strong oxidizing agents may modify the mechanical characteristics of the products and create safety hazards when used on machines.
- d) Hazardous decomposition products : In use, dust and decomposing odors may be generated. In most cases, the material removed from the workplace will be significantly greater than the coated abrasives components.

11. Toxicological Information

- a) Information on the likely routes of exposure
 - Inhalation : N/A.
 - Ingestion : N/A.
 - Skin contact : N/A.
 - Eye contact : N/A.

- b) Health hazards information
 - Acute toxic : Not determined.
 - Skin corrosive/irritant : Not determined.
 - Serious eye damage/eye irritation : Not determined.
 - Respiratory sensitization : Not determined.
 - Skin sensitization : Not determined.
 - Carcinogenicity : Not determined.
 - Germ Cell Mutagenicity : Not determined.
 - Reproductive toxicity : Not determined.
 - Specific target organ toxicity(single exposure) : Not determined.
 - Specific target organ toxicity(repeated exposure) : Not determined.
 - Aspiration hazard : Not determined.

12. Ecological Information

- a) Aquatic and terrestrial ecotoxicity : Not determined.
- b) Persistence and degradability : Not determined.
- c) Bioaccumulative potential : Not determined.
- d) Mobility in soil : Not determined.
- e) Other adverse effects : Not determined.

13. Disposal Considerations

- a) Disposal method : Follow relevant local regulations.

b) Disposal precaution : Refer to #8. Exposure controls & personal protection.

14. Transport Information

- a) UN number : N/A.
- b) UN proper shipping name : N/A.
- c) Transport hazard class : N/A.
- d) Packing group : N/A.
- e) Marine pollution : N/A.
- f) Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises : N/A.

15. Regulatory information

- a) Industrial safety and Health Act : N/A.
- b) Toxic Chemical Control Act : N/A.
- c) Dangerous Material Safety Control Act : N/A.
- d) Wastes Management Act : N/A.
- e) Other requirements in domestic and other countries : N/A.

16. Other Information

- a) Information source and references
 - Occupational Safety & Health Administration(<http://www.osha.gov>)
 - Korea Occupational Safety & Health Agency (<http://www.kosha.or.kr>)
 - National Institute of Environmental Research(<http://ncis.nier.go.kr>)
- b) Issuing date : 2014.07.30
- c) Revision number and date : 2018.05.17(4th)
- d) Others

DISCLAIMER

The information and recommendations set forth herein are taken from sources believed to be accurate as of the date hereof; however, the Company makes no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assumes no liability to any user thereof.

ATTACHMENT G

Equipment Technical Data Sheets

Revision	Description of changes	Date	Prepared by	Approved by
00	Document creation	14-10-2021	JS Guilmette ing.	G. Pelletier ing.

1 PLATE BLAST PROCESS

Abrasive: Steel Shot S280
Duty cycle: 4 hours/day
Abrasive consumption: 600 lb per week

2 EXHAUST CHARACTERISTICS

Location: Outside of building A
Design flow rate: 9417 CFM
Exhaust dimensions: 4 ft x 4 ft
Discharge orientation: Horizontal
Rain cap: No
Exhaust release height: 30 ft

Prince Information No. 11502-21053/USA

II. ROLLER CONVEYOR WHEEL BLAST MACHINE

ROLLER CONVEYOR WHEEL BLAST MACHINE FOR STEEL PLATES

Model RS-RC 4220 [8T3.0@15](#) ST



Workpieces to be treated

Steel plates:

- min. length: 6 000 mm
- max. length: 25 000 mm
- max. width: 4 000 mm
- max height: 120 mm
- min height: 20 mm
- max. loading capacity: 4000 kg/m/conveyor

Location

In the existing building.

Reference piece :

- 10.000 mm x 3000 mm x 50 mm normal steel S235 JR G2
- rust and/or scale (max. grade B) dry, free of grease
- Operation speed (for grade B): up to 2,0m/min,
- Blast media : first quality steel shot low carbon \varnothing 1,0 - 1,8 mm (approx. 50 HRC)
- Finish after blasting: Sa 2,0 according to DIN-EN-ISO 8501-1

Operation speed (for grade B):

- plate: up to 2,0 m/min

BASIC TECHNICAL DATA

Machine

- Working pass-through width: 4 200 mm
- Working pass-through height: 200 mm
- Number of turbines: 8 pcs.
- Turbine type: AH 350,
- Diameter: 350 mm
- Turbine driving power: 15,0 kW / each
- Abrasive ejection speed: ca. 80 m/s
- Turbines nominal capacity: ca. 260 kg/min
- Number of blades per turbine: 8 pcs.
- Filter's efficiency: 26 000 m³/h
- Number of filter cartridges: 24
- Filtration surface area: 504 m²
- Static pressure: 2 200 Pa
- Power installed: 30 kW
- Compressed air consumption: ca. 250 l/min., pressure 6 – 7 bar
- Blow-off airflow; ca. 16 000 m³/h
- Blow-off total pressure; ca. 3000Pa
- Working speed: 0,5 – 2,2 m/min
- Transport speed: 0,5 – 3,5 m/min
- Reversing transport speed; up to 10m/min
- Abrasive cleaning system: air-operated cascade
- Internal roller conveyor length: ca. 7,3m
- Roller distance; ca. 609 mm
- Drive module roller conveyor 0,75 kW: 1 pcs.

- AUTOMATIC SYSTEM OF A NEW ABRASIVE REPLENISHMENT ADS

1.0

1 pcs.

Inlet rolling conveyor

- Length: about 25 m
- Workable height: 1000 mm
- Rollers pitch: about 800 mm
- Max. loading capacity: 4000 kg/m/conveyor
- Drive module: 1 pcs.

Outlet rolling conveyor

-Length: about 25 m
-Workable height: 1000 mm
-Rollers pitch: about 800 mm
-Max. loading capacity: 4000 kg/m/conveyor
-Drive module: 1 pcs.

Silence package

Included

Maintenance package

Included

Power supply	3x 460 V, 60 Hz+N+Pe
Power installed	Approx. 240 kW (322 HP)
Approx. Maximum current	390 A
Power supply cable	Cu, 5 x 300 mm² , insulation PVC, Lmax = 100 m
Protection required	500 A , slow-blow fuse, characteristics gG

SAFETY DATA SHEET

SECTION 1. Identification

- a) Product Identifier: Cast Steel Abrasive
- b) Shot (spherical) and grit (angular) or shot/grit blends. W Abrasives, HPG, Hybrid Shots, Profilium, Prowheelium, Stainium & Surfium.
- c) Recommended use and restrictions: No further applicable information available.
- d) **Distributors:**

WINOA USA Inc.
 650 Rusholme Road
 Welland, Ontario,
 Canada, L3B 5R4
www.wabrasives.com

WINOA Mexico Inc.
 Las Palmas 105, Industrial las Palmas
 66368 Santa Catarina
 N.L., Mexico
www.wabrasives.com

e) Emergency phone number
1 800 207 4691

e) Emergency phone number
+52 81 8032 8318

SECTION 2. Hazard(s) Identification

- a) Classification of substance/mixture with OSHA paragraph D CFR 1910.1200 and WHMIS 2015: this product is not classified according to the regulations.
- b) Hazard Symbol, Signal word, Hazard statement: Not applicable.
- c) Other Hazards not resulting in classification: Winoa currently knows of no risk connected to the product. Cast steel abrasive itself is chemically inert and does not present any risk to people or to the environment. Risks are dependent upon the user's process and application.
 Health Hazard: Health risks are linked to the exposure to dust. Dust is produced by the fragmentation of the abrasives and particles removed from the blasted parts. Dust may cause mechanical irritation of the eyes and respiratory tract.
 Fire/Explosion: Dust can form an explosive mixture with air.
 Other risks: Noise. Risk of falling due to the presence of abrasives on the floor.

SECTION 3. Composition/information on ingredients

- a) Cast Steel Abrasive Shot (SAE J827) and Grit (SAE J1993) **Chemical composition:** All chemical elements in our abrasives are in alloyed form and not in a free form,

Substance	Chemical Symbol	CAS Number	% Weight
Iron	Fe	7439-89-6	> 95
Carbon	C	7440-44-0	<1.2
Manganese	Mn	7439-96-5	<1.2
Silicon	Si	7440-21-3	<1.2

- b) Additional information:

The product is manufactured from recovered scrap metal. Due to the scrap metal recovery process, other unintentionally added elements such as Chromium (Cr), Nickel (Ni) or copper (Cu), may be present as impurities. The concentrations of these elements could in some case individually exceed 0.1% but do not lead to a global classification of the alloy.

SAFETY DATA SHEET

SECTION 4. First-aid Measures

- a) Description of first aid measures General information: No special measures required**
 Lungs: If inhaled, move to fresh air, and if symptoms persist, consult a qualified medical person.
 Eye Contact: Do not rub, flush eyes with running water for at least 15 minutes and have any remaining particles removed from eyes by a qualified medical person.
 Skin: Wash with soap and water after contact with dust. If irritation occurs, consult a qualified medical person.
 Mouth: Rinse out mouth, if symptoms persist consult a qualified medical person.
- b) Most important symptoms/effects, acute and delayed: No further applicable information available.**
- c) Indication of immediate medical attention and special treatment needed, if necessary: No further applicable information available.**

SECTION 5. Fire-fighting Measures

These products are non-flammable.

- a) Extinguishing Media: Select media appropriate for the surrounding materials/area.**
- b) Special Hazards: Fine metal dust that is created as a waste stream and/or contaminants that are removed during the blasting process may pose a small risk of fire or explosion.**
- c) Special Protective measure or equipment for Firefighters: None required.**

SECTION 6. Accidental Release Measures

- a) Personal precautions, protective equipment, and emergency procedures: Steel abrasives on horizontal surfaces can create slip and fall hazards. It is recommended to keep floors, stairs and work areas clean at all times.**
- b) Methods and materials for containment and cleaning up: Mechanical clean up, the material may be reused, recycled or disposed of in compliance with local, federal and state regulations.**

SECTION 7. Handling and Storage

- a) Precautions for safe handling: Handle with care to avoid damage to packaging to avoid spillage.**
- b) Conditions for safe storage, including any incompatibilities: Store in a dry place. No safety risk but oxidation and aggregation may occur in the presence of moisture. No further applicable information available**

SECTION 8. Exposure Control/Personal Protection

- a) There are no specific threshold limit values (TLV) or permissible exposure limits (PEL) for cast steel abrasives.**
- b) As the type of equipment used, surfaces/parts being processed and the operating conditions are the responsibility of the user, it is the user who must determine the appropriate thresholds, types of controls and the nature of the personal protection required.**

Substance	Agency	Value Type	Value
Carbon black (1333-86-4)	OSHA	PEL	3.5 mg/m ³
	ACGIH	TLV-TWA	3 mg/m ³ (IHL)
Silicon (7440-21-3)	OSHA	PEL (TWA)	15 mg/m ³ (total dust)
			5 mg/m ³ (respirable fraction)

SAFETY DATA SHEET

Manganese (7439-96-5) Elemental and Inorganic compounds, as Mn	ACGIH	TLV-TWA	0.02 mg/m ³ (respirable particulate matter)
	OSHA	PEL (Ceiling)	0.1 mg/m ³ (inhalable particulate matter) 5 mg/m ³ (fume)

Ventilation: Adequate ventilation and exhaust of the dust and fumes generated during operations should be provided to reduce the exposure levels.

Respiratory protection: NIOSH approved respirator is recommended.

Eye protection: Approved safety eye protection (ANSI-Z87) with side shields should be worn.

Other protective measures: Protective gloves, work suits and work boots.

SECTION 9. Physical and Chemical Properties

Appearance:	Spherical or angular steel particles of varied shades/hues of grey.		
Physical state:	Solid, Non-flammable and inert (non-explosive)		
Specific gravity:	> 7 g/cc	Flash Point:	Not applicable
Melting Point:	1371-1482°C	Flammable limits:	Not applicable
Boiling Point:	approx. 3000°C	Auto-ignition temp:	Not applicable
Solubility in water:	Negligible	Evaporation rate:	Not applicable
Odor/threshold:	Odorless	Vapor Pressure:	Not applicable
PH:	Not applicable	Vapor density:	Not applicable
Viscosity:	Not applicable	% Volatile:	Not applicable
Partition coefficient:	Not applicable	Decomposition temp:	Not applicable

SECTION 10. Stability and Reactivity

- a) Reactivity: The product is stable under normal conditions of storage and handling.
- b) Chemical stability: Stable under normal conditions.
- c) Possibility of hazardous reactions: No hazardous reactions known, under normal storage or working conditions, steel abrasives are stable and do not present any danger of hazardous reactions occurring.
- d) Conditions to avoid: No applicable information available.
- e) Incompatible materials: Acids.
- f) Hazardous decomposition products: No hazardous decomposition products under normal storage and uses conditions. Toxic metal oxide smoke can be released in case of fire.

SECTION 11. Toxicological Information

No known specific indications or counter indications.

- a) Information on the likely routes of exposure: No applicable information available.
- b) Symptoms related to the physical, chemical and toxicological characteristics: No applicable information available.
- c) Delayed and immediate effects and also chronic effects from short- and long-term exposure: No applicable information available.
- d) Numerical measures of toxicity:
- Iron oxide (1309-37-1) Oral LD50 Rat: >10000 mg/kg
 - Manganese (7439-96-5) Oral LD50 Rat: 9 g/kg
 - Silicon (7440-21-3) Oral LD50 Rat: 3160 mg/kg
- e) Not listed under the IARC, NTP, OSHA-Ca.

SAFETY DATA SHEET**SECTION 12. Ecological Information**

The product, as delivered, does not present any threat to the environment.

This product should be used under the best possible working conditions to avoid releasing it into the environment.

- a) Eco-toxicity (aquatic and terrestrial): No applicable information available.
- b) Persistence and degradability: No applicable information available.
- c) Bio-accumulative potential: No applicable information available.
- d) Mobility in soil: No applicable information available.
- e) Other adverse effects: No applicable information available.

SECTION 13. Disposal Considerations

Do not discharge product into the environment. Disposal or recycling of this product or uncleaned packaging must be done in compliance with local, federal and/or state regulations.

Operating Wastes: Each user must study the problem of waste in relation to their specific activity.

SECTION 14. Transport Information

- a) UN number: Not applicable
- b) UN proper shipping name: Not applicable
- c) Transport hazard class(es): Not applicable
- d) Packing group: Not applicable
- e) Environmental hazards Marine pollutant: No
- f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable
- g) Special precautions for user: There are no special conditions.

SECTION 15. Regulatory Information

Safety, health and environmental regulations specific for the product: No regulations specific to Steel Abrasives.

SECTION 16. Miscellaneous Information

Date of Revision: August 11, 2020

Prepared in accordance with, OSHA CFR 1910.1200 (USA), NOM-018-STPS-2015 (Mexico), WHIMIS 2015 (Canada).

This Safety Data Sheet is available in English, French and Spanish.

The information contained in this Safety Data Sheet applies only to cast steel abrasive as delivered and its unused state. The information contained in this Safety Data Sheet is our most up to date.

The information and was obtained from sources Winoa believes to be reliable however Winoa makes no guarantee, representation or warranty as to the correctness or accuracy of the information. Winoa Inc. does not assume responsibility and disclaims liability for any losses, damages or expense associated with the use of these products.



Quote 641-21-0015-4

Quote Date / Date of Expiry
18.05.2021 / 16.08.2021

Salesman
Jeffrey Defalco

Phone Number
(843) 229-1050

Email
jdefalco@esab.com

ESAB Welding & Cutting - 2800 Airport Road - Denton, TX 76207 - USA

Marmen Inc.
557 rue des Erables
G8T 8Y8 Trois Rivieres
Canada

NEEDS CRITERIA (Lists future objectives and slated application specs):

- a. Bevel cutting for max. plate size - 3 meter x 82'. Includes edge preparation on both sides and ends
- b. Edge preparation including "V", "Y", "X", and "K" edge preparation profiles from 15 to 45 degrees
- c. Max plate thickness: 120 mm (~5")
- d. Plate alloy - Mild steel
- e. Plasma marking. Also provides plasma cutting up to 1/2"
- f. Includes Columbus software modules that is used in conjunction with other ESAB machines
- g. Replace laser pointer with Camera Alignment system

641-9850457-c19e-4c68-9d2d-8dad6bf68892-180521

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SUMMARY 641-21-0015-4

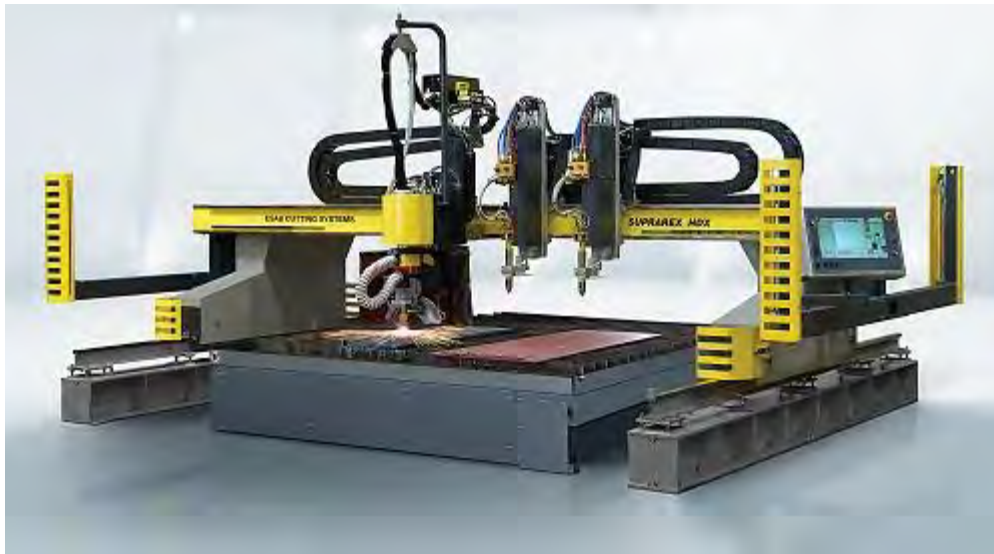
Quote Date / Date of Expiry
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Salesman
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SUPRAREX™ HD 6500 with controller VISION™ T5
for oxy-fuel bevel cutting
for vertical plasma cutting and marking with ESAB Plasma system iSeries 100i
Including Programming system COLUMBUS



BASIC MACHINE DATA

Machine size

Track width : 6500 mm (approx. 21 ft.)
Track length : 30000 mm (approx. 98 ft.)
Workpiece support height : 700 mm (approx. 28 in)

Working area

Common working width, max. 3048 mm (approx. 10 ft.)
Working length, max. 25000 mm (approx. 89 ft.)
The given max. working area applies for the table position acc. to machine layout drawing

Plate size

Max. plate width : 3048 mm (approx. 10 ft.)
Max. plate length : 25000 mm (approx. 82 ft.)

Recommended exhaust table dimensions (for informational purposes only)

Table width : 4900 mm (approx. 16 ft.)
Table length : 27000 mm (approx. 88.6 ft.)
Table height : 700 mm (approx. 27.56 in)

Tool Stations

Number of tools on the machine : 3
Number of transverse drives : 2
Standard plate cutting

2x Oxy-fuel

Cutting mode : Bevel cutting with Oxy-Fuel Global IR-VBA (15-45 deg)
Number of oxy-fuel bevel cutting modules : 2

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Vertical cutting thickness with 3-torch-module, max. 150 mm
Bevel cutting thickness with 3-torch-module, max. 100 mm / 45°

1x Plasma
Vertical cutting
Number of vertical plasma cutting torches : 1
Vertical cutting range (Carbon Steel) : 0.125 - 1/2 in. (3 - 12 mm)

Marking
Marking with Plasma system iSeries 100i

SCOPE OF SUPPLY

SUPRAREX™ HD 6500 Heavy Duty Gantry Shape Cutting Machine

The SUPRAREX HDX is a large gantry CNC shape cutting machine. It is built around a reinforced main beam featuring high-stiffness and linear guide ways, that provide outstanding accuracy. The gantry motion is guided by precision machined railway style tracks. The SUPRAREX is equipped with an advanced drive system using digital AC drives with brushless motors and precision gearboxes on dual-linear way drive mounts. The entire gantry is designed to provide smooth, accurate, responsive motion, regardless of machine size.

Standard equipment of the basic machine:

- High performance gantry design for low mounted rail system. The main beam design incorporates two reinforced square tubes with front mounted transverse guide ways and two side carriages in a welded box construction with integrated/swiveable drive systems. Fixed/adjustable track side rollers on the main side carriage guarantee precise alignment on the machine rail.
- Dual side longitudinal drive systems with powerful AC motors, precision gear-boxes and gantry control through the Vision CNC.
- Transverse drive system with motorized carriage, precision rack & pinion, AC motor, and precision gearbox.
- Axis limit switches, gantry reference and gantry control, and safety protection switches for the machine rail.
- Dust-tight electrical cabinet for drive system and power distribution circuits.

30000 mm Heavy Duty Rail System

- Heavy-duty, precision machined crane rail system
- Machined top and side surfaces
- Machined rack mounting groove for precise rack alignment
- Precision drive rack mounted directly to machined surface
- Fully adjustable mounting pads for adjusting height, level, straightness
- Rail axis powertrack carrier system
- Hose and cable input system for basic gantry

Note:

Unless otherwise specified, power track inlet is at center of rail system. If utilities and power supplies cannot be located in this area, longer hoses and cables must be quoted.

All power track chain support constructions are the responsibility of the customer.

Supply of track accessories : Foundation drawings only

Position of cable chain : High on the left side

Including

fixed connection between one triple torch unit and the plasma carriage

Light curtain safety device

Air condition for the Main Electrical Cabinet

heat protection (metal sheet) under the beam

air dryer

Controller VISION™ T5

Next Generation Cutting Machine Controller

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- New Operating Wizard cuts training time in half
- New Process Selector reduces setup time
- Bright, wide, touch-screen
- Increased processing power for faster operation

The Vision T5 is a powerful, yet easy-to-use, CNC designed specifically for shape cutting machines. Simplicity and ease of operation are the core principles guiding the development of the new VISION T5 touch-screen based control. From power-up to cut part, the new OpWizard guides users with clear, step-by-step instructions. New operators can be productive quickly by following simple prompts with limited choices that lead from file selection to starting the cut. Always have Instant access to the controls you need for faster, easier operation. The Built-In Process Database simplifies cutting tool setup by automatically setting parameters such as cutting speed, kerf offset, and timers based on material thickness, material type and cut quality desired.

- Windows 10 Enterprise IoT LTSC
- Advanced Touch-Screen Interface for easier operation
- Built-In Process Database simplifies cutting tool setup
- Bright, wide touch screen
- True multi-tasking increases productivity
- The ergonomic panel layout means reduced operator stress
- Controls the most complex process tools
- Dual front panel mounted USB ports
- EasyShape Part Program Generator with 88 Shape Library
- Easily generate parts from DXF /DWG files
- Remote Diagnostics allows real-time testing & troubleshooting
- 18.5" "Wide-Screen" Format Color LCD Touch-Screen
- Intel Quad Core i5 embedded processor
- 8GB RAM
- 60GB SSD
- 8 Position Joystick
- Speed Potentiometer
- Standard toggle switches for station up/down
- Integrated Ethernet (LAN) Port
- Built-in Software PLC
- CAN Bus I/O Controller
- Integrated Emergency-stop pushbutton
- Integrated Safety Key Switch for optional Safety Lockouts
- Controls up to 12 stations without add-on panels
- Operator Panel industrial protection rating IP54

Position of NC : Left, on the machine

Character Generator "BUGE"

For use with single point marking devices, such as scribes or plasma markers. Allows machine to write characters on the plate without having to program the motion for each character. Characters to be marked are programmed in plain text, and can be easily edited by the machine operator prior to marking

Character type : Latin

WiFi Adaptor for Vision T5

Quickly and easily connect the Vision T5 to your shop's wireless network

Air Condition for control panel

641-98504557-c19e-4c68-9d2d-8dad6bf68892-180521

Includes a thermostatically controlled cooling device for the main electrical cabinet

Oxy-fuel cutting



More economical and precise than ever. Oxyfuel cutting with gas-oxygen flame generally achieves good results when cutting all low-alloy steels.

The Oxy-Fuel IR-VBA

The Global Oxy-Fuel IR-VBA is a fully automated system for cutting bevels to prepare mild steel plate for welding. Tilt angles and torch offsets are fully programmable and changeable on-the-fly, allowing the system to quickly adjust to cut multiple different bevels on the same part. Accurate bevel cutting is achieved using a precision tactile sensor that follows the plate surface.

This rugged system includes heat shields and air cooling to protect against the extreme heat generated by thick plate bevelling. The cutting sequence is fully automated with automatic ignition, automatic height control, individual torch solenoid valves, and automatic infinite rotation.

- Motorised, programmable tilt angles and torch offsets
- Automatic, infinite rotation
- Accurate tactile sensing height control
- Easily cut accurate bevelled edges on mild steel from 15 to 45 deg.
- Achieves I, V, X, Y, and K cuts
- Digital AC drives and planetary gearboxes for rotation and Z-axis
- Straight cutting up to 150 mm material thickness
- Bevel cutting up to 100 mm / 45 deg.

Gas type oxy-fuel : Methane / Natural gas

Material : Standard Mild Steel / Natural gas

Material : Standard Mild Steel

Vertical Plasma cutting



Plasma cutting offers an unbeatable cost-performance ratio, high cutting speeds and extremely precise cut edge quality. ESAB's plasma solutions are efficient, easy to use and economical.

ESAB High Precision Plasma Cutting System iSeries 100i

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ESAB iSeries technology provides the next generation of higher productivity, increased flexibility and confidence in high precision plasma cutting. Delivers outstanding performance on mild steel, and superior cutting results on non-ferrous metals. The iSeries systems utilize StepUp™ modular power technology so units are easily upgraded.

Provides the following capabilities:

- Plasma marking and cutting with the same torch
- Can cut stainless steel and Aluminium WMS Technology (Water Mist as Shield, N₂H₂O, H-35/N₂ or Air/Air)

Includes the following:

- Power Supply with integrated Water Cooler/Recirculator
- Automatic Gas Control Provides electronically controlled plasma gas flow, start gas flow, and shield gas flow. All parameters are adjusted through the Vision CNC, allowing full process automation through the built-in Process Database.
- High-precision, dual-gas, water cooled torch with SpeedLok™ for fastest consumable change over, and "leakless" head design
- Start-Up Kit for the torch, including set of consumables for system startup testing
- Input Bundle including power/ground cables and all applicable hoses and cables required with the system

The Automatic Gas Control supports the following gas combinations:

- Oxygen Cut Gas /Air Shield or Oxygen for thinner gauge material
- Air Cut Gas /Air Shield
- Nitrogen Cut Gas /Water Shield (WMS)
- H35 Cut Gas /Nitrogen Shield
- Plasma Marking with Argon gas input

Note: Power supply requires three phase input power.

1x ESAB Plasma power supply iSeries 100i
iSeries Torch Set

Plasma gases : Air, O₂, Ar-H₂, N₂ @ 120 psi (8.3 bar) and Ar for marking with DFC 3000

Material : Mild steel

Central ON /OFF switch for the plasma system

Coolant for plasma system for temperatures up to max. -11°C

Plasma Marking



Plasma marking uses a low-current, constricted arc to create lines or text on the plate surface. It offers the advantages of speed and versatility with variable line width and depth. Plasma can mark on wet, oily or rusted surfaces, and is an excellent method of marking text on mild steel or stainless steel.

Optical-Manual Plate Alignment Camera



This system offers the fastest and easiest way to do a manual plate alignment, even on large plates. Video from a downward pointed camera is displayed on screen at the Vision T5, with an alignment cross-hair superimposed on the image. The operator can easily jog the machine to points along the plate edge in order to perform the plate alignment procedure, without having to leave the operator station for a better view.

Programming Columbus™



Columbus™ III is our latest software which makes it easy for you to programme your cutting requirements as well as your labelling and marking processes. Intelligent wizards contribute to intuitive operation so you can perform simple and highly complex cuts, labelling and nesting jobs quickly and easily.

Number of Licences : 1

Including

Layout Designer

with all needed functions necessary for generating a nesting and/or NC programs (straight line).

- Secure data handling is ensured with an SQL database
- Integrated CAD program is available for 2D part construction
- Geometry import interface for the DXF/DWG data format

Automatic Nesting

Fully automated nesting of any geometry, even on remnants.

Plate management

Rectangular plates as well as remnants are managed and defined here.

Production Data

Calculation of process related production data based on parts and layouts containing distances, weights, times, areas, spare parts wear and consumption.

Bevel Cutting

For programming of bevel aggregates: V upper bevel, V lower bevel, Y upper bevel, Y lower bevel, X bevel, K bevel and individually defined bevels up to fivefold cutting of a contour.

License Manager

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Manages multiple user network access to Columbus licenses. Allows many users to share a few licenses. Number of concurrent users is limited to actual number of licenses purchased. All Licenses must have the same options. Requires Windows TCP/IP-Network.

1 year Technical Support and Maintenance

Technical Support and Software Maintenance is available after training has been completed. Remote Servicing is possible if the customer has internet access from the computer on which Columbus is installed.

NOTES

+ Complete Columbus Documentation is provided on the Columbus CD-ROM

Cutting table type : Exhaust table

Cutting table (customer responsibility)

Recommended exhaust table dimensions (for informational purposes only)

(for informational purposes only)

Table width : 4900 mm (approx. 16 ft)

Table length : 27000 mm (approx. 88.6 ft)

Table height : 700 mm (approx. 27.56 int)

Cutting table control : mechanical

Important note

The supply of the cutting table is in full responsibility of the customer.

ESAB is not liable for any issues which might occur in connection with unsuitable table.

Important note

The supply of the exhaust system is in full responsibility of the customer.

ESAB is not liable for any issues which might occur in connection with unsuitable filter equipment

Machine acceptance

Factory acceptance test (FAT) is acc. to Standard

Documentation

Customer specific layout drawing

1 set of labels and operating instructions in English

Technical documentation in English

Country of machine operation : USA

Packing, freight, installation

Including packing in wooden box / seaworthy packing

ESAB will provide one factory trained Field Service Engineer to supervise customer personnel during installation, and to provide on-site operation and maintenance training. Travel and living expenses are included during this period (see Terms and Conditions Exceptions Page for explanation) Installation pertains only to the machine. Customer is responsible for initial installation of the rails. Any peripheral equipment such as water tables, fume and smoke removal systems, etc. will be quoted separately.

Delivery time

Please note that estimated delivery time is quoted as 18 - 20 weeks after receipt of written Purchase Order, Down Payment, and signed Order Confirmation is returned to Project Management Delivery subject to factory backlog at the time the order is entered. Actual delivery date will be confirmed after order entry is completed.

Payment

35% upon order confirmation / 60% prior to delivery upon notification of readiness for dispatch / 5% with machine acceptance, not later than 30 days after machine shipment

See attached Terms and Conditions of Sale

Defects liability period

12 months from the Final Acceptance Date set out in the Acceptance Certificate, but not later than 14 months after delivery

Note: Prior to shipment ESAB will execute its standard Quality Process Check. Special runoff requirements will be reviewed at or prior to date of order.

Machine required to be shipped by Air Ride Flatbed Dedicated Truck unless otherwise specified.

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**Taxes, Excise Or Other Governmental Charges**

The Buyer shall be responsible for all taxes, excises or other governmental charges that ESAB Cutting may be required to pay with respect to the production, sale or transportation of any goods delivered hereunder, where no other reference has been made.

*PLEASE NOTE: For TAX EXEMPT buyers, a SALES EXEMPTION/RESALE CERTIFICATE OR DIRECT PAY PERMIT must be provided for the State(s) in which ESAB will be shipping product on your behalf. If an EXEMPTION /RESALE CERTIFICATE OR DIRECT PAY PERMIT is not received the buyer will be held responsible for all applicable sales & use taxes.

The sale of the goods described above shall be governed by the standard Terms and Conditions of Sale of The ESAB Group, Inc. ("ESAB"), which are incorporated herein by reference and made a part hereof. Please note that ESABs standard Terms and Conditions of Sale govern both domestic and international sales of goods by ESAB to its customers. If a copy of the standard Terms and Conditions of Sale is not attached hereto, a copy may be obtained by calling 1-800-ESAB-123 or referenced on ESABs website at www.esabna.com/terms. For the avoidance of doubt, all prices for the goods described above shall be paid in the currency of the United States of America ("U.S.").

Also, for the avoidance of doubt, please note that diversion by you of the goods described above contrary to U.S. law is prohibited, and you hereby agree and acknowledge that you will not supply, tranship or re-export any of the goods described above to any country currently subject to embargo under the laws of the U.S., including Cuba, Iran, Sudan, Syria and Burma (Myanmar).

Note: The machine is built to standard engineering practices which may or may not cover local legislature requirements. It is the customers responsibility to provide ESAB with these specific requirements such as CSA, so this can be quoted.

Global Trade Compliance

Seller is providing this quote/response without the ability to complete full due diligence under our trade compliance program. Buyer acknowledges that the Items (i.e. goods, software, services, and /or technology) involved in this quote/response may be subject to export control, trade sanctions, or other export laws and regulations, including authorizations and licenses of the United States, EU and its member states, and/or other countries ("Export Control Regulations"). Buyer agrees to comply with the Export Control Regulations as well as any other applicable country's Import laws and regulations and not to do anything which could cause the Seller to be in breach of Export Control Regulations and Import laws and regulations. No order shall be placed pursuant to this quote/response unless Seller is satisfied that the Items and any related services can be supplied in compliance with the Export Control Regulations and in the event that any applicable Export Control Regulations prohibit or make impracticable Seller's performance hereunder, Seller will be released from all and any performance related to this quote/response or any related order placed but not accepted. The Buyer agrees to provide the Seller timeously with reasonable assistance and information to enable the Seller to determine whether fulfilment of any order would be in compliance with Export Control Regulations, including but not limited to complete details of applicable End-User and End-Use, and End Destination. Additionally, if a Government Export Authorization is required, please be aware that lead-times may need to be extended to accommodate the export authorization application process.

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USA
ESAB Welding & Cutting
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Product information and support
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Quote 641-21-0016-3

Quote Date / Date of Expiry
18.05.2021 / 16.08.2021

Salesman
Jeffrey Defalco

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Marmen Inc.
557 rue des Erables
G8T 8Y8 Trois Rivieres
Canada

NEEDS CRITERIA (Lists future objectives and slated application specs):

- a. Bevel cutting for max. plate size - 3 meter x 114'. Includes edge preparation on both sides and ends
- b. Edge preparation including "V", "Y", "X", and "K" edge preparation profiles from 15 to 45 degrees
- c. Max plate thickness: 120 mm (~5")
- d. Plate alloy - Mild steel
- e. Plasma marking. Also provides plasma cutting up to 1/2"
- f. Uses Columbus software contained within Machine #1 scope of supply
- g. Replace laser pointer for Plate Alignment Camera

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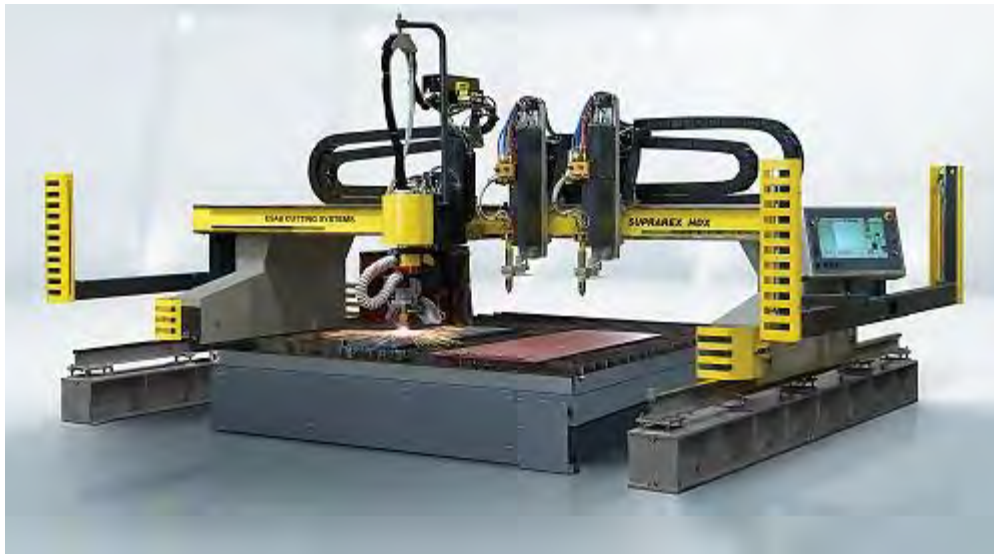
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SUPRAREX™ HD 6500 with controller VISION™ T5
for oxy-fuel bevel cutting
for vertical plasma cutting and marking with ESAB Plasma system iSeries 100i
Including Programming system COLUMBUS



BASIC MACHINE DATA

Machine size

Track width : 6500 mm (approx. 21 ft.)
Track length : 40000 mm (approx. 98 ft.)
Workpiece support height: 700 mm (approx. 28 in)

Working area

Common working width, max. 3048 mm (approx. 10 ft.)
Working length, max. 34742 mm (approx. 114 ft.)
The given max. working area applies for the table position acc. to machine layout drawing

Plate size

Max. plate width : 3048 mm (approx. 10 ft.)
Max. plate length : 34742 mm (approx. 114 ft.)

Recommended exhaust table dimensions (for informational purposes only)

Table width : 4900 mm (approx. 16 ft.)
Table length : 37000 mm (approx. 121.4 ft.)
Table height 700 mm (approx. 27.56 int)

Tool Stations

Number of tools on the machine : 3
Number of transverse drives : 2
Standard plate cutting

2x Oxy-fuel

Cutting mode : Bevel cutting with Oxy-Fuel Global IR-VBA (15-45 deg)

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Number of oxy-fuel bevel cutting modules : 2
Vertical cutting thickness with 3-torch-module, max. 150 mm
Bevel cutting thickness with 3-torch-module, max. 100 mm /45°

1x Plasma
Vertical cutting
Number of vertical plasma cutting torches : 1
Vertical cutting range (Carbon Steel) : 0.125 - 1/2 in. (3 - 12 mm)

1x Marking tool carriage
Marking with Plasma system iSeries 100i

SCOPE OF SUPPLY

SUPRAREX™ HD 6500 Heavy Duty Gantry Shape Cutting Machine

The SUPRAREX HDX is a large gantry CNC shape cutting machine. It is built around a reinforced main beam featuring high-stiffness and linear guide ways, that provide outstanding accuracy. The gantry motion is guided by precision machined railway style tracks. The SUPRAREX is equipped with an advanced drive system using digital AC drives with brushless motors and precision gearboxes on dual-linear way drive mounts. The entire gantry is designed to provide smooth, accurate, responsive motion, regardless of machine size.

Standard equipment of the basic machine:

- High performance gantry design for low mounted rail system. The main beam design incorporates two reinforced square tubes with front mounted transverse guide ways and two side carriages in a welded box construction with integrated/swiveable drive systems. Fixed/adjustable track side rollers on the main side carriage guarantee precise alignment on the machine rail.
- Dual side longitudinal drive systems with powerful AC motors, precision gear-boxes and gantry control through the Vision CNC.
- Transverse drive system with motorized carriage, precision rack & pinion, AC motor, and precision gearbox.
- Axis limit switches, gantry reference and gantry control, and safety protection switches for the machine rail.
- Dust-tight electrical cabinet for drive system and power distribution circuits.

40000 mm Heavy Duty Rail System

- Heavy-duty, precision machined crane rail system
- Machined top and side surfaces
- Machined rack mounting groove for precise rack alignment
- Precision drive rack mounted directly to machined surface
- Fully adjustable mounting pads for adjusting height, level, straightness
- Rail axis powertrack carrier system
- Hose and cable input system for basic gantry

Note:

Unless otherwise specified, power track inlet is at center of rail system. If utilities and power supplies cannot be located in this area, longer hoses and cables must be quoted.

All power track chain support constructions are the responsibility of the customer.

Position of cable chain : High on the left side

Including

fixed connection between one triple torch unit and the plasma carriage
Light curtain safety device
Air condition for the Main Electrical Cabinet
heat protection (metal sheet) under the beam
air dryer

Controller VISION™ T5

Next Generation Cutting Machine Controller

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- New Operating Wizard cuts training time in half
- New Process Selector reduces setup time
- Bright, wide, touch-screen
- Increased processing power for faster operation

The Vision T5 is a powerful, yet easy-to-use, CNC designed specifically for shape cutting machines. Simplicity and ease of operation are the core principles guiding the development of the new VISION T5 touch-screen based control. From power-up to cut part, the new OpWizard guides users with clear, step-by-step instructions. New operators can be productive quickly by following simple prompts with limited choices that lead from file selection to starting the cut. Always have Instant access to the controls you need for faster, easier operation. The Built-In Process Database simplifies cutting tool setup by automatically setting parameters such as cutting speed, kerf offset, and timers based on material thickness, material type and cut quality desired.

- Windows 10 Enterprise IoT LTSC
- Advanced Touch-Screen Interface for easier operation
- Built-In Process Database simplifies cutting tool setup
- Bright, wide touch screen
- True multi-tasking increases productivity
- The ergonomic panel layout means reduced operator stress
- Controls the most complex process tools
- Dual front panel mounted USB ports
- EasyShape Part Program Generator with 88 Shape Library
- Easily generate parts from DXF /DWG files
- Remote Diagnostics allows real-time testing & troubleshooting
- 18.5" "Wide-Screen" Format Color LCD Touch-Screen
- Intel Quad Core i5 embedded processor
- 8GB RAM
- 60GB SSD
- 8 Position Joystick
- Speed Potentiometer
- Standard toggle switches for station up/down
- Integrated Ethernet (LAN) Port
- Built-in Software PLC
- CAN Bus I/O Controller
- Integrated Emergency-stop pushbutton
- Integrated Safety Key Switch for optional Safety Lockouts
- Controls up to 12 stations without add-on panels
- Operator Panel industrial protection rating IP54

Position of NC : Left, on the machine

Character Generator "BUGE"

For use with single point marking devices, such as scribes or plasma markers. Allows machine to write characters on the plate without having to program the motion for each character. Characters to be marked are programmed in plain text, and can be easily edited by the machine operator prior to marking

Character type : Latin

WiFi Adaptor for Vision T5

Quickly and easily connect the Vision T5 to your shop's wireless network

Air Condition for control panel

Includes a thermostatically controlled cooling device for the main electrical cabinet

Oxy-fuel cutting



More economical and precise than ever. Oxyfuel cutting with gas-oxygen flame generally achieves good results when cutting all low-alloy steels.

The Oxy-Fuel IR-VBA

The Global Oxy-Fuel IR-VBA is a fully automated system for cutting bevels to prepare mild steel plate for welding. Tilt angles and torch offsets are fully programmable and changeable on-the-fly, allowing the system to quickly adjust to cut multiple different bevels on the same part. Accurate bevel cutting is achieved using a precision tactile sensor that follows the plate surface.

This rugged system includes heat shields and air cooling to protect against the extreme heat generated by thick plate bevelling. The cutting sequence is fully automated with automatic ignition, automatic height control, individual torch solenoid valves, and automatic infinite rotation.

- Motorised, programmable tilt angles and torch offsets
- Automatic, infinite rotation
- Accurate tactile sensing height control
- Easily cut accurate bevelled edges on mild steel from 15 to 45 deg.
- Achieves I, V, X, Y, and K cuts
- Digital AC drives and planetary gearboxes for rotation and Z-axis
- Straight cutting up to 150 mm material thickness
- Bevel cutting up to 100 mm / 45 deg.

Gas type oxy-fuel : Methane / Natural gas
Material : Standard Mild Steel

Including Gas support panel for oxy-fuel cutting

Vertical Plasma cutting



Plasma cutting offers an unbeatable cost-performance ratio, high cutting speeds and extremely precise cut edge quality. ESABs plasma solutions are efficient, easy to use and economical.

ESAB High Precision Plasma Cutting System iSeries 100i

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ESAB iSeries technology provides the next generation of higher productivity, increased flexibility and confidence in high precision plasma cutting. Delivers outstanding performance on mild steel, and superior cutting results on non-ferrous metals. The iSeries systems utilize StepUp™ modular power technology so units are easily upgraded.

Provides the following capabilities:

- Plasma marking and cutting with the same torch
- Can cut stainless steel and Aluminium WMS Technology (Water Mist as Shield, N₂H₂O, H-35/N₂ or Air/Air)

Includes the following:

- Power Supply with integrated Water Cooler/Recirculator
- Automatic Gas Control Provides electronically controlled plasma gas flow, start gas flow, and shield gas flow. All parameters are adjusted through the Vision CNC, allowing full process automation through the built-in Process Database.
- High-precision, dual-gas, water cooled torch with SpeedLok™ for fastest consumable change over, and "leakless" head design
- Start-Up Kit for the torch, including set of consumables for system startup testing
- Input Bundle including power/ground cables and all applicable hoses and cables required with the system

The Automatic Gas Control supports the following gas combinations:

- Oxygen Cut Gas /Air Shield or Oxygen for thinner gauge material
- Air Cut Gas /Air Shield
- Nitrogen Cut Gas /Water Shield (WMS)
- H35 Cut Gas /Nitrogen Shield
- Plasma Marking with Argon gas input

Note: Power supply requires three phase input power.

1x ESAB Plasma power supply iSeries 100i
iSeries Torch Set

Plasma gases : Air, O₂, Ar-H₂, N₂ @ 120 psi (8.3 bar) and Ar for marking with DFC 3000
Material : Mild steel

1x Set of plasma wear parts for vertical cutting of Mild Steel

Central ON /OFF switch for the plasma system

Coolant for plasma system for temperatures up to max. -11°C

Plasma Marking



Plasma marking uses a low-current, constricted arc to create lines or text on the plate surface. It offers the advantages of speed and versatility with variable line width and depth. Plasma can mark on wet, oily or rusted surfaces, and is an excellent method of marking text on mild steel or stainless steel.

Optical-Manual Plate Alignment Camera



This system offers the fastest and easiest way to do a manual plate alignment, even on large plates. Video from a downward pointed camera is displayed on screen at the Vision T5, with an alignment cross-hair superimposed on the image. The operator can easily jog the machine to points along the plate edge in order to perform the plate alignment procedure, without having to leave the operator station for a better view.

Programming Columbus™. Included with Machine #1



Columbus™ III is our latest software which makes it easy for you to programme your cutting requirements as well as your labelling and marking processes. Intelligent wizards contribute to intuitive operation so you can perform simple and highly complex cuts, labelling and nesting jobs quickly and easily.

Number of Licences : 1

Including

Layout Designer

with all needed functions necessary for generating a nesting and/or NC programs (straight line).

- Secure data handling is ensured with an SQL database
- Integrated CAD program is available for 2D part construction
- Geometry import interface for the DXF/DWG data format

Automatic Nesting

Fully automated nesting of any geometry, even on remnants.

Plate management

Rectangular plates as well as remnants are managed and defined here.

Production Data

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Calculation of process related production data based on parts and layouts containing distances, weights, times, areas, spare parts wear and consumption.

Bevel Cutting

For programming of bevel aggregates: V upper bevel, V lower bevel, Y upper bevel, Y lower bevel, X bevel, K bevel and individually defined bevels up to fivefold cutting of a contour.

License Manager

Manages multiple user network access to Columbus licenses. Allows many users to share a few licenses. Number of concurrent users is limited to actual number of licenses purchased. All Licenses must have the same options. Requires Windows TCP/IP-Network.

1 year Technical Support and Maintenance

Technical Support and Software Maintenance is available after training has been completed. Remote Servicing is possible if the customer has internet access from the computer on which Columbus is installed.

NOTES

+ Complete Columbus Documentation is provided on the Columbus CD-ROM

Cutting table type : Exhaust table

Cutting table (customer responsibility)

Recommended exhaust table dimensions (for informational purposes only)

Table width : 4900 mm (approx. 16 ft.)

Table length : 37000 mm (approx. 121.4 ft.)

Table height : 700 mm (approx. 27.56 int.)

Cutting table control : mechanical

Important note

The supply of the cutting table is in full responsibility of the customer.

ESAB is not liable for any issues which might occur in connection with unsuitable table.

Important note

The supply of the exhaust system is in full responsibility of the customer.

ESAB is not liable for any issues which might occur in connection with unsuitable filter equipment.

Machine acceptance

Factory acceptance test (FAT) is acc. to Standard

Documentation

Customer specific layout drawing

1 set of labels and operating instructions in English

Technical documentation in English

Country of machine operation : USA

Packing, freight, installation

Including packing in wooden box /seaworthy packing

ESAB will provide one factory trained Field Service Engineer to supervise customer personnel during installation, and to provide on-site operation and maintenance training. Travel and living expenses are included during this period (see Terms and Conditions Exceptions Page for explanation) Installation pertains only to the machine. Customer is responsible for initial installation of the rails. Any peripheral equipment such as water tables, fume and smoke removal systems, etc. will be quoted separately.

Delivery time

Please note that estimated delivery time is quoted as 18 - 20 weeks after receipt of written Purchase Order, Down Payment, and signed Order Confirmation is returned to Project Management. Delivery subject to factory backlog at the time the order is entered. Actual delivery date will be confirmed after order entry is completed.

Payment

35% upon order confirmation /60% prior to delivery upon notification of readiness for dispatch /5% with machine acceptance, not later than 30 days after machine shipment

See attached Terms and Conditions of Sale

Defects liability period

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12 months from the Final Acceptance Date set out in the Acceptance Certificate, but not later than 14 months after delivery

Note: Prior to shipment ESAB will execute its standard Quality Process Check. Special runoff requirements will be reviewed at or prior to date of order.

Machine required to be shipped by Air Ride Flatbed Dedicated Truck unless otherwise specified.

Taxes, Excise Or Other Governmental Charges

The Buyer shall be responsible for all taxes, excises or other governmental charges that ESAB Cutting may be required to pay with respect to the production, sale or transportation of any goods delivered hereunder, where no other reference has been made.

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Quote 638-21-0004-1

Quote Date / Date of Expiry
17.05.2021 / 15.08.2021

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17.05.2021 / 15.08.2021

Salesman

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SUPRAREX™ HD 11500 with controller VISION™ T5

for oxy-fuel bevel cutting

for vertical plasma cutting and marking with ESAB Plasma system iSeries 200i



BASIC MACHINE DATA

Machine size

Track width : 11500 mm (approx. 37.7 ft)

Track length : 40000 mm (approx. 131.23 ft)*

***NXB style track

Workpiece support height: 700 mm (approx. 28 in)

Working area

Common working width, max. 8000 mm (approx. 26 ft)

Working length, max. 35000 mm (approx. 115 ft)

The given max. working area applies for the table position acc. to machine layout drawing

Plate size

Max. plate width : 8000 mm (approx. 26 ft)

Max. plate length : 35000 mm (approx. 115 ft)

Recommended exhaust table dimensions

(for informational purposes only)

Table width : 9500 mm (approx. 31.2 ft)

Table length : 37000 mm (approx. 121.4 ft)

Table height 700mm (27.56in)

Tool Stations

Number of tools on the machine : 3

Number of transverse drives : 2

Standard plate cutting

2x Oxy-fuel

Cutting mode : Bevel cutting with Oxy-Fuel IR-VBA (20-50 deg)

Number of oxy-fuel bevel cutting modules : 2

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2800 Airport Road
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Vertical cutting thickness with 3-torch-module, max. 110 mm
Bevel cutting thickness with 3-torch-module, max. 75 mm /50°

1x Plasma
Vertical cutting
Number of vertical plasma cutting torches : 1
Vertical cutting range (Carbon Steel) : 0.125 - 1/2 in. (3 - 12 mm)

Marking
Marking with Plasma system iSeries 100i

SCOPE OF SUPPLY

SUPRAREX™ HD 11500 Heavy Duty Gantry Shape Cutting Machine

The SUPRAREX HDX is a large gantry CNC shape cutting machine. It is built around a reinforced main beam featuring high-stiffness and linear guide ways, that provide outstanding accuracy. The gantry motion is guided by precision machined railway style tracks. The SUPRAREX is equipped with an advanced drive system using digital AC drives with brushless motors and precision gearboxes on dual-linear way drive mounts. The entire gantry is designed to provide smooth, accurate, responsive motion, regardless of machine size.

Standard equipment of the basic machine:

- High performance gantry design for low mounted rail system. The main beam design incorporates two reinforced square tubes with front mounted transverse guide ways and two side carriages in a welded box construction with integrated/swiveable drive systems. Fixed/adjustable track side rollers on the main side carriage guarantee precise alignment on the machine rail.
- Dual side longitudinal drive systems with powerful AC motors, precision gear-boxes and gantry control through the Vision CNC.
- Transverse drive system with motorized carriage, precision rack & pinion, AC motor, and precision gearbox.
- Axis limit switches, gantry reference and gantry control, and safety protection switches for the machine rail.
- Dust-tight electrical cabinet for drive system and power distribution circuits.

40000 mm Heavy Duty NXB style Rail System

- Heavy-duty, precision machined crane rail system
- Machined top and side surfaces
- Machined rack mounting groove for precise rack alignment
- Precision drive rack mounted directly to machined surface
- Fully adjustable mounting pads for adjusting height, level, straightness
- Rail axis powertrack carrier system
- Hose and cable input system for basic gantry

Note:

Unless otherwise specified, power track inlet is at center of rail system. If utilities and power supplies cannot be located in this area, longer hoses and cables must be quoted.

All power track chain support constructions are the responsibility of the customer.

Position of cable chain : High on the right side

Including
fixed connection between one triple torch unit and the plasma carriage
Light curtain safety device
Air condition for the Main Electrical Cabinet
heat protection (metal sheet) under the beam
air dryer

Controller VISION™ T5
Next Generation Cutting Machine Controller

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- New Operating Wizard cuts training time in half
- New Process Selector reduces setup time
- Bright, wide, touch-screen
- Increased processing power for faster operation

The Vision T5 is a powerful, yet easy-to-use, CNC designed specifically for shape cutting machines. Simplicity and ease of operation are the core principles guiding the development of the new VISION T5 touch-screen based control. From power-up to cut part, the new OpWizard guides users with clear, step-by-step instructions. New operators can be productive quickly by following simple prompts with limited choices that lead from file selection to starting the cut. Always have instant access to the controls you need for faster, easier operation. The Built-In Process Database simplifies cutting tool setup by automatically setting parameters such as cutting speed, kerf offset, and timers based on material thickness, material type and cut quality desired.

- Windows 10 Enterprise IoT LTSCB
- Advanced Touch-Screen Interface for easier operation
- Built-In Process Database simplifies cutting tool setup
- Bright, wide touch screen
- True multi-tasking increases productivity
- The ergonomic panel layout means reduced operator stress
- Controls the most complex process tools
- Dual front panel mounted USB ports
- EasyShape Part Program Generator with 88 Shape Library
- Easily generate parts from DXF /DWG files
- Remote Diagnostics allows real-time testing & troubleshooting
- 18.5" "Wide-Screen" Format Color LCD Touch-Screen
- Intel Quad Core i5 embedded processor
- 8GB RAM
- 60GB SSD
- 8 Position Joystick
- Speed Potentiometer
- Standard toggle switches for station up/down
- Integrated Ethernet (LAN) Port
(Optional Wireless LAN Adaptor available)
- Built-in Software PLC
- CAN Bus I/O Controller
- Integrated Emergency-stop pushbutton
- Integrated Safety Key Switch for optional Safety Lockouts
- Controls up to 12 stations without add-on panels
- Operator Panel industrial protection rating IP54

Position of NC : Right, on the machine

Character Generator "BUGE"

For use with single point marking devices, such as scribes or plasma markers. Allows machine to write characters on the plate without having to program the motion for each character. Characters to be marked are programmed in plain text, and can be easily edited by the machine operator prior to marking

Character type : Latin

Air Condition for control panel

Includes a thermostatically controlled cooling device for the main electrical cabinet

Oxy-fuel cutting



More economical and precise than ever. Oxyfuel cutting with gas-oxygen flame generally achieves good results when cutting all low-alloy steels.

The Oxy-Fuel IR-VBA

The Global Oxy-Fuel IR-VBA is an automated system for cutting bevels to prepare mild steel plate for welding. Tilt angles and torch offsets are fully programmable and changeable on-the-fly, allowing the system to quickly adjust to cut multiple different bevels on the same part. Accurate bevel cutting is achieved using a precision tactile sensor that follows the plate surface.

This rugged system includes heat shields and air cooling to protect against the extreme heat generated by thick plate bevelling. The cutting sequence is fully automated with automatic ignition, automatic height control, individual torch solenoid valves, and automatic infinite rotation.

- Motorised, programmable tilt angles and torch offsets
- Automatic, infinite rotation
- Accurate tactile sensing height control
- Easily cut accurate bevelled edges on mild steel from 20 to 50 deg.
- Achieves I, V, X, Y, and K cuts
- Digital AC drives and planetary gearboxes for rotation and Z-axis
- Straight cutting up to 110 mm material thickness
- Bevel cutting up to 75 mm /50 deg.

Gas type oxy-fuel : Methane /Natural gas***

Material : Standard Mild Steel

Vertical Plasma cutting



Plasma cutting offers an unbeatable cost-performance ratio, high cutting speeds and extremely precise cut edge quality. ESABs plasma solutions are efficient, easy to use and economical.

ESAB High Precision Plasma Cutting System iSeries 100i



ESAB iSeries technology provides the next generation of higher productivity, increased flexibility and confidence in high precision plasma cutting. Delivers outstanding performance on mild steel, and superior cutting results on non-ferrous metals. The iSeries systems utilize StepUp™ modular power technology so units are easily upgraded.

Provides the following capabilities:

- Plasma marking and cutting with the same torch
- Can cut stainless steel and Aluminium WMS Technology (Water Mist as Shield, N₂H₂O, H-35/N₂ or Air/Air)

Includes the following:

- Power Supply with integrated Water Cooler/Recirculator
- Automatic Gas Control Provides electronically controlled plasma gas flow, start gas flow, and shield gas flow. All parameters are adjusted through the Vision CNC, allowing full process automation through the built-in Process Database.
- High-precision, dual-gas, water cooled torch with SpeedLok™ for fastest consumable change over, and "leakless" head design
- Start-Up Kit for the torch, including set of consumables for system startup testing
- Input Bundle including power/ground cables and all applicable hoses and cables required with the system

The Automatic Gas Control supports the following gas combinations:

- Oxygen Cut Gas /Air Shield or Oxygen for thinner gauge material
- Air Cut Gas /Air Shield
- Nitrogen Cut Gas /Water Shield (WMS)
- H35 Cut Gas /Nitrogen Shield
- Plasma Marking with Argon gas input

Note: Power supply requires three phase input power.

1x ESAB Plasma power supply iSeries 100i
iSeries Torch Set

Plasma gases : Air, O₂, Ar-H₂, N₂ @ 120 psi (8.3 bar) and Ar for marking with DFC 3000
Material : Mild steel

1x Set of plasma wear parts for vertical cutting of Mild Steel

Central ON /OFF switch for the plasma system

Coolant for plasma system for temperatures up to max. -11°C

Plasma Marking



Plasma marking uses a low-current, constricted arc to create lines or text on the plate surface. It offers the advantages of speed and versatility with variable line width and depth. Plasma can mark on wet, oily or rusted surfaces, and is an excellent method of marking text on mild steel or stainless steel.

Optical-Manual Plate Alignment Camera



This system offers the fastest and easiest way to do a manual plate alignment, even on large plates. Video from a downward pointed camera is displayed on screen at the Vision T5, with an alignment cross-hair superimposed on the image. The operator can easily jog the machine to points along the plate edge in order to perform the plate alignment procedure, without having to leave the operator station for a better view.

Important note regarding programming

The suitability of the existing COLUMBUS system for the use with the quoted equipment is subject to ESAB's approval.

Cutting table type : Exhaust table

Cutting table (customer responsibility)

Recommended exhaust table dimensions (for informational purposes only)

Table width : 9500 mm (approx. 31.2 ft.)

Table length : 37000 mm (approx. 121.4 ft.)

Table height : 700mm (27.56in)

Important note

The supply of the cutting table is in full responsibility of the customer.

ESAB is not liable for any issues which might occur in connection with unsuitable table.

Important note

The supply of the exhaust system is in full responsibility of the customer.

ESAB is not liable for any issues which might occur in connection with unsuitable filter equipment

Machine acceptance

Factory acceptance test (FAT) is acc. to S standard

Documentation

Customer specific layout drawing

1 set of labels and operating instructions in English

Technical documentation in English

Country of machine operation : USA

Packing, freight, installation

Including packing in wooden box /seaworthy packing

ESAB will provide one factory trained Field Service Engineer to supervise customer personnel during installation, and to provide on-site operation and maintenance training. Travel and living expenses are included during this period (see Terms and Conditions Exceptions Page for explanation) Installation pertains only to the machine. Customer is responsible for initial installation of the rails. Any peripheral equipment such

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as water tables, fume and smoke removal systems, etc. will be quoted separately.

Delivery time

Please note that estimated delivery time is quoted as 20 weeks after receipt of written Purchase Order, Down Payment, and signed Order Confirmation is returned to Project Management. Delivery subject to factory backlog at the time the order is entered. Actual delivery date will be confirmed after order entry is completed.

Payment

35% upon order confirmation / 60% prior to delivery upon notification of readiness for dispatch / 5% with machine acceptance, not later than 30 days after machine shipment
See attached Terms and Conditions of Sale

Defects liability period

12 months from the Final Acceptance Date set out in the Acceptance Certificate, but not later than 14 months after delivery

Note: Prior to shipment ESAB will execute its standard Quality Process Check. Special runoff requirements will be reviewed at or prior to date of order.

Machine required to be shipped by Air Ride Flatbed Dedicated Truck unless otherwise specified.

Taxes, Excise Or Other Governmental Charges

The Buyer shall be responsible for all taxes, excises or other governmental charges that ESAB Cutting may be required to pay with respect to the production, sale or transportation of any goods delivered hereunder, where no other reference has been made.

*PLEASE NOTE: For TAX EXEMPT buyers, a SALES EXEMPTION/RESALE CERTIFICATE OR DIRECT PAY PERMIT must be provided for the State(s) in which ESAB will be shipping product on your behalf. If an EXEMPTION /RESALE CERTIFICATE OR DIRECT PAY PERMIT is not received the buyer will be held responsible for all applicable sales & use taxes.

The sale of the goods described above shall be governed by the standard Terms and Conditions of Sale of The ESAB Group, Inc. ("ESAB"), which are incorporated herein by reference and made a part hereof. Please note that ESABs standard Terms and Conditions of Sale govern both domestic and international sales of goods by ESAB to its customers. If a copy of the standard Terms and Conditions of Sale is not attached hereto, a copy may be obtained by calling 1-800-ESAB-123 or referenced on ESABs website at www.esabna.com/terms. For the avoidance of doubt, all prices for the goods described above shall be paid in the currency of the United States of America ("U.S.").

Also, for the avoidance of doubt, please note that diversion by you of the goods described above contrary to U.S. law is prohibited, and you hereby agree and acknowledge that you will not supply, tranship or re-export any of the goods described above to any country currently subject to embargo under the laws of the U.S., including Cuba, Iran, Sudan, Syria and Burma (Myanmar).

Note: The machine is built to standard engineering practices which may or may not cover local legislature requirements. It is the customers responsibility to provide ESAB with these specific requirements such as CSA, so this can be quoted.

Global Trade Compliance

Seller is providing this quote/response without the ability to complete full due diligence under our trade compliance program. Buyer acknowledges that the Items (i.e. goods, software, services, and /or technology) involved in this quote/response may be subject to export control, trade sanctions, or other export laws and regulations, including authorizations and licenses of the United States, EU and its member states, and/or other countries ("Export Control Regulations"). Buyer agrees to comply with the Export Control Regulations as well as any other applicable country's Import laws and regulations and not to do anything which could cause the Seller to be in breach of Export Control Regulations and Import laws and regulations. No order shall be placed pursuant to this quote/response unless Seller is satisfied that the Items and any related services can be supplied in compliance with the Export Control Regulations and in the event that any applicable Export Control Regulations prohibit or make impracticable Seller's performance hereunder, Seller will be released from all and any performance related to this quote/response or any related order placed but not accepted. The Buyer agrees to provide the Seller timeously with reasonable assistance and information to enable the Seller to determine whether fulfilment of any order would be in compliance with Export Control Regulations, including but not limited to complete details of applicable End-User and End-Use, and End Destination. Additionally, if a Government Export Authorization is required, please be aware that lead-times may need to be extended to accommodate the export authorization application process.

Note: Company Policy and/or applicable Export Control Regulations do not permit any business involving our products with economic sanctioned countries under the Export Control Regulations directly or indirectly. Additionally, defense end-users and/or uses, directly or indirectly, involving China, Russia and Venezuela are not permitted. Diversion or re-export of any product(s) is strictly prohibited.

The ESAB STANDARD CUTTING CONDITIONS OF SALE apply except to the extent amended by this quotation form.

This quotation is subject to change without notice.

The products may vary from those pictured.

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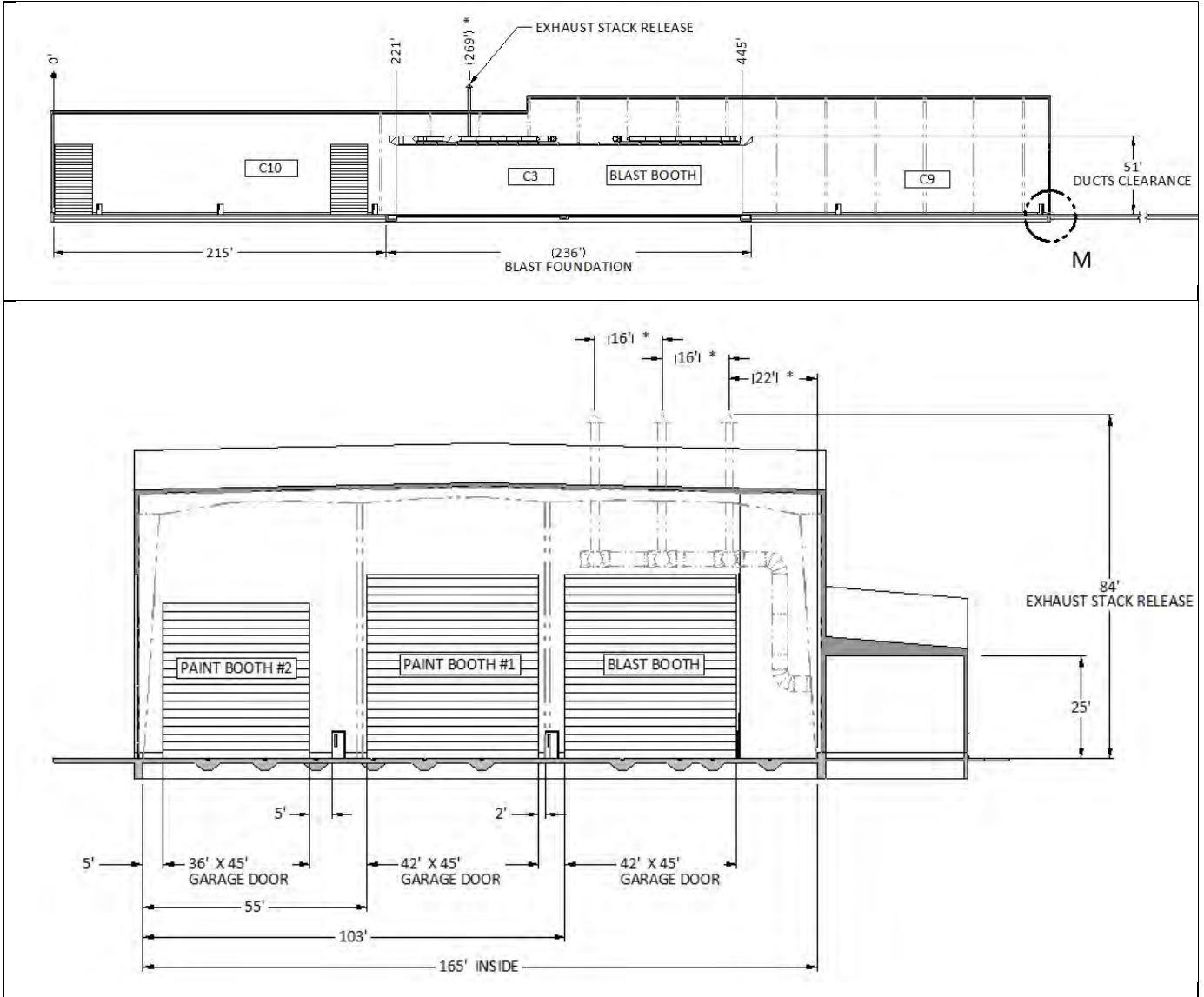
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Revision	Description of changes	Date	Prepared by	Approved by
00	Document creation	14-10-2021	Jerome Doucet	G. Pelletier ing.

1 BOOTH DIMENSION

One blast Booths 47' wide x 45' high x 220' long, Sciteex BLASTLUX PC-BL 671414



2 EXHAUST

Blast Booth:

- Quantity of emitters: 3 pcs
- Vertical discharge with rain cap
- Height of emitters from floor level: 26m
- Efficiency of emitters: 3 x 14 000 m³/h
- Diameter of the emitters: dia 600mm
- Speed of exhaust air: 13.8m/s
- Stack exhaust exit temperature: 75°F

3 FILTER

Filtration level: <2 mg/m³ for particles> 5microns, filter cartridges Donaldson Ultra-Web
Flame Retardant

4 BLAST PROCESS

Blast nozzle: 12 nozzle #10 @ 120 psi, 3500lbs abrasive lb/hr by nozzle

Abrasive: Steel grid GH40

Duty cycle: 8 hours by day

Abrasive consumption: 2500lbs by week (abrasive reduce to dust)



Donaldson
FILTRATION SOLUTIONS

DATA SHEET

Filter Media

Ultra-Web® Flame Retardant

Ultra-Web® Flame Retardant	
Appearance	Blue tinted, corrugated
Use	Pleatable filter media
Composition	Cellulose substrate with nanofiber layer
Area weight (DIN 53884)	123 g/m ²
Thickness (DIN 53885)	0,30 mm
Air Permeability (DIN 53887)	420 m ³ /m ² .h at 200 Pa
Surface electrical resistance (DIN 54345)	4,5 x 10 ⁹ Ω
IFA/BIA certificate (DIN 660335-2-69)	M
	Test report Nr. 201420467/6210
Temperature (dry heat)	
Continuous	65° C
Peaks	80° C
Chemical resistance	
Hydrolysis	N/A
Acids	Poor
Alkalis	Fair
Oxidising agents	Poor
Organic solvents	Fair
Abrasion resistance	Good
Supports combustion	No
Application field	Premium performance on ambient, extremely fine and non-fibrous dust and some abrasive dust. High filtration efficiency on very fine particulate of < 1 micron. Typical applications include metallisation, laser cutting, pharmaceuticals, weld fume, shot blasting.

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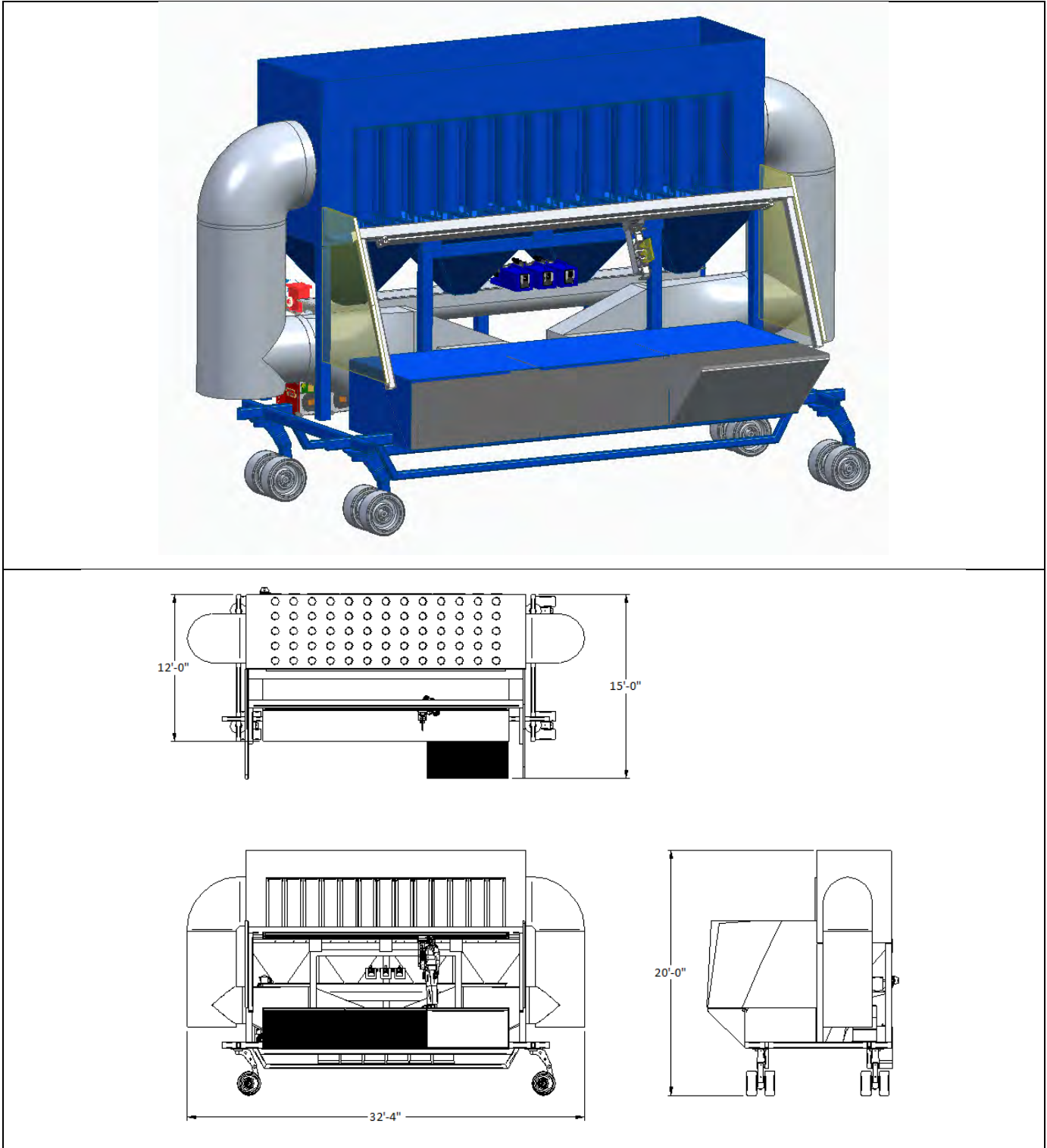
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00	Document creation	14-10-2021	J. Doucet ing.	G. Pelletier ing.

1 SYSTEM DIMENSION

Mobile system with local capture of smoke and dust

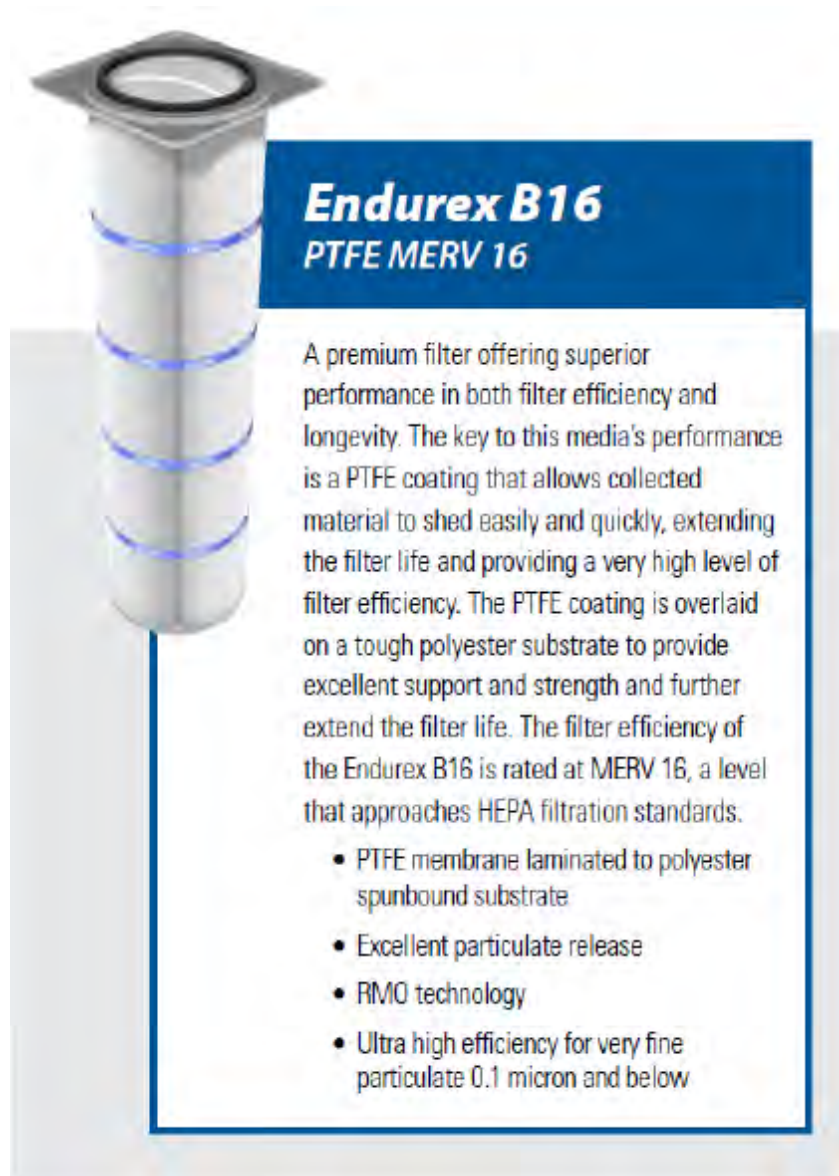


See the document "METALIZATION DETAILS EXPLANATIONS" for more details

2 EXHAUST

No outside exhaust only internal filtration and recirculation

3 FILTER



4 METALIZING PROCESS

Flange spraying: Manual, 1 Thermion Precision Arc 5.0 with 1/8" zinc wire @ 80lbs/hr

Inside spraying: Manual, 1 Thermion Precision Arc 5.0 with 1/8" zinc wire @ 80lbs/hr

Outside spraying: Automated, 3 Thermion Precision Arc 5.0 with 1/8" zinc wire @ 80lbs/hr each

NFT Zinc Wire

Safety Data Sheet

1. Product and company identification

Product name	Zinc wire
Material uses	Thermal spray
Supplier	Non-Ferrous Traders, Inc 1890 Palmer Avenue, Suite 206 Larchmont, NY 10538 Phone (914) 834-3143 Weekdays 10:00 am – 5:00 pm ET Emergency telephone (914) 834-3143
Product type	Solid wire

2. Hazards identification

Emergency overview

Physical state	Solid wire
Color	Gray
Odor	Odorless
Signal word	CAUTION
Hazard statements	These warnings pertain to the by-products produced during thermal spray. May cause eye and skin irritation.
Precautionary measures	Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.
OSHA/HCS status	While this material is not considered hazardous by OSHA Hazard Communication Standard (29 CFR 1910:1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product. By-products generated during the thermal spray process are considered hazardous by the OSHA Hazard Communication Standard.

The health hazards described in this SDS pertain to the by-products generated during thermal spray.

Potential acute health effects

Inhalation	None known
Ingestion	None known

NFT Zinc Wire

Safety Data Sheet

Skin	Slightly irritating to the skin
Eyes	Slightly irritating to the eyes
<u>Potential chronic health effects</u>	
Chronic effects	No known significant effects or critical hazards.
Carcinogenicity	None known
Mutagenicity	None known
Teratogenicity	None known
Developmental effects	None known
Fertility effects	None known
Target organs	Contains material that may cause damage to following organs: skin.

Over-exposure signs/symptoms

Inhalation	Inhalation of zinc fumes may cause metal fume fever. Other effects such as difficulty in breathing, sneezing and coughing may occur.
Ingestion	No specific data
Skin	Adverse symptoms may include the following: Irritation Redness
Eyes	Adverse symptoms may include the following: Irritation Watering Redness
Medical conditions	
Aggravated by over-Exposure	None known.

3. Composition/information on ingredients

This section applies primarily to the wire as supplied.

United States and Canada

Name	CAS No.	%
Zinc	7440-66-6	99.9

Mexico

Name	CAS No.	UN No.	%	IDLH	H	F	R	Special
Zinc	7440-66-6	Not Regulated	99.9	-	1	0	0	-

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

NFT Zinc Wire

Safety Data Sheet

4. First-aid measures

These measures apply primarily to the by-products produced during thermal spray.

Eye contact	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
Skin contact	in case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
Inhalation	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. Inhalation of zinc fumes may cause metal fume fever. Other effects such as difficulty in breathing, sneezing and coughing may occur.
Ingestion	DO NOT INGEST Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
Notes to physician	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire-fighting measures

This section applies primarily to the wire as supplied.

Fire hazards in the presence of various substances

As supplied, this product is non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and shocks and mechanical impacts.

NFT Zinc Wire

Safety Data Sheet

These measures apply to the by-products produced during thermal spray.

Extinguishing media

Suitable

Use fire fighting methods and materials that are suited for surrounding fire. Use a Class D extinguishing agent on metal fires.

Not suitable

Water, foam or carbon dioxide.

Special exposure hazards

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Unusual fire

& explosion hazards

Fine zinc dust dispersed in the air in sufficient concentrations and in the presence of an ignition source is a potential DUST EXPLOSION hazard.

Special protective equipment

For fire-fighters

Inhalation of zinc fumes may cause metal fume fever. Fire-fighters must wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Hazardous thermal

Decomposition products

Decomposition products may include the following materials:
Metal oxides/oxides

6. Accidental release measures

These measures apply to the by-products produced during thermal spray.

Personal precautions

No action shall be taken involving any personal risk or without suitable training.
Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate protective equipment (see Section 8).

Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

NFT Zinc Wire

Safety Data Sheet

Small spill	Move containers from spill area. Vacuum or sweep up material and place in labeled waste container. Dispose of via a licensed waste disposal contractor.
Large spill	Move containers from spill area. Prevent spilled material from entering into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a labeled waste container. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

This section applies primarily to the wire as supplied.

Handling	Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container.
Storage	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright. Do not store in unlabeled containers.

8. Exposure controls/personal protection

This section contains information which applies during the thermal spray process.

Consult local authorities for acceptable exposure limits.

NFT Zinc Wire

Safety Data Sheet

Substance	CAS No.	OSHA PEL	NIOSH Up to 10-hour TWA (ST) STEL (C) Ceiling	ACGIH 8-hour TWA (ST) STEL (C) Ceiling
Zinc	1314-13-2	mg/m ³		
Zinc oxide fume		5	5 mg/m ³ (ST) 10 mg/m ³	5 mg/m ³ (ST) 10 mg/m ³
Total dust		15	5 mg/m ³ (C) 15 mg/m ³	
Respirable fraction		5	5 mg/m ³	2 mg/m ³ (ST) 10 mg/m ³

CAS No. = Chemical Abstract Service Number
 ST = Short Term Exposure Limit
 TLV = Threshold Limit Values
 TWA = Time weighted average

ACGIH = American Conference of Governmental Industrial Hygienists
 NIOSH = National Institute of Occupational Safety and Health

SOURCE: OSHA Annotated Table Z-1^(a)

Recommended monitoring Procedures

Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance document for methods for the determination of hazardous substances will also be required.

Engineering measures

Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling and before eating, smoking and using the lavatory and at

NFT Zinc Wire

Safety Data Sheet

the end of the working period. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Eyes

Safety glasses or goggles are recommended when handling this material. During the thermal spray process, safety goggles and dark lenses MUST be worn.

Skin

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands

During the thermal spray process, heat insulated gloves are recommended.

Hearing Protection

Hearing protection that meets local standards MUST be used. During the thermal spray process, the operator and other personnel close to the spray operation must be protected from excessive noise.

Protective Clothing (Pictograms)

Environmental exposure Controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

This section applies primarily to the wire as supplied

Physical state	Solid wire
Color	Gray
Odor	Odorless
Boiling point	906° C (1663° F)
Melting point:	420° C (788° F)

NFT Zinc Wire

Safety Data Sheet

VOC content	0 g/l (0 lb/gal)
Explosive properties	Thermal spray products: Fine dust clouds may form explosive mixtures with air.
Solubility	Insoluble in the following materials: Cold water and hot water.

10. Stability and reactivity

This information applies to the wire as supplied and the by-products produced during thermal spray.

Chemical stability	The product is stable under normal storage conditions.
Conditions to avoid	Store in a cool dry place away from incompatible materials.
Incompatible materials	Strong acids.
Hazardous decomposition Products	During the thermal spray process, gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by radiation during arc spray.
Reactivity	Reacts with oxidants e.g. ammonium nitrate, nitric acid, potassium chlorate. Zinc dust liberates hydrogen gas in contact with oxygen and water. Zinc forms "white rust" in humid air.
Chemical stability	Zinc may form "white rust" in humid air.
Possibility of hazardous Reactions	Zinc dust, including overspray, liberates hydrogen gas in contact with oxygen and water.
Conditions to avoid	Finely pulverized substances mixed with air may cause dust explosion. Finely divided zinc, overspray, reacts with oxidants e.g. ammonium nitrate, nitric acid, potassium chlorate. Zinc dust liberates hydrogen gas in contact with oxygen and water. Zinc forms "white rust" in humid air.
Incompatible materials	Oxidants e.g. ammonium nitrate, nitric acid, potassium chlorate, acids, water.

11. Toxicological information

This information applies to the wire as supplied and the by-products produced during thermal spray.

NFT Zinc Wire

Safety Data Sheet

United States – Canada – Mexico

Acute toxicity

Conclusion/Summary Not available

Chronic toxicity

Conclusion/Summary Not available

Irritation/Corrosion

Conclusion/Summary Mild skin irritant

Sensitizer

Conclusion/Summary Not available

Carcinogenicity

Conclusion/Summary No known significant effects or critical hazards.

Mutagenicity

Conclusion/Summary Not available

Teratogenicity

Conclusion/Summary Not available

Reproductive toxicity

Conclusion/Summary Not available

12. Ecological information

This information applies to the wire as supplied.

Ecotoxicity

No known significant effects or critical hazards.

Aquatic Ecotoxicity

Conclusion/Summary

Persistence/degradability Not available

This information applies to the wire as supplied and the by-products produced during thermal spray.

Conclusion/Summary

Other adverse effects

This substance in pulverized form (overspray) is very toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

13. Disposal considerations

This information applies to the wire as supplied and the by-products produced during thermal spray.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE

NFT Zinc Wire

Safety Data Sheet

CONTROL/PERSONAL PROTECTION for additional handling information and protection of employees.

Waste disposal

Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protections and waste disposal legislation and any regional authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport information

This section applies primarily to the wire as supplied

Regulatory Information	UN number	Proper shipping name	Classes	Packaging Group	Label	Additional Information
DOT Classification	Not regulated	-	-	-	-	-
TDG Classification	Not regulated	-	-	-	-	-
Mexico Classification	Not regulated	-	-	-	-	-
ADR/RID Class	Not regulated	-	-	-	-	-
IMDG Class	Not regulated	-	-	-	-	-
IATA-DGR Class	Not regulated	-	-	-	-	-

15. Regulatory information

This section applies primarily to the wire as supplied

NFT Zinc Wire

Safety Data Sheet

United States

HCS Classification

Not regulated

By-products generated during the thermal spray process are also considered hazardous by the OSHA Hazard Communication Standard. The health hazards described in this section pertain to the by-products generated during thermal spray.

U.S. Federal regulations

TSCA 8(a) CDR Exempt/Partial exemption: Not regulated
 United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304: No products were found.

SARA 311/312 Hazards identification: Not regulated.

Clean Water Act (CWA 307): Zinc

Clean Air Act Section

112(b) Hazardous Air Pollutants (HAPs)

Not listed.

Clean Air Act Section

602 Class I Substances

Not listed.

Clean Air Act Section

602 Class II Substances

Not listed.

DEA List I Chemicals

(Precursor Chemicals)

Not listed.

DEA List II Chemicals

(Essential Chemicals)

Not listed.

SARA 313

	Product name	CAS number	Concentration
Form R – Reporting Requirements	Zinc	7440-66-6	99.9
Supplier notification	Zinc	7440-66-6	99.9

SARA 313 notification must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

Massachusetts

The following components are listed: ZINC

New York

The following components are listed: ZINC

New Jersey

The following components are listed: ZINC

Pennsylvania

The following components are listed: ZINC

NFT Zinc Wire

Safety Data Sheet

United States Inventory (TSCA 8b)	The following components are listed: ZINC
<u>Canada</u>	
WHMIS (Canada)	Not controlled under WHMIS (Canada).
<u>Canadian lists</u>	
Canadian NPRI	The following components are listed: ZINC
CEPA Toxic substances	None of the components are listed.
Canada inventory	All components are listed or exempted.
<u>Mexico</u>	
Classification	
Chemical Weapons Convention List Schedule I Chemicals	Not listed
Chemical Weapons Convention List Schedule II Chemicals	Not listed
Chemical Weapons Convention List Schedule III Chemicals	Not listed

16. Other information



CAUTION

MAY CAUSE EYE AND SKIN IRRITATION.

THESE WARNINGS PERTAIN PRIMARILY TO THE BY-PRODUCTS PRODUCED DURING THERMAL SPRAY.

Disclaimer The information provided in this document is intended for informational purposes only. The seller assumes no responsibility or liability in connection with this information even if reasonable safety measures are followed. Safe operation rests with the user of this material.

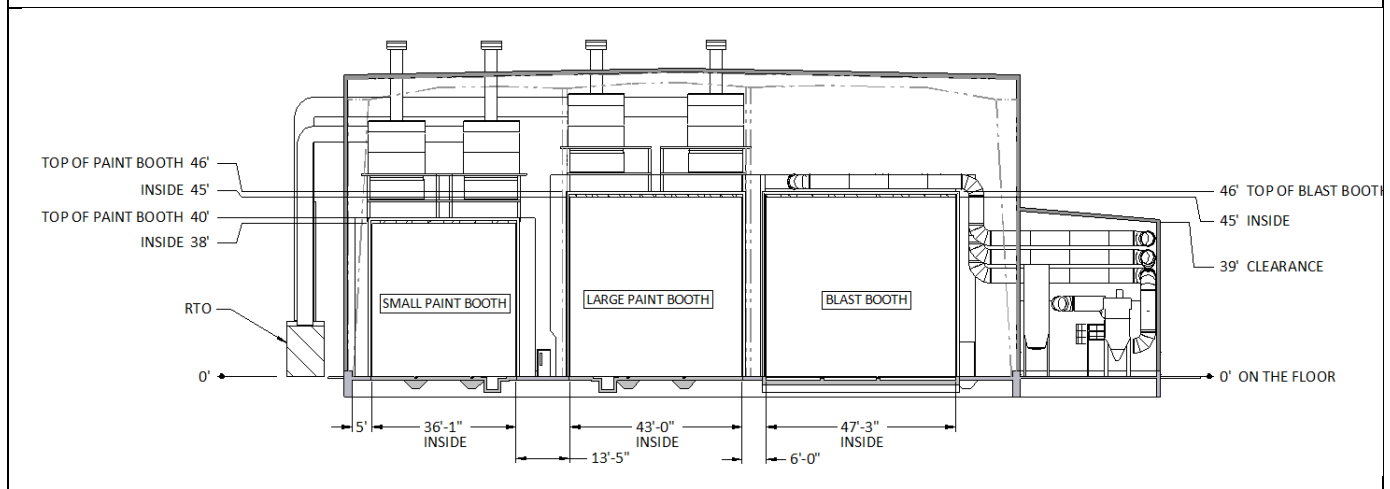
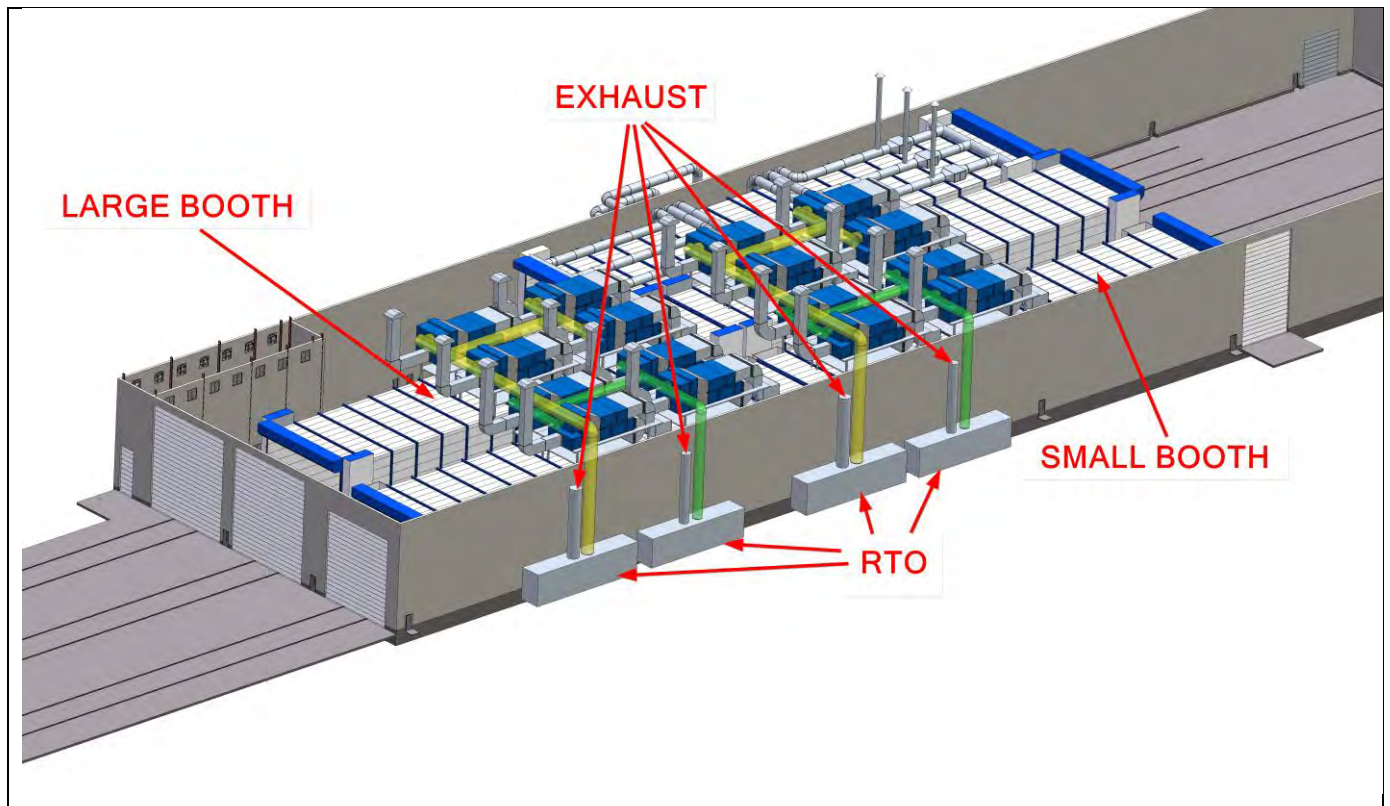
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Revision	Description of changes	Date	Prepared by	Approved by
00	Document creation	15-10-2021	J. Doucet ing.	G. Pelletier ing.

1 BOOTH DIMENSION

Two Booths with two-zone, horizontal ventilation, zones work independently:

- Small one 36' wide x 38' high x 400' long separated in tow zones 200' each, Scitex DIANA PB-DB 1201111
- Large one 43' wide x 45' high x 400' long separated in tow zones 200' each, Scitex DIANA PB-DB 1201313



2 EXHAUST

Small Paint Booth:

- Quantity of emitters: 2 pcs
- Vertical discharge, no rain cap
- Height of emitters from floor level: 13 m
- Efficiency of emitters: 2 x 36 000 m³/h
- Diameter of the emitters: dia 1 200 mm
- Speed of exhaust air: 8.8 m/s
- Stack exhaust exit temperature: about 200°F

Large Paint Booth:

- Quantity of emitters: 2 pcs
- Vertical discharge, no rain cap
- Height of emitters from floor level: 13 m
- Efficiency of emitters: 2 x 52 000 m³/h
- Diameter of the emitters: dia 1 500 mm
- Speed of exhaust air: 8.2 m/s
- Stack exhaust exit temperature: about 200°F

3 FILTER

Filtration level: Carton inertial G3 + M3 cartridge filter

- End accurate filter: Pocket M5
- Exhaust Caissons inside booth: Andreae The original
- Pre-filter in AHU: Paintstop
- Pre-filter in AHU: VNF 290

4 PAINTING PROCESS

Painting sequence: Five total coats

- 1st coat outside
- 1st coat inside
- 2nd coat outside
- 2nd coat inside
- 3rd coat outside

Total spray time: 10-15 hours per part

Inside spraying: Manual, 2 Graco XTR Airless Spray Gun with 621 tip @ 0.47 gpm

Outside spraying: Automated, 3 Graco AL Automatic Airless Spray Gun with 619 tip @ 0.39 gpm

Duty cycle: 28-30 hours for paint/cure

Curing: 100% cure not required. Just enough to get parts out of the booth

Cure temperature: Up to 130F

Paint products in each booth:

Outside:

- Hempadur AvantGuard 750: 2h @ 21gal/h
- Hempadur 4774D: 2h @ 43gal/h
- Hempathane 55610: 2h @ 19gal/h

Inside:

- Hempadur AvantGuard 750: 2h @ 21gal/h
- Hempadur 4774D: 2h @ 43gal/h

Revision	Description of changes	Date	Prepared by	Approved by
00	Document creation	20-12-2021	J. Doucet ing.	J. Doucet ing.

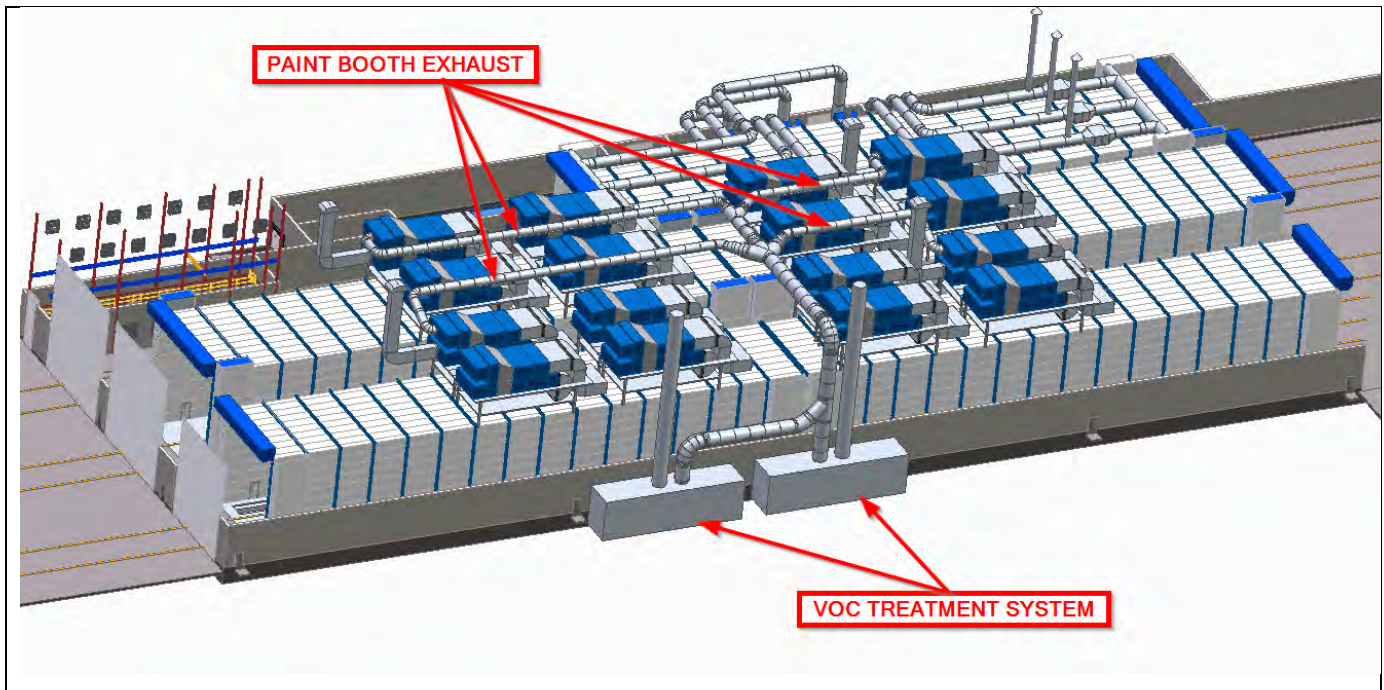
1 PAINT BOOTH GENERAL INFORMATION

Two Booths with two-zone, horizontal ventilation with approximately 80% recirculation, zones work independently:

- Booth #1, 13.1m wide x 13.7m high x 122m long separated in two zones 61m each, Scitex DIANA PB-DB 1221314
- Booth #2, 11m wide x 11.6m high x 122m long separated in two zones 61m each, Scitex DIANA PB-DB 1221112

Each paint booth zone evacuates 40 000 m³/h in the same exhaust to the VOC treatment system. Total of exhaust air volume: 160 000 m³/hr.

The maximum heat input projections on each zone: 16 million Btu/hr



2 VOC TREATMENT SYSTEM INFORMATION

The VOC treatment system is composed of 2 RCTO Munters IZS-4200. Each RCTO treat 80 000 m³/hr of paint booth exhaust for 160 000 m³/hr total. Each RCTO has its own exhaust. For more information on RCTO see pdf file: Munters Buddet Proposal 22162132 R1.

3 RCTO EXHAUTS

- Exhaust stack release height (above ground level): 46 meters for reference, the final height will be determined by the dispersion modeling.
- Exhaust diameter: 1300mm
- Exhaust exit temperature: 160 °F
- Exhaust flow rate: 80 000 m³/hr
- Exhausts exist velocity: 16.7 m/s



AL Automatic

Airless Spray Gun



Increase Production Speeds and Finish Quality in General Metal Applications

- Lightweight and compact rounded gun design
- Capable of handling high production speeds
- Durable stainless steel construction handles the toughest materials
- Fewer parts means an overall lower cost of repair
- Wide range tip line for a variety of applications

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Technical Specifications and Ordering Information

Ordering Information

288048 Airless Gun
Includes GGO precision spray tip of choice and internal filter

Manifolds (required for gun installation)

241161 Standard 1/4" npsm inlets
244930 High flow ambient manifold

ACCESSORIES

288171 Air Seal Repair Kit
239896 Fluid Seal Repair Kit
210500 In-Line Fluid Filter

Technical Specifications

Maximum fluid pressure 5000 psi (345 bar, 34.5 MPa)
Maximum working air pressure 100 psi (7 bar, 0.7 MPa)
Maximum cylinder air pressure 100 psi (7 bar, 0.7 MPa)
Minimum air cylinder actuating pressure 70 psi (4.9 bar, 0.5 MPa)
Maximum working fluid temperature 140°F (60°C)
Triggering speed 50-70 msec (fully open or close)
Wetted parts stainless steel, carbide, UHMWPE, acetal, PEEK, PTFE
Gun weight 1.2 lb (545 g)
Dimensions 5.2 in L x 3.0 in H x 2.0 in W (135 mm L x 76 mm H x 51 mm W)
Instruction manual 311053

GGO Tip Chart

Orifice Size in (mm)	*Fluid Output, gpm (lpm) at 600 psi (4.1 MPa, 41 bar)	Maximum Pattern Width at 12 in (300 mm)								
		2 to 2.5 (50)	4 to 4.5 (100)	6 to 6.5 (150)	8 to 8.5 (200)	10 to 10.5 (250)	12 to 13 (300)	14 to 15 (350)	16 to 17 (400)	18 to 19 (450)
0.007 (0.178)	0.053 (0.20)	107		307						
0.009 (0.229)	0.087 (0.33)	109	209	309						
0.011 (0.279)	0.13 (0.49)	111	211	311	411	511	611			
0.013 (0.330)	0.18 (0.69)		213	313	413	513	613	713		
0.015 (0.381)	0.24 (0.91)	115	215	315	415	515	615	715	815	
0.017 (0.432)	0.31 (1.17)	117	217	317	417	517	617		817	917
0.019 (0.483)	0.39 (1.47)		219	319	419	519	619	719	819	
0.021 (0.533)	0.47 (1.79)		221	321	421	521	621	721	821	921
0.023 (0.584)	0.57 (2.15)			323	423	523	623	723	823	923
0.025 (0.635)	0.67 (2.54)			325	425	525	625	725	825	925
0.027 (0.686)	0.78 (2.96)			327	427	527	627	727	827	927
0.029 (0.737)	0.90 (3.42)				429	529	629	729		
0.031 (0.787)	1.03 (3.90)			331	431	531	631	731		931
0.033 (0.838)	1.17 (4.42)			335	433	533	633	733		933
0.035 (0.889)	1.31 (4.98)				435	535	635	735		
0.037 (0.940)	1.47 (5.56)							737		
0.039 (0.991)	1.63 (6.18)					539	639			
0.041 (1.041)	1.80 (6.83)					541			841	
0.043 (1.092)	1.99 (7.51)					543	643			
0.045 (1.143)	2.17 (8.23)					545				
0.047 (1.197)	2.37 (8.98)					547				
0.049 (1.245)	2.58 (9.76)							749		
0.053 (1.35)	3.02 (11.4)					553				
0.055 (140)	3.25 (12.3)						655			

All written and visual data contained in this document are based on the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

Call today for product information or to request a demonstration.

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XTR™ Airless Spray Guns

Rugged Design to Handle the Toughest Protective Coatings



Built for Extreme Conditions

- Compact design allows for easy maneuverability
- XTR-5: maximum fluid pressure of 5000 (345 bar, 34.5 MPa)
- XTR-7: maximum fluid pressure of 7250 (500 bar, 50 MPa)
- Variety of handle and trigger options
- High quality materials and construction

PROVEN QUALITY. LEADING TECHNOLOGY.



Genuine Graco Fluid Hoses Make the Difference

Xtreme-Duty™ 4500 psi (310 bar) High Pressure Hose

Part #	Length	Hose Diameter	Female NPSM
H42503	3 ft (0.9 m)	1/4 in (6.4 mm)	1/4 in
H42506	6 ft (1.8 m)	1/4 in (6.4 mm)	1/4 in
H42510	10 ft (3.0 m)	1/4 in (6.4 mm)	1/4 in
H42525	25 ft (7.6 m)	1/4 in (6.4 mm)	1/4 in
H42550	50 ft (15.2 m)	1/4 in (6.4 mm)	1/4 in
H4251X	100 ft (30.5 m)	1/4 in (6.4 mm)	1/4 in
H43803	3 ft (0.9 m)	3/8 in (9.5 mm)	3/8 in
H43806	6 ft (1.8 m)	3/8 in (9.5 mm)	3/8 in
H43810	10 ft (3.0 m)	3/8 in (9.5 mm)	3/8 in
H43825	25 ft (7.6 m)	3/8 in (9.5 mm)	3/8 in
H43850	50 ft (15.2 m)	3/8 in (9.5 mm)	3/8 in
H4381X	100 ft (30.5 m)	3/8 in (9.5 mm)	3/8 in
H45010	10 ft (3.0 m)	1/2 in (12.7 mm)	1/2 in
H45025	25 ft (7.6 m)	1/2 in (12.7 mm)	1/2 in
H45050	50 ft (15.2 m)	1/2 in (12.7 mm)	1/2 in
H4501X	100 ft (30.5 m)	1/2 in (12.7 mm)	1/2 in

Xtreme-Duty 5600 psi (386 bar) High Pressure Hose

Part #	Length	Hose Diameter	Female NPSM
H52503	3 ft (0.9 m)	1/4 in (6.4 mm)	1/4 in
H52506	6 ft (1.8 m)	1/4 in (6.4 mm)	1/4 in
H52510	10 ft (3.0 m)	1/4 in (6.4 mm)	1/4 in
H52525	25 ft (7.6 m)	1/4 in (6.4 mm)	1/4 in
H52550	50 ft (15.2 m)	1/4 in (6.4 mm)	1/4 in
H5251X	100 ft (30.5 m)	1/4 in (6.4 mm)	1/4 in
H53803	3 ft (0.9 m)	3/8 in (9.5 mm)	3/8 in
H53806	6 ft (1.8 m)	3/8 in (9.5 mm)	3/8 in
H53810	10 ft (3.0 m)	3/8 in (9.5 mm)	3/8 in
H53825	25 ft (7.6 m)	3/8 in (9.5 mm)	3/8 in
H53850	50 ft (15.2 m)	3/8 in (9.5 mm)	3/8 in
H5381X	100 ft (30.5 m)	3/8 in (9.5 mm)	3/8 in
H55010	10 ft (3.0 m)	1/2 in (12.7 mm)	1/2 in
H55025	25 ft (7.6 m)	1/2 in (12.7 mm)	1/2 in
H55050	50 ft (15.2 m)	1/2 in (12.7 mm)	1/2 in
H5501X	100 ft (30.5 m)	1/2 in (12.7 mm)	1/2 in

Xtreme-Duty 7250 psi (500 bar) High Pressure Hose

Part #	Length	Hose Diameter	Female NPSM
H72503	3 ft (0.9 m)	1/4 in (6.4 mm)	1/4 in
H72506	6 ft (1.8 m)	1/4 in (6.4 mm)	1/4 in
H72510	10 ft (3.0 m)	1/4 in (6.4 mm)	1/4 in
H72525	25 ft (7.6 m)	1/4 in (6.4 mm)	1/4 in
H72550	50 ft (15.2 m)	1/4 in (6.4 mm)	1/4 in
H7251X	100 ft (30.5 m)	1/4 in (6.4 mm)	1/4 in
H73803	3 ft (0.9 m)	3/8 in (9.5 mm)	3/8 in
H73806	6 ft (1.8 m)	3/8 in (9.5 mm)	3/8 in
H73810	10 ft (3.0 m)	3/8 in (9.5 mm)	3/8 in
H73825	25 ft (7.6 m)	3/8 in (9.5 mm)	3/8 in
H73850	50 ft (15.2 m)	3/8 in (9.5 mm)	3/8 in
H7381X	100 ft (30.5 m)	3/8 in (9.5 mm)	3/8 in
H75010	10 ft (3.0 m)	1/2 in (12.7 mm)	1/2 in
H75025	25 ft (7.6 m)	1/2 in (12.7 mm)	1/2 in
H75050	50 ft (15.2 m)	1/2 in (12.7 mm)	1/2 in
H7501X	100 ft (30.5 m)	1/2 in (12.7 mm)	1/2 in

Lightweight and Ergonomic

Technical Specifications

Maximum fluid working pressure	XTR-5: 5000 psi (345 bar, 34.5 MPa) XTR-7: 7250 psi (500 bar, 50 MPa)
Fluid orifice	0.090 in (2.3 mm)
Fluid inlet	1/4 npsm
Maximum fluid temperature	160° F (71° C)
Sound pressure	84.3dB(A)*
Sound power	95.7dB(A)*
Dimensions	XTR-5: Weight 14.5 oz (411 g), Length 4.35 in (111 mm), Height 7.1 in (180 mm) XTR-7: Weight 24 oz (688 g), Length 4.35 in (111 mm), Height 7.1 in (180 mm)
Wetted parts	Aluminum, stainless steel, polyethylene, polyurethane, polypropylene, nylon, acetal, carbide, solvent-resistant O-rings
Instruction Manual	312145

* Results are maximum readings taken at 6000 psi (414 bar, 41 MPa), with GHD519 tip, using water. Sound power level was tested to ISO 9614-2.

Ordering Information

XTR-5 Airless Spray Gun

Maximum working pressure: 5000 psi (345 bar, 34.5 MPa)
XTR500 1" round handle, four-finger trigger, no tip
XTR501 1" round handle, four-finger trigger, flat tip*
XTR502 Oval insulated handle, four-finger trigger, XHD RAC tip*
XTR503 Oval insulated handle, two-finger trigger, XHD RAC tip*
XTR504 1" round handle, four-finger trigger, XHD RAC tip*
XTR505 1" round handle, two-finger trigger, XHD RAC tip*

XTR-7 Airless Spray Gun

Maximum working pressure: 7250 psi (500 bar, 50.0 MPa)
XTR700 Round handle, four-finger trigger, no tip
XTR701 Round handle, four-finger trigger, flat tip*
XTR702 Oval insulated handle, four-finger trigger, XHD RAC tip*
XTR703 Oval insulated handle, two-finger trigger, XHD RAC tip*
XTR704 Round handle, four-finger trigger, XHD RAC tip*
XTR705 Round handle, two-finger trigger, XHD RAC tip*

*Includes 519 tip

Accessories

287450 2-finger trigger kit	246297 180° spray nozzle, 7/8-14 UNC-2B, 7250 psi (500 bar, 50 MPa)
287449 4-finger round trigger kit	248837 Gun repair kit, includes gasket, needle and seat
287451 4-finger oval insulation trigger kit	XHD001 XHD RAC Guard
246294 10 in (254 mm) gun extension, 7250 psi (500 bar, 50 MPa)	287032 Filter, 60 mesh, included in every gun
246295 15 in (380 mm) gun extension, 7250 psi (500 bar, 50 MPa)	287033 Filter, 100 mesh
246296 18 in (457 mm) gun extension, 7250 psi (500 bar, 50 MPa)	287034 Filter, 60 and 100 mesh combination

Quality Features for Ultimate Coatings Results

Needle Assembly and XHD™ RAC® SwitchTip™

- Exceptional life, pattern and finish
- Great for high solids coatings
- Factory set needle needs no adjustments

Easy Out™ Gun Filter

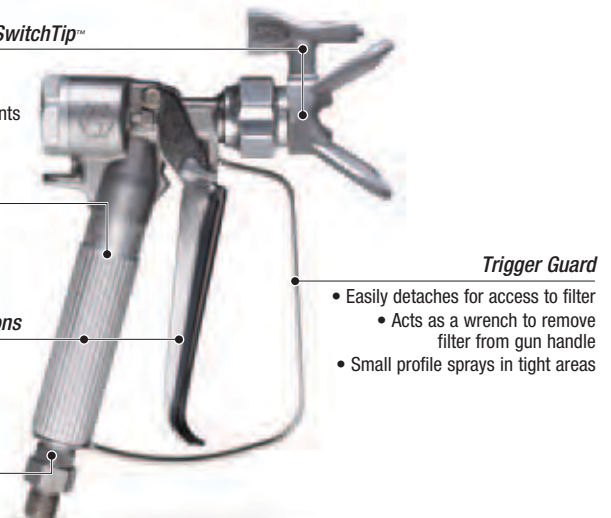
- Reduces tip plugs
- Eliminates collapsed filters
- Provides more filtration area

Variety of Handle and Trigger Options

- 2-and 4-finger trigger options
- Oval-insulated or round handle
- Lightweight trigger pull

EasyGlide™ Swivel

- Allows easier gun movement under high pressure

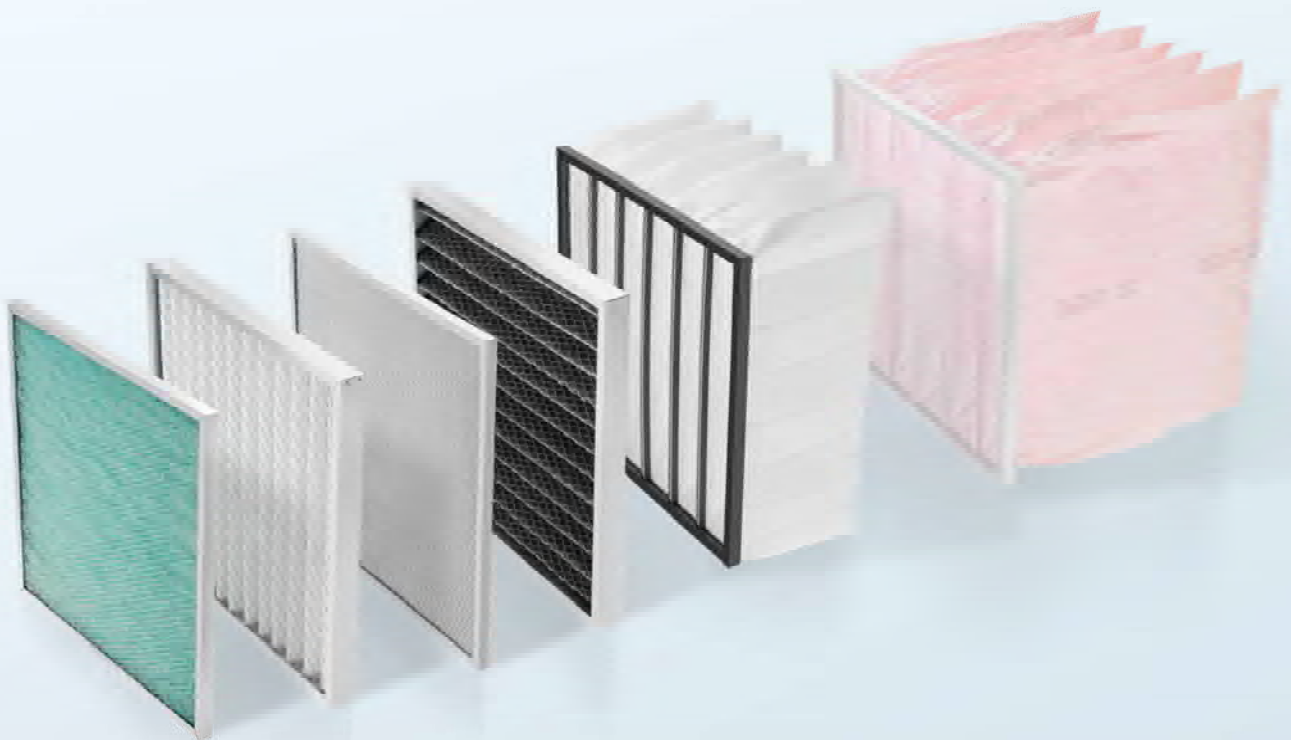


Trigger Guard

- Easily detaches for access to filter
- Acts as a wrench to remove filter from gun handle
- Small profile sprays in tight areas

Air conditioning filters

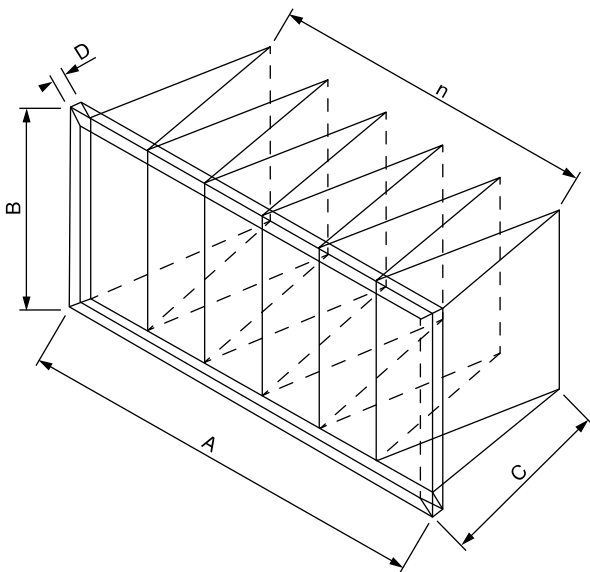
Filter solutions for general and
custom ventilation



Pocket filters

The most frequently used filtering element in ventilation systems

Filter pockets are produced in a metal or synthetic frame. The number of pockets depends on the technical aspects of ventilation systems. The raw materials used in the production process, filter medium and production technology guarantee proper filtration properties and feature a long service life (as desired by customers).



POCKET FILTERS AxBxC, n

Dimensions:

A [mm] - length

B [mm] - width

C [mm] - pocket length with frame

D [mm] - frame thickness

n [pcs] - quantity of pockets

STANDARDS

Pocket filters are manufactured to standards:

- ISO 16890
- PN EN 779:2012

Fire rating:

- F1 wg DIN 53438

MATERIALS

The arrangement of polyester or polypropylene fibres with a progressive structure guarantees a minimum ratio between filter efficiency and resistance.

CONSTRUCTION

Pocket filters in metal frames

A filter frame made of galvanised sheet steel guarantees long-term corrosion resistance. Filtering pockets stitched with industrial sewing machines ensure a long-term bond. Mounted in the frame on steel wires glued to the frame with temperature-resistant adhesive. Depending on the dimensions, the in-curved edge of the wire ensures proper adherence to the frame and prevents it from slipping off and coming unglued. The sides of pocket packages are stuck to the frame and sealed with technical foam which guarantees a proper sealing.

Pocket filters in plastic frames

The filter frame is made from black plastic. Pockets are joined together with a specially designed profile made from plastic using a pneumatic machine or sewing machines. Both of them provide suitable adhesion and fitting in the filter frame. The sides of pocket packages are stuck to the frame and sealed with technical foam, which guarantees proper sealing.

STANDARD DIMENSIONS

Frame sizes in pocket filters are fully standardized.
The most popular are:

- 592 x 592 mm
- 490 x 592 mm
- 287 x 592 mm
- 287 x 287 mm

Frame thickness:

- 20 mm, 25 mm

Pocket length:

- 200 mm, 300 mm, 360 mm, 500 mm, 600 mm

BWF Envirotec produces non-standard dimensions upon request or according to a sent format.

APPLICATION

- **G2, G3, G4** – in ventilation and air-conditioning installations of rooms with average air purity requirements, e.g. hotels, office buildings, shopping centres, etc.
- **M5, M6, F7, F8, F9** – in ventilation and air-conditioning installations of rooms with high air purity requirements, e.g. hospitals, food and electronics industries, etc.



TECHNICAL DATA POCKET FILTERS

CLASSIFICATION ACCORDING TO THE STANDARDS OF PN – EN 779:2012		G3	G4	M5	M6	F7	F8	F9
FILTRATION EFFECTIVENESS ACCORDING TO ISO 16890	%	COARSE	COARSE	ePM10 35-70	ePM10 60-80	ePM1 40-65	ePM1 65-90	ePM1 80-90
		final results are given in the offer or when ordering						
Frame dimension	mm	592 x 592						
Airflow	m ³ /h	3400	3400	3400	3400	3400	3400	3400
Initial pressure drop	Pa	18-55	22-65	45-65	55-95	90-140	95-175	110-195
Recommended final pressure drop	Pa	250	250	450	450	450	450	450
Max. permissible operating temperature	°C	plastic frame 80, metal frame 100						
Pocket length	mm	200, 300, 360, 500, 600						
Number of pockets	pcs	6 or 8						



ORIGINAL FILTERS

www.andreaefilters.com

AEREM[®]
TO FILTER & PROTECT

Produced by Aerem
www.aerem.com

Summary

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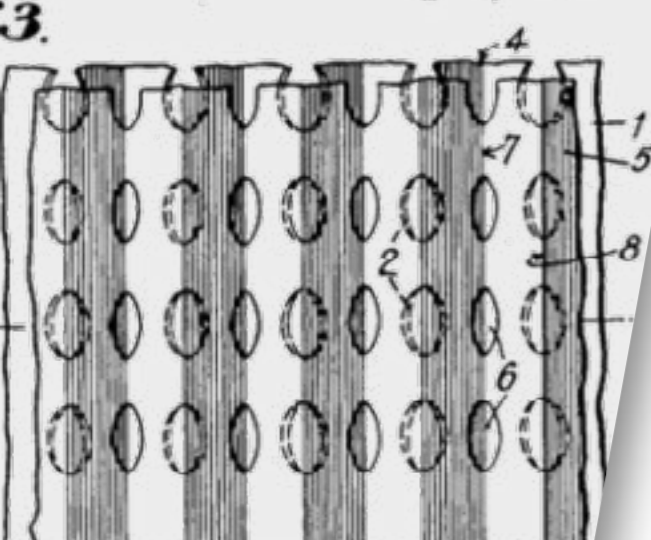
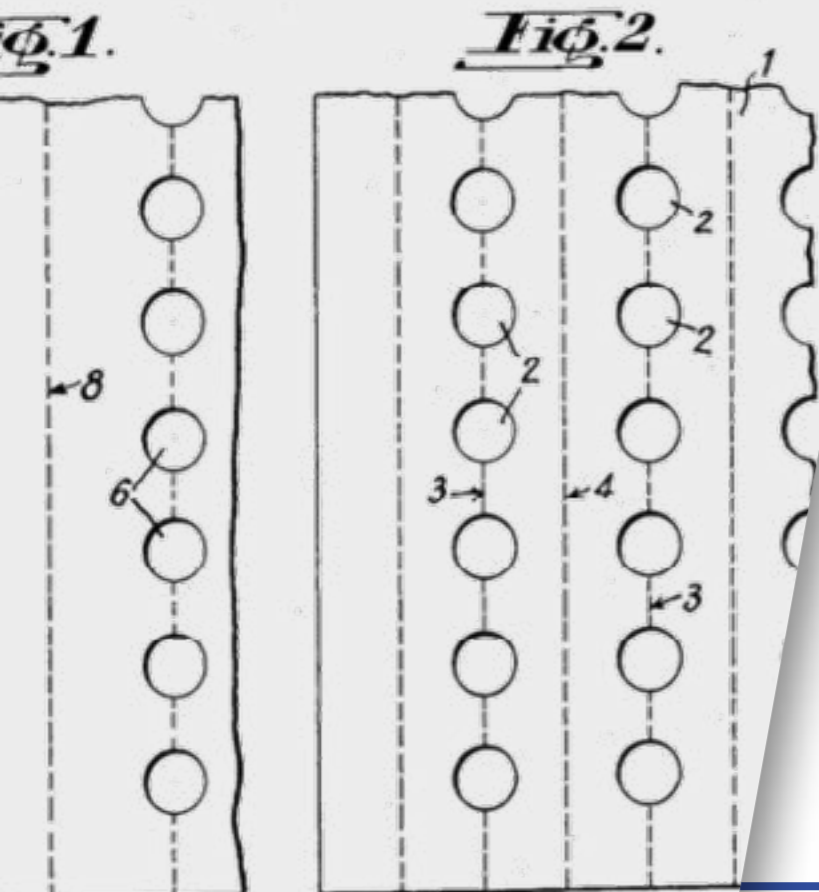
④ Installation 18-21

Channel Frame Installation 18

Exhaust frame construction 19

The Pad Frame Installation 20

The pad filter support Installation 21



Andreae Filters

Inventors since 1963

Mr. Erhard Charles Andreae, 55 years old, an independent mechanical engineer in the field of surface treatment for 25 years, patents a particle filter for paint booths, collapsible, disposable, made of cardboard and operating on the principle of inertia separation.

Andreae Filters is founded. The manufacture is done by hand in a garage with a worker at a rate of 6 m2 per day. E-C. Andreae sells door to door in Switzerland.

Mr. Robert Andreae purchases Andreae Filters. The production tool of Andreae Filters is modernized and the internal organization improved.

Extension of the Andreae Standard and HE+ filter range with the introduction of a high capacity filter (HC) and a high productivity filter (HP).

Installation of an Andreae production line in Ardmore.

Andreae Filters becomes an AEREM brand.

1963



1984-1986

1997



2019



1967

The Binks Manufacturing Company (Binks), a US and World No. 1 paint booth manufacturer, buys Bullows Ltd. UK and is interested in the Andreae filter.

Exclusivity is granted to Binks for all of its subsidiaries around the world, which will give Andreae filters a lot of notoriety as Binks starts producing a line of spray booths under the "Binks-Andreae" brand.



1989-1990

Andreae Filters patents a high efficiency filter (HE+).

Acquisition of the customers and production lines of 2 copiers, in Denmark and Sweden who are granted with exclusivity for Denmark and Sweden respectively.

2013

The invention of the «Andreae» filter and the company celebrate their 50th birthday.



Separation by Inertia How does it work?

Filtration is not restricted to capturing particles with a succession of wider to smaller meshed apertures. Our ingenious filters use another principle: separation by inertia.

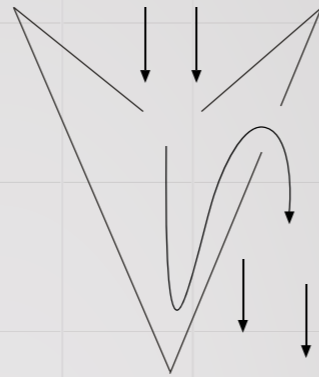
The migration phenomenon is common when slow-drying coatings are used in combination with mesh or fiberglass filters. This happens when the airflow pulls out particles previously trapped in the mesh or fiberglass. Consequently, the once deposited particles will again migrate throughout the system. However, with the Andreae Filter Separation by Inertia principle, the paint particles stay trapped in the retention pocket outside of the airstream.

Airflow loaded with paint particles (overspray) will suffer several radical changes in direction. These paint particles, heavier than air, follow tangent trajectories within the airflow. Thus paint particles will accumulate in the retention pockets, outside of the air stream, allowing the airflow to exit the filter virtually free of any overspray. As a result, our renowned high holding capacity filters hold up to 5 times more than common mesh filters.

Consequently, the static pressure within the booth increases slowly. This has two main advantages; the spray booth stays cleaner longer and the airflow around the coated parts stays uniform throughout the life of the filters.

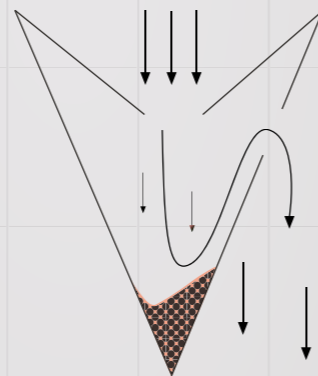
1 Airflow

Airflow enters the retention pockets and travels all the way through the twists and turns of the unique design of our accordion filter.



2 Overspray

The paint particles which are heavier than air, follow tangent trajectories within the airflow and gradually accumulate in the retention pockets outside of the airflow. This eliminates the migration phenomenon inherent to fiberglass and mesh type filters.



3 Paint deposit

The paint deposits accumulate in voluminous retention pockets, as well as on the side and front of the filter.



Why choose Andreae Filters?



Polyester



Flat Polyester



Fiberglass



Fiberglass High Quality



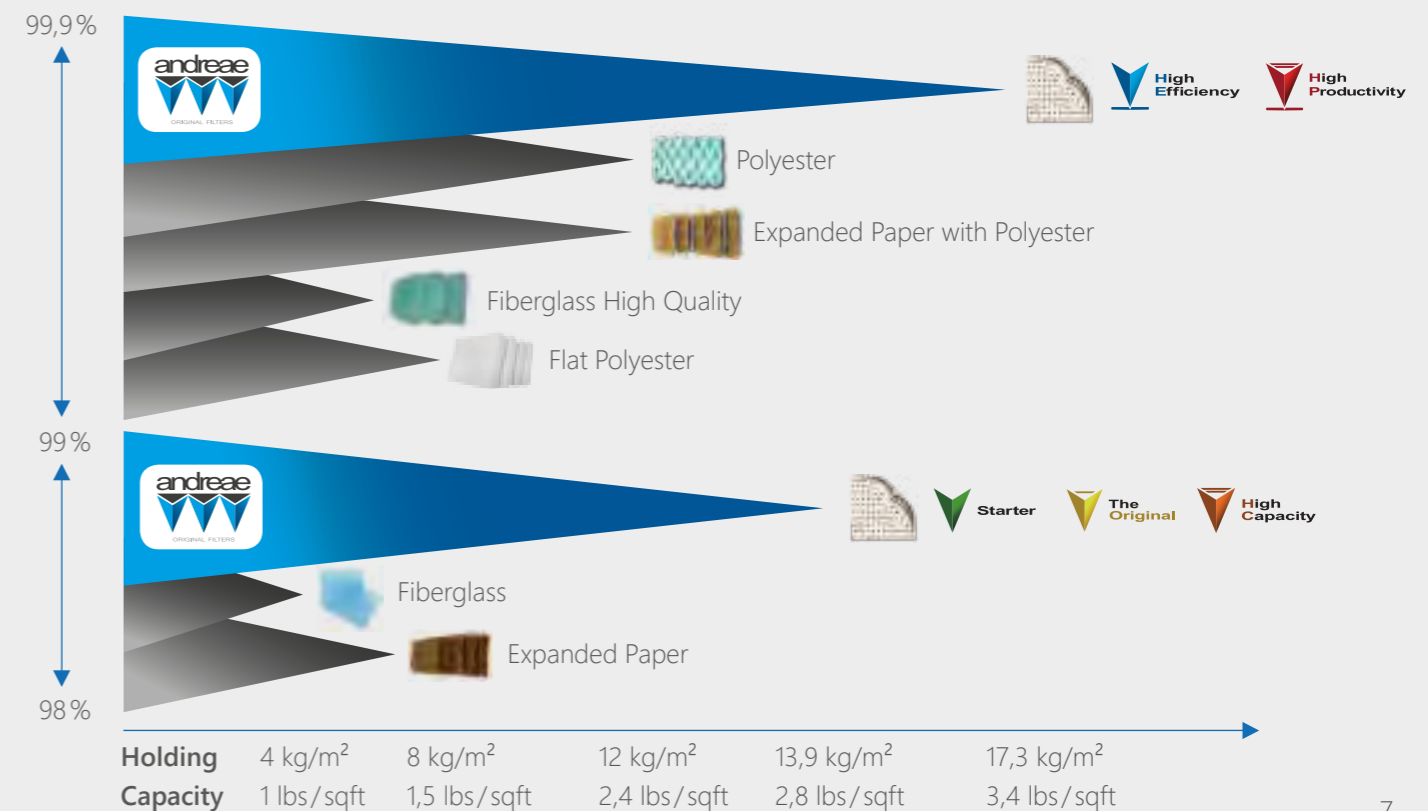
Expanded Paper



Expanded Paper with Polyester

	Andreae	Polyester	Flat Polyester	Fiberglass	Fiberglass High Quality	Expanded Paper	Expanded Paper with Polyester
Cost/Rendement	Best	Moderate	Moderate	Low	Low	Low	High
Holding Capacity	Best	High	Low	Low	Low	Moderate	High
Easy Storage	✓	✗	✗	✗	✗	✗	✗
Environmental friendly	✓	✓	✓	✗	✗	✓	✓
Healthy	✓	✓	✓	✗	✗	✓	✓

Filtration Efficiency %





Which Filter is the Best for your Application ?

	Adhesives	Air-dry enamels	Air-dry primers	Asphalts	Back-dry enamels	Clear coats	Epoxies	Fiberglass	Frit	Gel Coat	High solid enamels	Nitrocellulose Lacquers	Sealers	Stains	Tar-like coatings	Teflon	Urethanes	Vinyls	
Starter	▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼
The Original	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼
High Capacity	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼
High Efficiency	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼
High Holding	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼
High Productivity	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼	▼▼



Starter



Andreae Design

The Andreae Starter is a low intensity filter intended for least demanding spray booth operations. Developed with the same expectation level as the Original Andreae filters, the Starter is made with 2 layers of "kraft" paper, punched, pleated and glued together. This product is ideal for a casual use of the spray booth and a great way to start with the Andreae filters range.



Performances

Load	Efficiency	
▼▼▼▼▼	▼▼▼▼▼	lacquers
▼▼▼▼▼	▼▼▼▼▼	High solids
▼▼▼▼▼	▼▼▼▼▼	Polyester Bi-Components

Load [kg/m²] [lbs/sqft]

Lacquers	High Solids	Polyester
10kg/m² 2lbs/sqft	12kg/m² 2,4lbs/sqft	13kg/m² 2,5lbs/sqft

Efficiency [%]

Lacquers	High Solids	Polyester
93.10%	98.20%	97.80%

Recommended Air Velocity:

0.5 to 1 m/s

Pressure drop at/by:

0.5 m/s	0.75 m/s	1.0 m/s
20 pa	30 pa	40 pa

Max. recommended pressure drop:

128 pa (possible up to 256)



The Original



Rigid Structure



Extension Limiter



Reference Filter

Since over 50 years now, the Andreae Original has been the reference filter on the market. It remains the most universal and common filter in use. Our Original is made with 2 layers of heavy "kraft" paper, punched, pleated and glued together with 2 built-in extension limiters. Thanks to these limiters, the maximum load capacity is guaranteed. The Original is the filter for all paint types.



Performances

Load	Efficiency	
▼▼▼▼▼	▼▼▼▼▼	lacquers
▼▼▼▼▼	▼▼▼▼▼	High solids
▼▼▼▼▼	▼▼▼▼▼	Polyester Bi-Components

Load [kg/m²] [lbs/sqft]

Lacquers	High Solids	Polyester
10kg/m² 2lbs/sqft	12kg/m² 2,4lbs/sqft	13kg/m² 2,5lbs/sqft

Efficiency [%]

Lacquers	High Solids	Polyester
93.10%	98.20%	97.80%

Recommended Air Velocity:

0.5 to 1 m/s

Pressure drop at/by:

0.5 m/s	0.75 m/s	1.0 m/s
20 pa	30 pa	40 pa

Max. recommended pressure drop:

128 pa (possible up to 256)



High Capacity



Rigid Structure



Capacity Strips



High Capacity

The Andreae HC Original Filter has a loading capacity up to 5 times higher than any other filter type on the market. Its unique structure allows for more paint deposit areas and a more even and in depth paint loading. The HC is made with 2 layers of heavy "kraft" paper, punched, pleated and glued together with additional large paper strips on the front to offer a higher load capacity.



Performances

Load	Efficiency	
▼▼▼▼▼	▼▼▼▼▼	lacquers
▼▼▼▼▼	▼▼▼▼▼	High solids
▼▼▼▼▼	▼▼▼▼▼	Polyester Bi-Components

Load [kg/m²] [lbs/sqft]

Lacquers	High Solids	Polyester
13,7kg/m ² 2,7lbs/sqft	14,7kg/m ² 2,9lbs/sqft	13,9kg/m ² 2,8lbs/sqft

Efficiency [%]

Lacquers	High Solids	Polyester
93.90%	98.30%	98.20%

Recommended Air Velocity:

0.5 to 1 m/s

Pressure drop at/by:

0.5 m/s	0.75 m/s	1.0 m/s
21 pa	32 pa	42 pa

Max. recommended pressure drop:

128 pa (possible up to 256)



High Efficiency



Rigid Structure



Polyester Layer



High Efficiency

The Andreae HE Original Filter will bring a filtration efficiency near 100% while keeping the high loading capacity of the Andreae Original filter. The HE is made with 2 layers of heavy "kraft" paper, punched, pleated and glued together completed with a polyester layer on its back increasing its filtration efficiency.



Performances

Load	Efficiency	
▼▼▼▼▼	▼▼▼▼▼	lacquers
▼▼▼▼▼	▼▼▼▼▼	High solids
▼▼▼▼▼	▼▼▼▼▼	Polyester Bi-Components

Load [kg/m²] [lbs/sqft]

Lacquers	High Solids	Polyester
9kg/m ² 1,85lbs/sqft	12,2kg/m ² 2,4lbs/sqft	14,7kg/m ² 2,9lbs/sqft

Efficiency [%]

Lacquers	High Solids	Polyester
97.90%	99%	99.40%

Recommended Air Velocity:

0.5 to 1 m/s

Pressure drop at/by:

0.5 m/s	0.75 m/s	1.0 m/s
21 pa	32 pa	42 pa

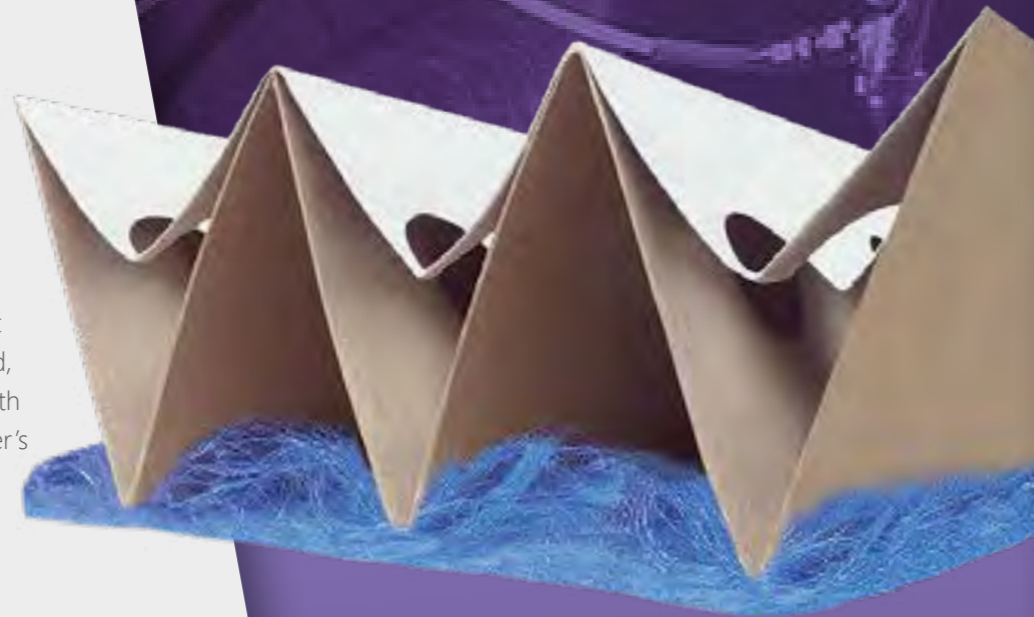
Max. recommended pressure drop:

128 pa (possible up to 256)



Rigid Structure Fiberglass Layer Efficiency

The Andrae HH Original filter has a higher filtration efficiency while keeping low airflow resistance. This means the filter lasts longer, ensuring a reduction in maintenance costs. The HH is made out of 2 layers of heavy "kraft" paper punched, pleated and glued together, completed with a fiberglass layer increasing both the filter's holding capacity and filtration efficiency.



Performances

Load	Efficiency	
▼▼▼▼▼	▼▼▼▼▼	lacquers
▼▼▼▼▼	▼▼▼▼▼	High solids
▼▼▼▼▼	▼▼▼▼▼	Polyester Bi-Components

Load [kg/m ²] [lbs/sqft]		
Lacquers 11kg/m ² 2,2lbs/sqft	High Solids 13kg/m ² 4,7lbs/sqft	Polyester 15kg/m ² 5,4lbs/sqft
Efficiency [%]		
Lacquers 97%	High Solids 98.50%	Polyester 98.50%
Recommended Air Velocity:		
0.5 to 1 m/s		
Pressure drop at/by:		
0.5 m/s 20 pa	0.75 m/s 30 pa	1.0 m/s 40 pa
Max. recommended pressure drop:		
128 pa (possible up to 256)		



Rigid Structure Capacity Strips Top Capacity Polyester Layer Top Efficiency

The Andrae HP Original filter combines the performances of the High Capacity and the High Efficiency filters. The HP is made with 2 layers of heavy "kraft" paper punched, pleated and glued together, completed with a polyester layer and additional large paper strips. It is the best-in-class choice for demanding spray booth operations.



Performances

Load	Efficiency	
▼▼▼▼▼	▼▼▼▼▼	lacquers
▼▼▼▼▼	▼▼▼▼▼	High solids
▼▼▼▼▼	▼▼▼▼▼	Polyester Bi-Components

Load [kg/m ²] [lbs/sqft]		
Lacquers 13,7kg/m ² 2,7lbs/sqft	High Solids 16,2kg/m ² 3,2lbs/sqft	Polyester 17,3kg/m ² 3,4lbs/sqft
Efficiency [%]		
Lacquers 98.50%	High Solids 98.80%	Polyester 99.70%
Recommended Air Velocity:		
0.5 to 1 m/s		
Pressure drop at/by:		
0.5 m/s 21 pa	0.75 m/s 32 pa	1.0 m/s 42 pa
Max. recommended pressure drop:		
128 pa (possible up to 256)		

Which Filter is available in your region?



	Model	Height		Length		Surface		
		cm	inch	m	feet	m ²	sqft	pleats
Brown	AF101	100	40	10	32' 6"	10	108	260
	AF701	75	29 1/2"	13,5	43' 9"	10	108	350
	AF801	90	36	9,24	30	8,35	90	240
	AF901	90	36	11,20	36' 1/2"	10	108	290
White	AF103	100	40	10	32' 6"	10	108	260
	AF703	75	29 1/2"	13,5	43' 9"	10	108	350
	AF803	90	36	9,24	30	8,35	90	240
	AF903	90	36	11,20	36' 1/2"	10	108	290
Ignifuge	AF102	100	40	10	32' 6"	10	108	260
	AF702	75	29 1/2"	13,5	43' 9"	10	108	350
	AF802	90	36	9,24	30	8,35	90	240
	AF902	90	36	9,144	30	10	108	290



Brown	AF111	100	40	10	32' 6"	10	108	260
	AF711	75	29 1/2"	13,5	43' 9"	10	108	350
	AF811	90	36	9,24	30	8,35	90	240
	AF911	90	36	11,15	36' 1/2"	10	108	290
White	AF113	100	40	10	32' 6"	10	108	260
	AF713	75	29 1/2"	13,5	43' 9"	10	108	350
	AF813	90	36	9,24	30	8,35	90	240
	AF913	90	36	11,15	36' 1/2"	10	108	290
	Pads: AF213	50	20	50cm	20"	0,25	2,8	13
Pads: AF413	50	20	63cm	25"	0,3	3,5	16	
Ignifuge	AF112	100	40	10	32' 6"	10	108	260
	AF712	75	29 1/2"	13,5	43' 9"	10	108	350
	AF812	90	36	9,24	30	8,35	90	240
	AF912	90	36	11,15	36' 1/2"	10	108	290



Brown	AF121	100	40	8	26' 1/4"	8	86	210
	AF721	75	29 1/2"	10,75	35' 1/4"	8	86	280
	AF921	90	36	9,14	30	8,35	90	240
White	AF123	100	40	8	26' 1/4"	8	86	210
	AF723	75	29 1/2"	10,75	35' 1/4"	8	86	280
	AF923	90	36	9,14	30	8,35	90	240
	Pads: AF223	50	20	50cm	20"	0,25	2,8	13
	Pads: AF423	50	20	63cm	25"	0,3	3,5	16



White	AF133	100	40	8	26' 1/4"	8	86	210
	AF733	75	29 1/2"	10,75	35' 1/4"	8	86	280
	AF933	90	36	9,14	30	8,35	90	240



White	AF143	100	40	8	26' 1/4"	8	86	210
	AF743	75	29 1/2"	10,75	35' 1/4"	8	86	280
	AF943	90	36	9,14	30	8,35	90	240



White	AF153	100	40	8	26' 1/4"	8	86	210
	AF753	75	29 1/2"	10,75	35' 1/4"	8	86	280
	AF953	90	36	9,14	30	8,35	90	240

	Model	Eastern Europe	Western Europe	North America	South America	Apac/mea
Brown	AF101	▼	▼	▼	▼	▼
	AF701	▼	▼	▼	▼	▼
	AF801	▼	▼	▼	▼	▼
	AF901	▼	▼	▼	▼	▼
White	AF103	▼	▼	▼	▼	▼
	AF703	▼	▼	▼	▼	▼
	AF803	▼	▼	▼	▼	▼
	AF903	▼	▼	▼	▼	▼
Ignifuge	AF102	▼	▼	▼	▼	▼
	AF702	▼	▼	▼	▼	▼
	AF802	▼	▼	▼	▼	▼
	AF902	▼	▼	▼	▼	▼

Filters per Pallet 60 60 60 60

Brown	AF111	▼	▼	▼	▼	▼
	AF711	▼	▼	▼	▼	▼
	AF811	▼	▼	▼	▼	▼
	AF911	▼	▼	▼	▼	▼
White	AF113	▼	▼	▼	▼	▼
	AF713	▼	▼	▼	▼	▼
	AF813	▼	▼	▼	▼	▼
	AF913	▼	▼	▼	▼	▼
	Pads: AF213	▼	▼	▼	▼	▼
Pads: AF413	▼	▼	▼	▼	▼	
Ignifuge	AF112	▼	▼	▼	▼	▼
	AF712	▼	▼	▼	▼	▼
	AF812	▼	▼	▼	▼	▼
	AF912	▼	▼	▼	▼	▼

Filters per Pallet 60 60 60/56 60 60 (pads: 56)

Brown	AF121	▼	▼	▼	▼	▼
	AF721	▼	▼	▼	▼	▼
	AF921	▼	▼	▼	▼	▼
White	AF123	▼	▼	▼	▼	▼
	AF723	▼	▼	▼	▼	▼
	AF923	▼	▼	▼	▼	▼
	Pads: AF223	▼	▼	▼	▼	▼
	Pads: AF423	▼	▼	▼	▼	▼

Filters per Pallet 56 56 56 56 56

White	AF133	▼	▼	▼	▼	▼
	AF733	▼	▼	▼	▼	▼
	AF933	▼	▼	▼	▼	▼

Filters per Pallet 60 60 60 60 60

White	AF143	▼	▼	▼	▼	▼
	AF743	▼	▼	▼	▼	▼
	AF943	▼	▼	▼	▼	▼

Filters per Pallet 60 56 56 56

White	AF153	▼	▼	▼	▼	▼
	AF753	▼	▼	▼	▼	▼
	AF953	▼	▼	▼	▼	▼

Filters per Pallet 52 56 56 52

Channel Frame Installation



① Cut filter length to fit frame opening:

Count marks to length the frame opening and cut. (i.e. 10 ft wide frame opening, count 10 marks and cut on the 10th mark; i.e. 3m wide frame opening, count 9 marks and 6 pleats, then cut).

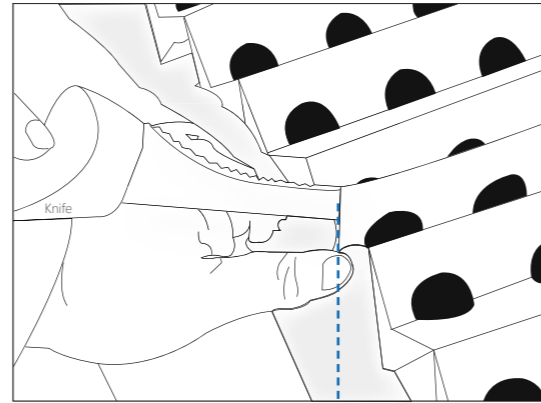
To cut, slide knife under pleat (and polyester if cutting the HE). After knife is in position, firmly grasp the filter and lift knife.

② Gather filter:

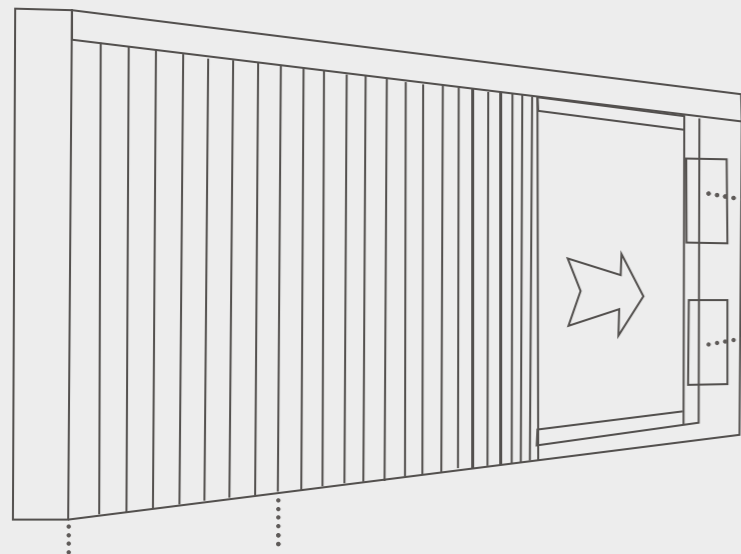
Gather filter into a tight accordion for easy transport. Slide filter into frame, white side facing toward spray gun. Release.

③ Tuck first and last pleats:

Behind clips on each end of exhaust frame.



You will cut through two paper layers (plus synthetic material in the High range). Pinch the pleats on either side beneath the knife for additional control while cutting.



8 pleats/foot
26 pleats/meter



Option A
L-shape clip

The filter is held by the clip.
This example is option A L-Shape clip



Option B
S-shape clip

Do not over-extend the filter.
Over-extension reduces arrestance efficiency and filter life.

Exhaust frame construction



Three simple elements constitute the Andreae Filter frame:

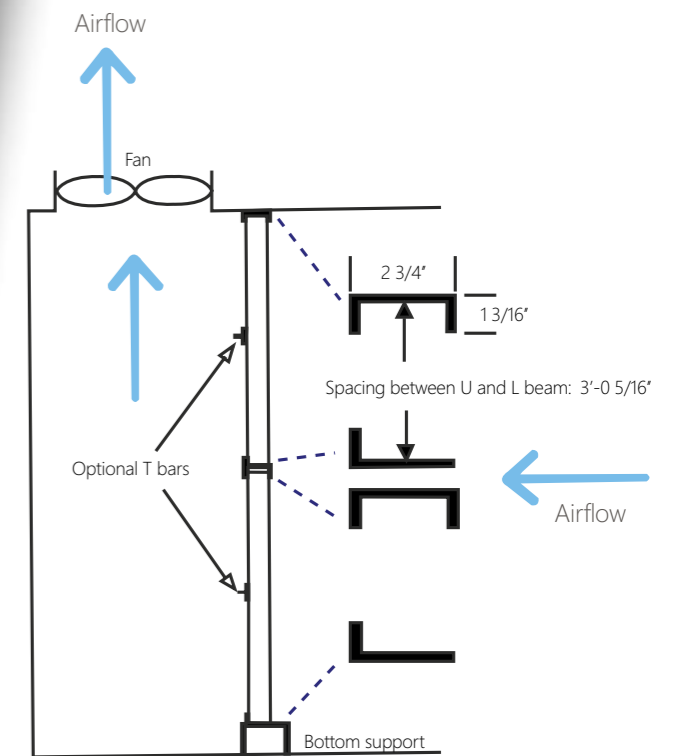
- ① An L-shaped channel is positioned at the side and bottom of the frame to create the filter stand support.

Dimensions:
Outside height 1 1/2 (3,81 cm) width 3" (7,62 cm), Length as required. Inside 2 13/16" (7,14 cm)

- ② The side clips secure the first and last filter pleat in place and seal the exhaust wall

- ③ A U-shaped channel is positioned upside down to create the upper part of the frame. This seals the top of the filter and prevents the filter from falling forward when the ventilation is turned off.

Dimensions:
Outside height 1 1/2 (3,81 cm) width 3" (7,62 cm), Length as required. Inside width 2 5/8" (6,66 cm)



Andreae Filters are held in place by an inverted U-beam on top and an L-beam on bottom. If the booth has several rows of filters, each row is installed on top of the adjoining beam.

The inner dimensions between the U and L beams must be sized ~0.2" more than the actual filter height to allow room for the filter to slide into the frame.

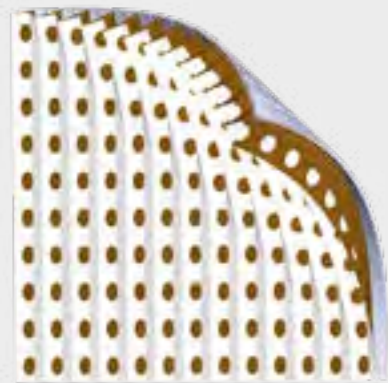
The Pad Frame Installation



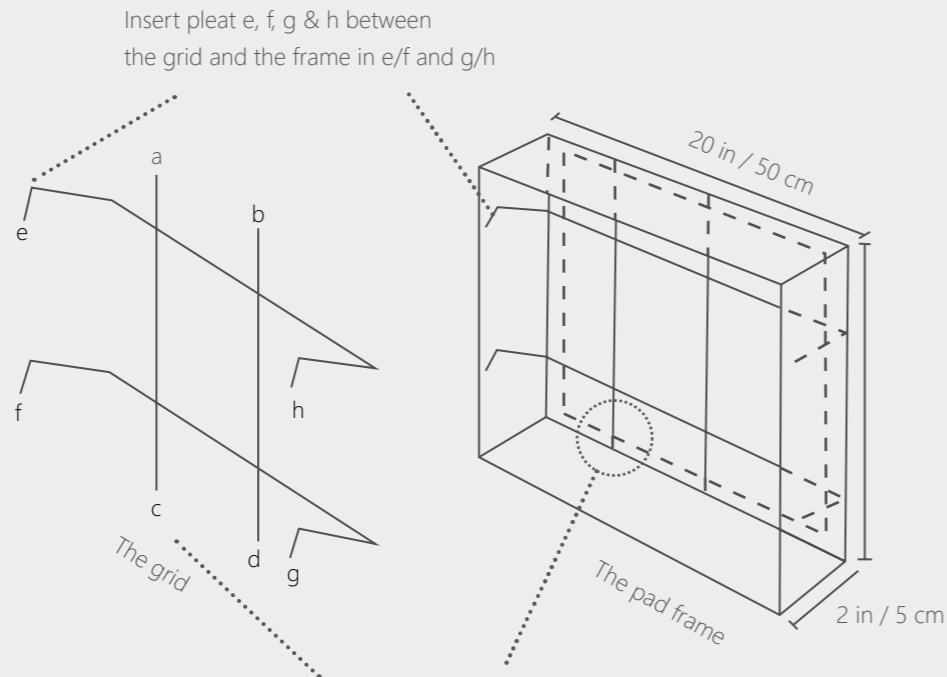
Andreae Wire Supports is necessary for the installation of Andreae pad size filters: 20 x 20 inch and 20 x 25 inch (50 x 50 cm and 50 x 63.5 cm).

An initial adjustment of the wire supports is required for proper fit. Over bend wires to allow 1/8 in (0.32 cm) gap between wire support arm and frame wall.

The pad is already cut



Example of 20 x 20 inch (50 x 50 cm) pad (14 pleats)



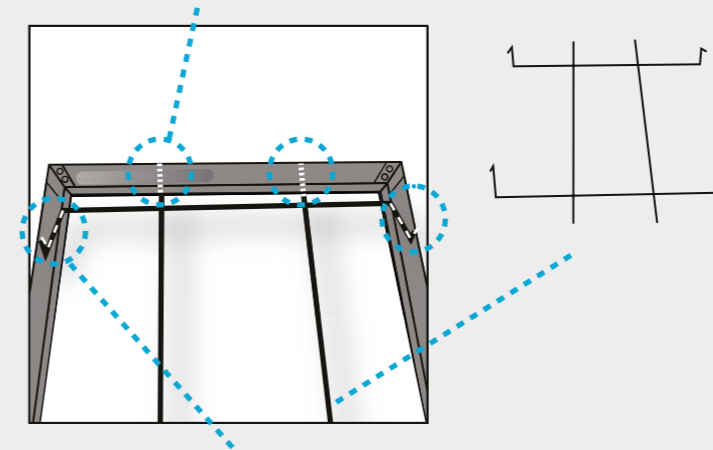
One time installation

If you are changing from other media, we will provide Andreae Filter Supports free of charge.

The pad filter support Installation

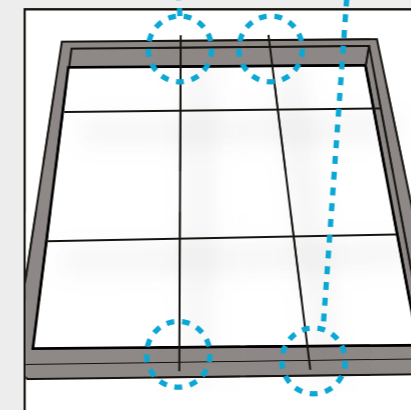


Front view cell frame
Straight tines behind the filter frame

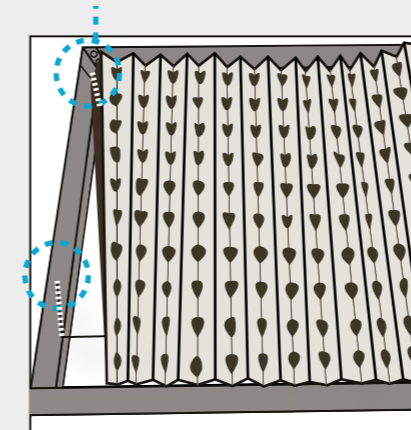


Wire support grid into filter frame

Back view cell frame
Four straight tines positioned behind the filter frame



Front view cell frame
Filter is held between the bent tines and the filter frame.



- 1 Insert two straight tines behind the filter frame. (Frame shown depicts a cell opening in an existing spray booth exhaust bank.) The straight tines must run vertically in order to be able to extend properly the Andreae Filter from side to side.

You may insert either the top or bottom pair, it does not matter which end is inserted first.

- 2 Push the wire support grid into filter frame, sliding grid up or down so that the remaining two straight tines can also be positioned behind the filter frame.

- 3 Once all four straight tines are behind the frame, slide the support to center it within the frame. It is not necessary to position the support perfectly.

Rear view of filter frame showing all four straight tines positioned behind the filter frame. These may overhang the frame more on one end or the other, depending on how well the support is centered within the frame.

It is not necessary to perfectly center the wire support.

- 4 Secure Andreae Filter within frame: tuck first rear pleat of the filter between bent tines and filter frame.

The tines will puncture the polyester backing of the filter when installing the Andreae High Efficiency Filter, but this does not affect the filter's performance.

AEREM[®]

TO FILTER & PROTECT

OUR MISSION

AEREM focuses on its customers and partners needs in the finishing industry. Every relationship is a privileged partnership based on professionalism, dialog and trust. Delivering the best service with performant, environmentally friendly quality products easy to dispose of is our commitment since 1963.

Our mission is to develop, manufacture and supply high performant filtration and protection products for spray booths that aim to keep a clean and safe working environment while enhancing the spray booths productivity.

OUR VISION

AEREMs ambition is to affirm its position by becoming an international multi-brand company focused on the global finishing industry with a wide variety of renowned and innovative filtration and protection products.

OUR VALUES

AEREM is above all a work of men and women united around the world for the success of the Group. They all share the same values in a solidarity and caring climate.

ENVIRONMENT

Protecting the environment is the responsibility of everyone. AEREM uses recycled raw materials in all of its products. Our sharply tuned and performant production processes results in low waste and low energy consumption.

PROTECTION

We seriously consider the need to protect the operator and provide a secure working environment through our products and services. This is why our filters are free of polluting or toxic products. They can be stored, handled and incinerated or landfilled safely.

CUSTOMER CARE

Because all our customers are important, our priority is to support them in their projects, build and maintain a long-term partnership to be able to bring the answers adapted to each need. Over 900 distributors around the world trust us.

MULTICULTURALISM

Aerem is a selfie of multiculturalism and diversity. Our teams are made of men and women of different languages, cultures and origins. It is in this spirit of openness and diversity that we seek to build a partnership with you.

RESPECT & INTEGRITY

We treat others with respect and comply with all internal and external norms and regulations. We strive to always act with transparency and honesty.

Please, visit the toolbox section on our website for all your technical questions:

www.andreaefilters.com

AEREM LOCATIONS WORLDWIDE



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HONK-KONG

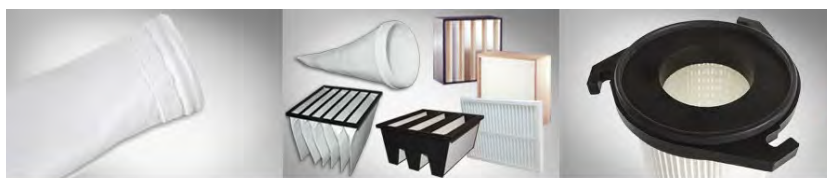
20th Floor, Euro Trade Center
21-23 Des Voeux Road Central
Tel: +852 2824 8156
Customers.api@aerem.com

AEREM[®]
TO FILTER & PROTECT

www.aerem.com

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Data sheet - Paint Stop

Composition	Glass fibers
Width [m]	2
Bonding	Chemical by binders
Area Weight [g/m²]	220
Thickness (before packaging) [mm.]	50
Face Velocity [m/s]	0.7 - 1.75
Initial resistance [Pa]	6 - 30
Recomended final resistance [Pa]	80
Air flow per m² [m³/h]	2.500 - 6.300
Paint spraying retaining capacity [g/m²]	3.500
Paint overspray Arrestance [%]	90 - 95
Temperature Limits [°C]	From -15 to +80
Media colour	Green tint air leaving side

Technical parameters are checked during actual processing and are subject to usual tolerances. This information does not express or imply any guarantee and the right is reserved to make any modifications without notice.



DESCRIPTION

The VNF media are synthetic fibre-based filters designed and manufactured at Filtrair's own high-tech media plant. The media are constructed from selected high performance, non-breakable fibres in a progressive density multi-layering technique to ensure high depth loading with and optimal low pressure drop, while achieving gravimetric arrestance and efficiency levels in accordance with EN779:2002 standards ratings.

The VNF series is thermally bonded in part and stiffened to ensure high dust holding capacity. The clean air sides are smoothed and imprinted for easy identification to ensure the correct installation in pads, roll or extended surface pocket format

The Filtrair media conforms to all EU and U.S. fire classification standards (e.g. DIN 53438-F1 and UL 900-class 2) and are self-extinguishing.

Constant quality is ensured by independent quality control testing according to EN779:2002 and the individual DIN logo and Filtrair registration number, which are imprinted on the media, together with the G3 classification and the FILTRAIR brand name

FEATURES

- Available as bulk media rolls, or pads cut to size
- Conforms to U.S and EU fire classification standards

- Graduated density
- High dust holding capacity
- Consistent media quality is ensured by independent quality control testing according to EN779:2002
- Washable media that can be serviced up to ten times
- 100% synthetic media.
- Low initial pressure drop
- Can be manufactured into cut pads, panel filters (including VF style) and extended surface pocket filters

APPLICATIONS

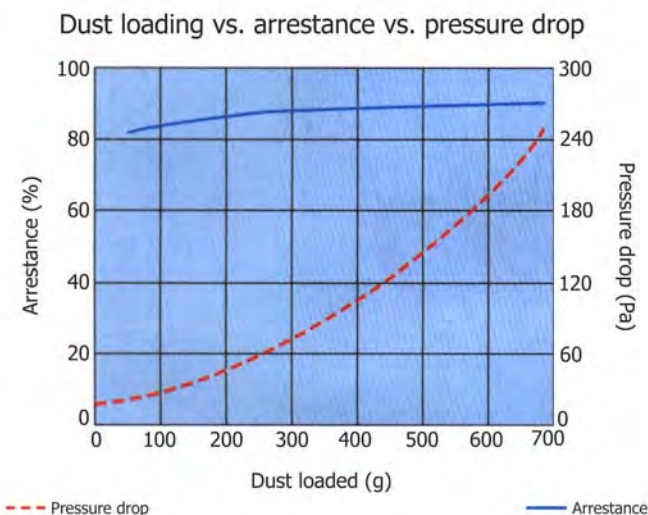
Filtrair's VNF 290 media is designed as an economical air filter media for use as prefiltration or coarse filtration in general ventilation and air handling systems installed in public buildings, offices, factories and equipment of all kinds. The VNF series combines a high dust holding capacity with a relatively low pressure drop and is therefore extremely cost effective with a long filter life.

SERVICE/MAINTENANCE

Service to all washable filters can be performed by simply washing in cold water and mild detergent up to 10 times, using an approved washing facility. This service can also be carried out by our trained service technicians if required (ask our representative about our competitive service/maintenance contracts).

Your Authorised Distributor:

FILTRATION TECHNICAL PERFORMANCE CHARACTERISTICS (according to EN779:2002, ANSI/ASHRAE 52.1-1992)



TECHNICAL DATA – VNF SERIES

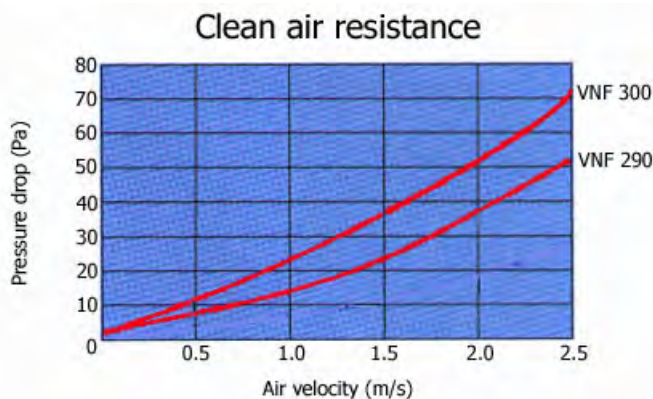
Filtrair air filter media	VNF 290
Average arrestance (acc. EN779:2002)	86%
Initial efficiency (dust spot)	<20%
Air velocity (m/s)	1.50
Rated air flow (m ³ /h/m ²)	5400
Initial pressure drop (Pa)	24
Final pressure drop (Pa)	250
Dust holding at tested final (g/m ²)	620
Class according to EN779:2002	G3

Temperature resistance, constant	Up to 100°C
Temperature resistance, short peaks	Up to 120°C
Nominal thickness (mm)	20
Relative humidity	Up to 100%
Standard roll size (m)	2.0 x 20
Regenerable / washable	yes

Application specialties

Particularly suited for:

- General air handling units
- Air conditioning systems
- Ventilation systems of all kinds
- Air intake prefiltration banks
- Window air conditioners
- Home furnace air heaters
- Railroad car ventilation
- Intake and exhaust air systems for heavy industry and chemical plants



All data given are average indicative values with usual accepted tolerances due to manufacturing variations and inherent testing tolerances. All specific performance data will require explicit written confirmation. FILTRAIR® is the registered trade mark of FILTRAIR b.v.



Your Authorised Distributor:



Peregrine Industries Pty. Ltd.

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 (PO Box 78 Somerton ... 3062)
 Campbellfield, Victoria ... 3061
 Phone: +61 3 9303 9888 Fax: +61 3 9303 9688
www.peregrineindustries.com.au



December 16, 2021

Jérôme Doucet
MARMEN INC.
557, rue des Érables
Trois-Rivières (Québec) G8T 8Y8

Reference: Munters Budgetary Proposal No. 22162132 R1

Dear Jérôme,

Munters is pleased to submit this revised budgetary proposal for a zeolite Rotor Concentrator for your wind tower application in Albany. We are proposing two identical systems, model IZS-4200-TH. Each system will accommodate an exhaust flow of 80,000 Am³/hr.

Per your request, we have increased the destruction efficiency of the system from 90% to 95% DRE. With this change we are still able to use a single 4.2m diameter zeolite rotor in each system, but the size of the thermal oxidizer has increased to 4,000 SCFM.

Each IZS-4200-TH consists of a 4.2m diameter zeolite rotor, process fan, recuperative thermal oxidizer, and automatic controls. Pricing for an 85 ft exhaust stack will be provided separately.

Each system will concentrate the exhaust flow 11 times, so at the maximum solvent loading of 65 kg/hr (to each RCTO) the concentrate stream will be at approximately 20% of the LFL. Therefore, no LFL monitoring will be required.

All major components of the equipment are manufactured in the US. The zeolite rotors are manufactured in Munters Massachusetts factory. Munters looks forward to working with you on this project. If you have questions or need further information please feel free to contact me.

Best regards,

Pete Krenitsky
Sr. Sales Engineer
Munters Corporation

(978) 872-5533
Pete.Krenitsky@munters.com

Munters Corporation
79 Monroe Street, P.O. Box 600
Amesbury, MA 01913-0600 U.S.A.



THE MUNTERS ADVANAGE

Munters Corporation, headquartered in Stockholm, Sweden, is a 60 year old air treatment technologies company with offices located in 27 countries. Our equipment is manufactured in our Massachusetts plant, which also is our rotor technology center and the only facility in North America manufacturing zeolite rotors for VOC abatement.

Munters was instrumental in developing the zeolite rotor for use in solvent exhaust applications in the mid 1980's. Since that time, we have provided zeolite rotors for many of the world's leading manufacturing companies including General Dymanics NASSCO Shipyard, Bombardier, Lockheed Martin, General Motors, Chrysler, Caterpillar, and CS Wind.

Munters has been recognized in the industry for award winning quality and service. In 2013, we were awarded our seventh quality award from Intel Corporation for the superior quality and service provided on their VOC abatement systems. As part of Intel's program, Munters has shown continuous improvement in the areas of safety, value engineering, delivery performance, and customer satisfaction.

SOLUTION HIGHLIGHTS

Our proposal includes the following features:

- **Proven VOC Abatement Performance**
Provides 95% DRE VOC capture based on design conditions
- **Reliability and Service Capabilities**
Our systems require only 1-2 days downtime per year for scheduled maintenance. Local service technicians are dispatched from regional offices across the US.
- **Operational Flexibility**
Production can operate 24/7. Zeolite rotors are continuously regenerated.
- **Packaged Design**
Systems are designed for ease of installation and start-up.
- **Manufacturing Quality and Control**
Our facility quality management system is ISO 9001:2000 and applicable to the design, manufacture and after sales service of VOC abatement systems.
- **Application Experience**
More than 300 installations worldwide. 50 years of manufacturing experience.

SYSTEM DESCRIPTION

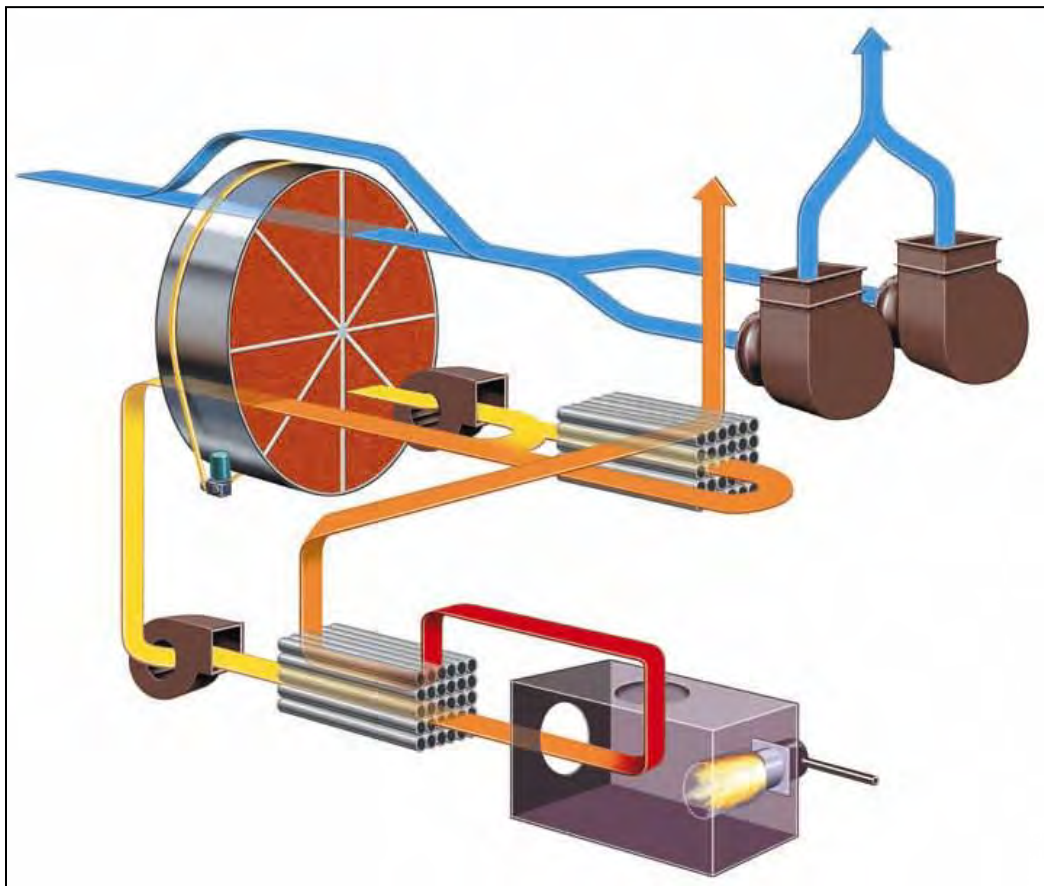
The Munters Zeol[®] Rotor Concentrator is a pollution control device designed to remove volatile organic compounds (VOC) from air streams. The system includes two process steps:

- 1) Concentration of the VOC using a Hydrophobic Zeolite Rotor, and
- 2) Post treatment of the concentrated VOC, by thermal oxidation.

As solvent laden air is drawn through the HoneyCombe rotor, VOCs are removed from the air by adsorption onto the hydrophobic zeolite. The cleaned air passes through the rotor and is discharged to the atmosphere.

The Zeol Rotor turns at a speed of one to six revolutions per hour, continuously transporting adsorbed VOCs into a desorption sector, and returning regenerated zeolite to the process air stream. In the desorption sector, the adsorbed VOC are removed from the zeolite with a small stream of heated air.

The desorbate (or concentrate) is sent to an oxidizer, where the VOC are converted to water vapor and CO₂. Natural gas or propane fuel is supplied to reach the necessary oxidation temperature.





NOTE ON LOWER FLAMABLE LIMIT (LFL) MONITORING

The LFL of the exhaust stream will obviously change with the paints being sprayed at any given time. In calculating the LFL of the concentrate stream to the thermal oxidizer, we have calculated the LFL based on the mix of VOCs found in the Design Summary on page 5.

Using this mix, the weighted LFL of this paint mixture would be 9950 ppm. The concentrate stream to the oxidizer would be 2050 ppm, or 20.6% of the LFL.

Our calculation uses the theoretic maximum loading of 64.7 kg/hr of VOC reaching the concentrator, so it is safe to assume the LFL to the oxidizer will be even lower than 20.6%.

Since 2050 ppm is < 25% of the LFL, no LFL monitoring would be necessary per NFPA 86, and Munters has not included LFL monitors in our scope.

Should Marmen decide that they want LFL monitoring in each system regardless, Munters could add them for an additional price of \$ 38,000 for each system (\$ 76,000 for two). Start-up and training of the two devices would be handled by the analyzer vendor for an additional \$ 10,700 (for two).

DESIGN SUMMARY (each RCTO)

DESIGN CRITERIA	
Exhaust Flow	80,000 Am ³ /hr (44,340 SCFM)
Exhaust Temperature	70° F - 100° F
Exhaust Relative Humidity	60%
VOC Loading	64.7 kg/hr (maximum)
Inlet Static Pressure	-1 in W.C.
VOC Constituents	Naphtha 25% n-Butanol 25% n-Butyl acetate 15% Xylene 15% Ethyl benzene 17% Other 3%
Rotor Configuration	One 4.2m diameter rotor
Concentration Ratio	11:1
Concentrate Flow to Oxidizer	4,000 SCFM
System Removal Efficiency	95% or < 10 ppmv as C ₁

UTILITY REQUIREMENT	
Electrical	480V/3Φ/60hz
Natural Gas	3-5 psig
Compressed Air	10 SCFM peak @ 80-150 psig -40°F dew point

ENERGY USE	kW	MM BTU/hr
No VOC	47	3.73
Half VOC Load (32.4 kg/hr)	47	2.00
Max VOC Load (64.7 kg/hr)	47	0.28



EQUIPMENT SCOPE OF SUPPLY – One IZS-4200-TH

Included = I, Not Included = N, Optional = O				
Equipment Description	I	N	O	Detail/Comments
Concentrator Skid				
Zeolite Rotor	X			4.2 meter diameter rotor
Seals	X			Silicone
Rotor Drive w/ redundant belts	X			
Inlet/Outlet Plenums	X			
Pre-filtration System		X		
System Ductwork				
Desorption Duct	X			
Concentrate Duct	X			
Cooling Duct	X			
Process Outlet Breech (Process fan to Stack)		X		
Oxidizer Exhaust Breech (to stack)		X		
Dampers / Actuators				
Inlet	X			pneumatic actuator (on/off)
Desorption	X			(2) linked with pneumatic actuator (modulating)
Concentrate Outlet	X			Required for combined stack systems (on/off)
Purge	X			pneumatic actuator (on/off)
Fans & VFDs				
Process Fan	X			NY Blower
• VFD	X			Yaskawa – appx 100 HP
• Motor	X			WEG – appx 100 HP
Cooling Fan	X			NY Blower
Oxidizer Fan	X			NY Blower

Included = I, Not Included = N, Optional = O				
Equipment Description	I	N	O	Detail/Comments
Controls				
Main Control Panel	X			NEMA 4
• Programmable Logic Controller (PLC)	X			Allen Bradley Compactlogix
• Human Machine Interface (HMI)	X			Allen Bradley PanelView 700
• Chart Recorder	X			Honeywell EZTrend Qxe
• Air conditioner	X			
• UPS for PLC		X		
Oxidizer				
Thermal Recuperative Oxidizer				
• 2-stage heat recovery	X			
• Burner	X			Eclipse RM Low-NOx
• LFL Analyzer		X		
Stack(s)				
Process Stack		X		Combined process stack with 2 breaches for clean rotor outlet exhaust + oxidizer exhaust. Stack will be designed for 44,700 SCFM at 160° F. Stack I.D. approximately 50"



ON-SITE SERVICES SCOPE OF SUPPLY

Included = I, Not Included = N			
Service Description	I	N	Detail/Comments
Startup Activities			
Start Up and Commissioning Assistance	X		
Installation Supervision	X		
Operator Training	X		
Return Visit to Optimize System Performance Prior to Compliance Test	X		
Installation Activities			
Foundation		X	
Crane Rental		X	
Rig and Set Equipment		X	
Supply and Install Exhaust Stack		X	
Reconnection of Electrical and Mechanical Shipping Splits		X	
Process Duct to Rotor Concentrator Inlet		X	
Process Fan Outlet to Exhaust Stack		X	
Oxidizer Outlet to Exhaust Stack		X	
Supply and Installation of Process Inlet Pressure Transmitter and Control Wiring to Panel		X	
Gas Piping		X	
Air Piping		X	
Power Feed Wiring		X	
Process/Control Wiring/Integration with BMS		X	
Local Certifications		X	
Instrumentation Calibration Certifications		X	
Seismic Certification and PE Stamped Drawings		X	
On-Site Fan Balancing		X	
Construction and Operating Permits		X	
Environmental Compliance Testing		X	



APPROXIMATE DIMENSIONS

Each RCTO will ship as 3 skids, plus one or two pallets of parts/duct pieces

Skid 1 – Rotor Concentrator

252”L x 177”W

Skid 2 – Fan Skid

100”L x 177”W

Skid 3 – Thermal Oxidizer

340”L x 85”W



WORK BY OTHERS - ITEMS NOT INCLUDED

- Equipment receiving, rigging, installation, and reassembly
- Supply and installation of a level concrete pad or steel support structure
- Process bypass dampers and ductwork
- Supply and installation of exhaust stack and breeching to stack
- Installation of utility connections (electrical, natural gas, compressed air)
- Integration with BMS and/or SCADA system
- All operating permits, installation permits, and building permits
- Environmental compliance testing
- Taxes
- Freight

ESTIMATED INSTALLATION RESOURCE PLANNING

Equipment will be assembled and tested in Munters factory, then disassembled for shipment. Installation will include rigging and setting the 3 skids (each RCTO), reassembling ductwork, electrical, and pressure tubing connections, and completing utility connections.

Rigging Setting – 1 Day for 2 RCTOs

Mechanical Re-assembly – 4 Days per RCTO, 3 men + eqt rental

Electrical Re-assembly – 2 Days per RCTO, 2 men

Utility Connections – 3 Days per RCTO, 2 men



PRICE SUMMARY

System Budget Pricing

Two (2) Model IZS-4200-TH RCTO	\$ 2,024,000
--------------------------------	--------------

Services Budget Pricing

Installation Supervision – 2 weeks, includes both RCTOs	
Start-up and Training – 3 weeks, includes both RCTOs	
Compliance Test Return Visit	
	\$ 70,500

NOTES

Ex-works Munters Factory, Amesbury MA
Taxes are not included
Pricing is valid for 30 days

PAYMENT TERMS

25% NET 30: With order
30% NET 30: Upon customer receipt of submittals, received prior manufacturing
40% NET 30: Upon shipment, or prior to start-up assistance, whichever occurs first
5% NET 60: Upon start-up or 60 days from shipment, whichever occurs first

ESTIMATED LEAD TIME

Estimated equipment ship date is 30 weeks ARO for RCTO #1 and 32 weeks ARO for RCTO #2

TERMS AND CONDITIONS

Please refer to the attached Terms and Conditions of Sale.

ZEOLITE ROTOR CONCENTRATOR SYSTEMS



Munters ZEOL
Innovative solutions for VOC abatement





Leading the World in VOC Abatement

There are many industrial processes that produce exhaust vapors with volatile organic compounds (VOCs) or odorous emissions that can be harmful to human health and the environment. Global environmental laws are imposed to require treatment of VOCs and odors before they can be released to the atmosphere. Environmental sustainability means meeting regulations at the lowest lifetime cost while minimizing energy consumption and secondary pollutants. Munters offers the most energy-efficient VOC abatement technology which allows efficient removal of exhaust organic contaminants, reduces energy consumption and ensures high equipment reliability (see illustration below).

Decades of Excellence and Innovation

Continuous research and engineering has led Munters to its position as worldwide market leader in air treatment technologies. Munters is an air treatment technology company, founded by inventor Carl Munters, and headquartered in Sweden. Munters pioneered the commercial use of zeolite for adsorption of VOCs. With the combination of breakthrough zeolite research and time-tested Munters rotor technology, Munters Zeolite Rotor Concentrator Systems are the leading technology for cost-effective abatement of VOCs. With hundreds of systems currently in service, Munters installed base includes some of the world's most respected

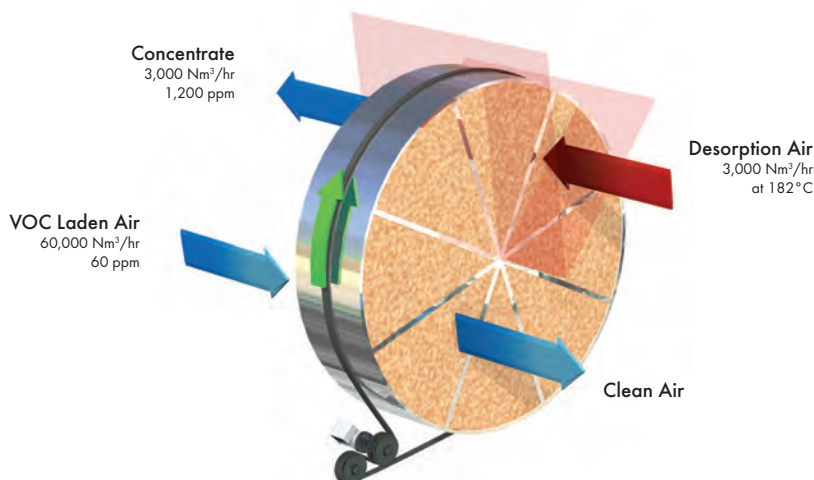
companies in semiconductor manufacturing, automotive and aerospace industries. Munters systems are known for their cost-effectiveness, reliability, maintenance-free design and durability.

ISO Certified Quality Manufacturing

Systems are engineered, manufactured and tested in Munters ISO 9001:2008 Certified Massachusetts manufacturing center, the only facility in the world that controls all aspects of manufacturing including the HoneyCombe® rotor structure and assembly of complete VOC abatement systems. Munters R&D group continuously works on product improvements and advancements in zeolite adsorption technology. Shipped worldwide, Zeol systems are supported by our international service organization.

Low Cost of Ownership

Munters concentrator systems have lower operating costs than regenerative thermal oxidizers (RTOs), recuperative thermal oxidizers and catalytic oxidizers. Less natural gas is required, and the low pressure drop across the system equates to smaller fans and lower electrical costs. Munters systems are engineered to operate continuously. Maintenance downtime is one day per year allowing customers to maximize production while taking advantage of minimal gas and electricity consumption.



Design Criteria

The following design guidelines apply for a typical zeolite concentrator application:

- Process exhaust air temperature less than 120°F
- Relative humidity less than 90%
- Solvent concentration of less than 1000 ppm
- Solvents (VOCs) with boiling points greater than 100°F

Integrated Zeol Systems (IZS)

Rotor Model	Rotor Diameter	Flow Capacity (SCFM)	Footprint*	Weight (lb)
IZS-1100-TH	1100 mm	1,000 - 6,000	25'L x 6'4"W x 8'3"H	15,000
IZS-1500-TH	1500 mm	3,000 - 10,000	40'L x 8'W x 12'H	20,000
IZS-2190-TH	2190 mm	4,800 - 17,000	44'L x 9'W x 12'H	28,000
IZS-2446-TH	2446 mm	9,500 - 28,000	48'L x 9'4"W x 12'8"H	30,000
IZS-2946-TH	2946 mm	14,500 - 40,000	52'L x 9'4"W x 13'9"H	46,000
IZS-3546-TH	3546 mm	24,000 - 60,000	54'L x 12'8"W x 15'6"H	48,000
IZS-4200-RTO	4200 mm	41,200 - 90,000	35'L x 35'W x 20'H	55,000

*Includes process fans and bypass. Munters can provide alternate arrangements to reduce length. 3'-4' maintenance access space required around perimeter.



Rotor Systems (RS)

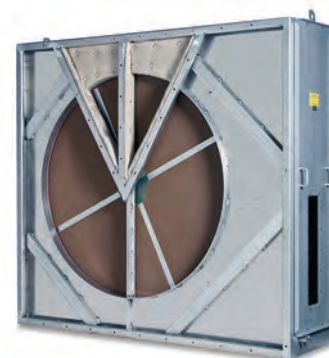
Rotor Model	Rotor Diameter	Flow Capacity (SCFM)	Footprint	Weight (lb)
RS-1100	1100 mm	1,000 - 6,000	11'L x 5'8"W x 5'6"H	2000
RS-1500	1500 mm	3,000 - 10,000	11'L x 7'W x 6'8"H	2300
RS-2190	2190 mm	4,800 - 17,000	13'L x 8'W x 8'2"H	3720
RS-2446	2446 mm	9,500 - 28,000	13'L x 9'2"W x 8'10"H	5550
RS-2946	2946 mm	14,500 - 40,000	13'L x 10'7"W x 10'4"H	7200
RS-3546	3546 mm	24,000 - 60,000	15'L x 12'6"W x 12'2"H	9000
RS-4200	4200 mm	41,200 - 90,000	15'L x 14'8"W x 14'4"H	9800



Basic Units (BU)

Rotor Model	Rotor Diameter	Flow Capacity (SCFM)	Footprint	Weight (lb)
BU-1500	1500 mm	3,000 - 10,000	2'L x 6'6"W x 6'8"H	600
BU-2190	2190 mm	4,800 - 17,000	3'L x 8'W x 8'2"H	2400
BU-2446	2446 mm	9,500 - 28,000	3'L x 9'2"W x 8'10"H	2800
BU-2946	2946 mm	14,500 - 40,000	3'L x 10'7"W x 10'4"H	3600
BU-3546	3546 mm	24,000 - 60,000	3'L x 12'6"W x 12'2"H	6000
BU-4200	4200 mm	41,200 - 90,000	3'L x 14'8"W x 14'4"H	6400

*1 SCFM = 1.58 Nm³/hr



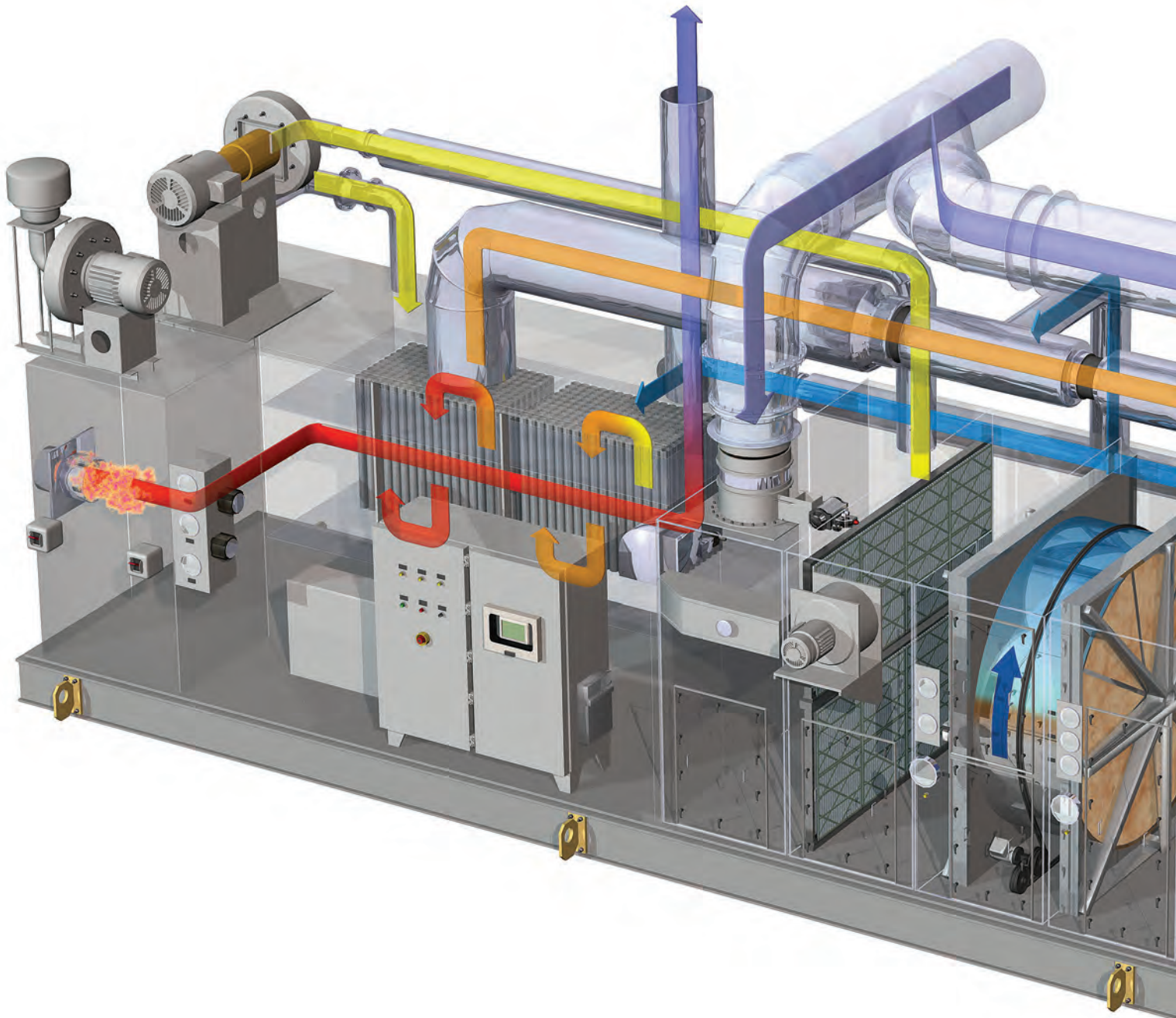
How the System Works

Solvent laden air is drawn through the HoneyCombe® rotor where VOCs are removed from the airstream by adsorption onto the hydrophobic zeolite. After passing through the rotor, the cleaned air is discharged into the atmosphere. The Zeolite rotor turns continuously (1-6 rph) transporting adsorbed VOCs into a regeneration zone. There, the VOCs are removed

by a small heated air stream that is 5-10% of the process air volume. The regenerated zeolite is then rotated back into the process air stream.

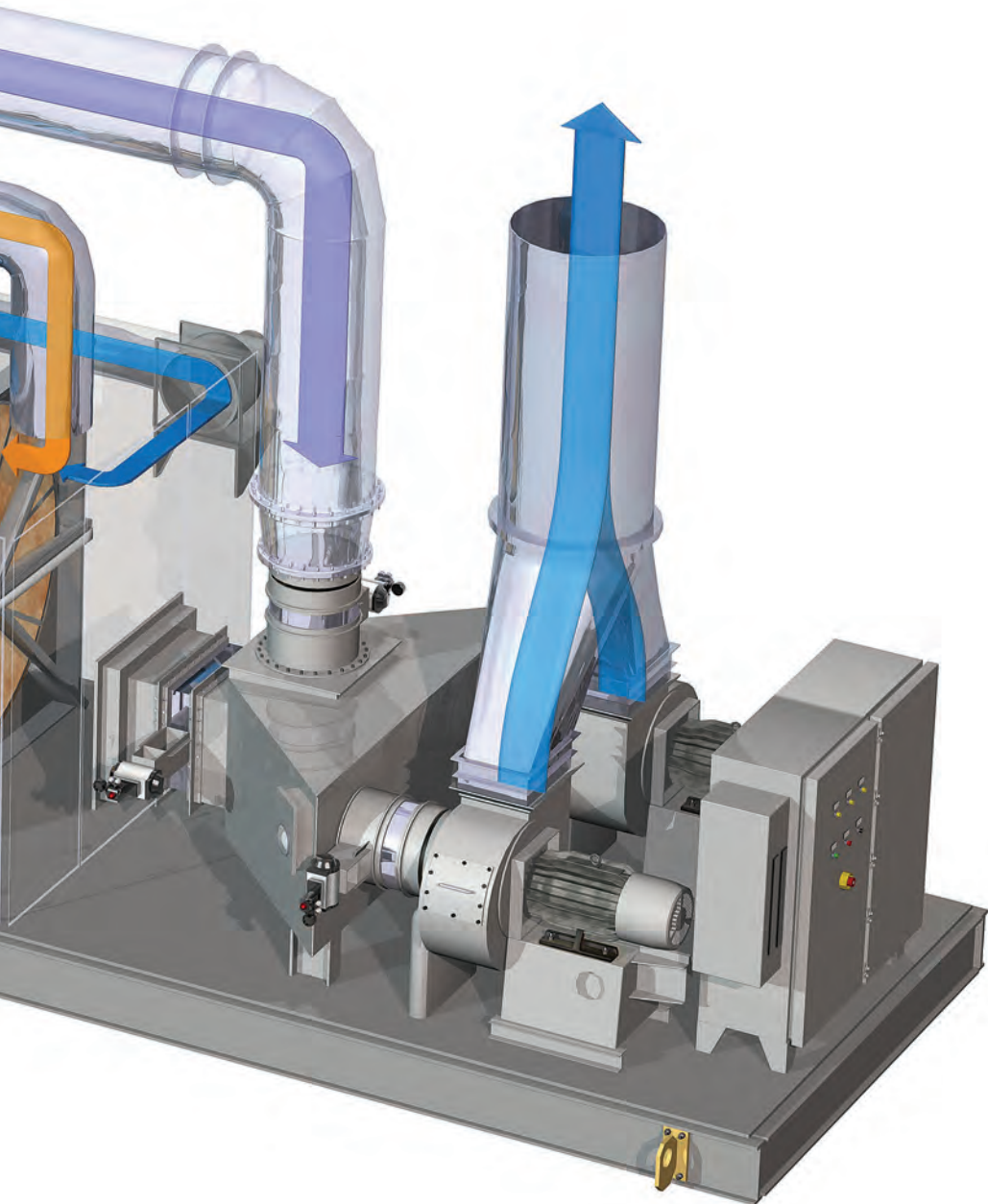
Care is taken in the design to ensure that the maximum VOC concentration does not exceed safety limits (i.e., 20-25% of LEL). The concentrate is typically sent to a small oxidizer where the VOCs are converted to water vapor and CO₂.

The energy content of the VOCs contributes to the oxidation process, further reducing the fuel requirement. Multiple heat exchangers are used to provide heat recovery on the oxidizer and to desorb the rotor and create additional fuel efficiency. Munters Zeolite Concentrators can achieve destruction and removal (DRE) efficiencies up to 99%.

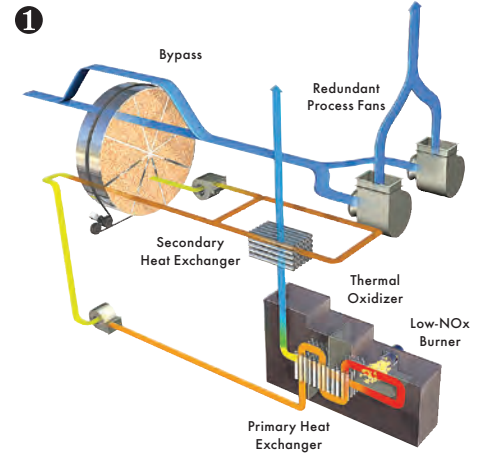


Typical VOCs Removed by Zeol Concentrators

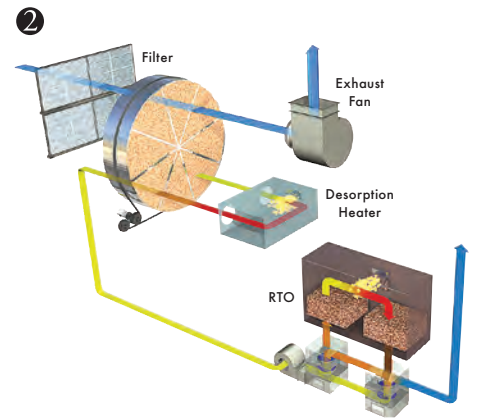
Xylene	Butyl Acetate	Methyl Ethyl Ketone
Toluene	Ethyl Acetate	Methyl Amyl Ketone
Benzene	Isopropanol	Methyl Isobutyl Ketone
Acetone	Trimethyl benzene	Propylene Glycol Monomethyl Ether (PGME)
Butanol	Trimethyl amine	Propylene Glycol Monomethyl Ether Acetate (PGMEA)
Ethanol	Ethanolamine	N-Methylpyrillidone (NMP)
Ethyl Lactate	Cyclohexanone	Dimethyl Sulfoxide (DMSO)



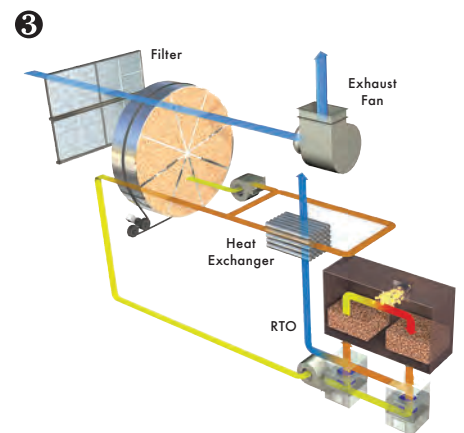
Configurations



1 Rotor with recuperative thermal oxidizer, redundant process fans, and exhaust bypass.



2 Rotor with RTO, desorption heater and particulate filtration.



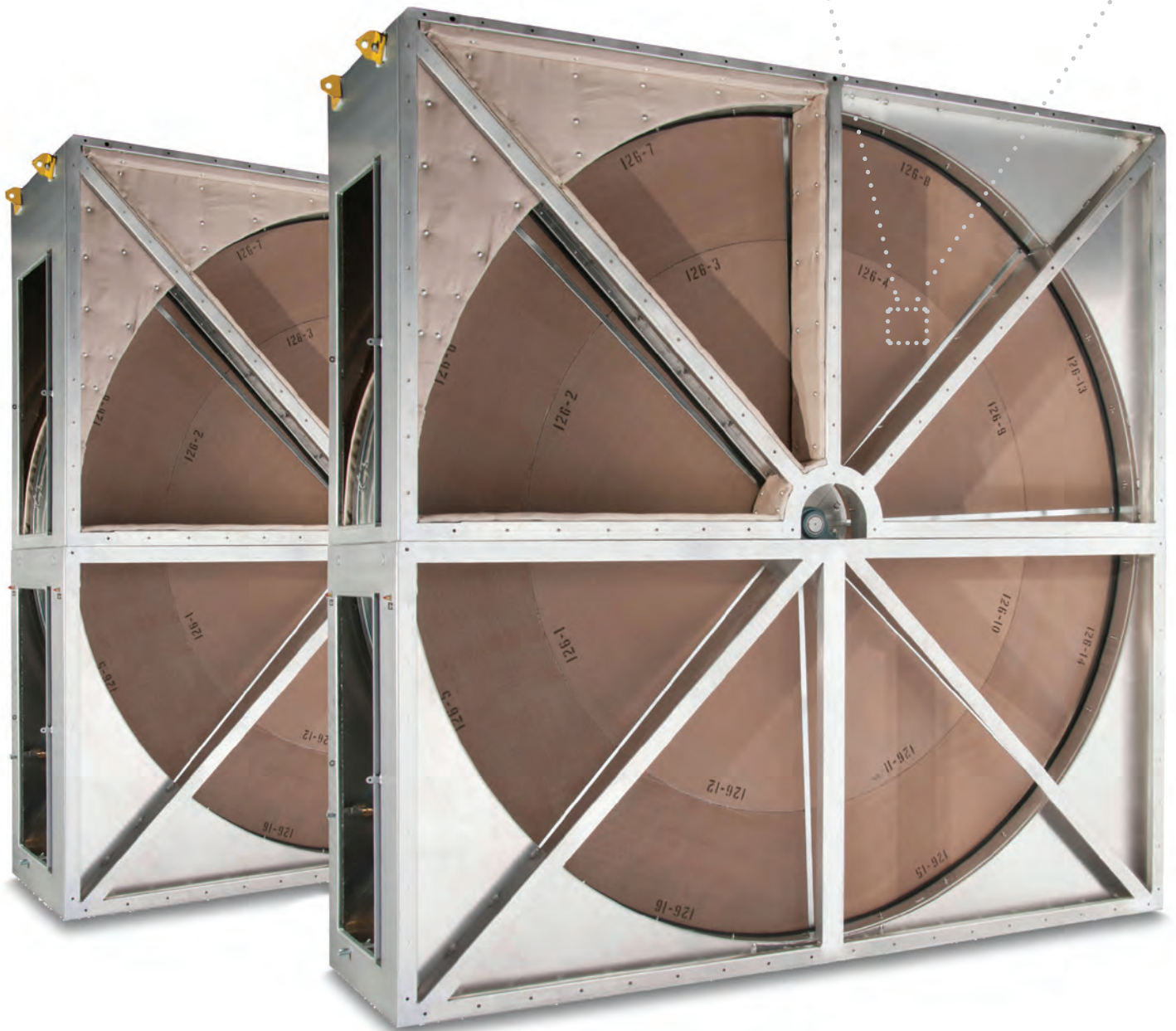
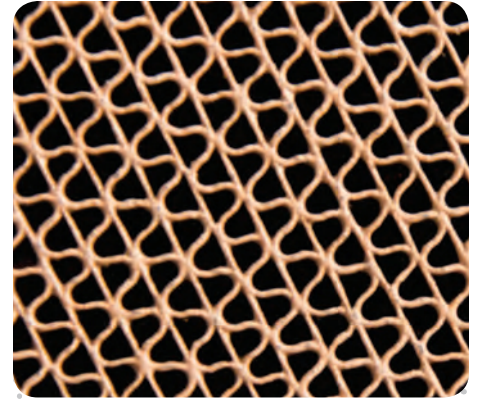
3 Rotor with RTO and heat exchanger for applications with high VOC load.

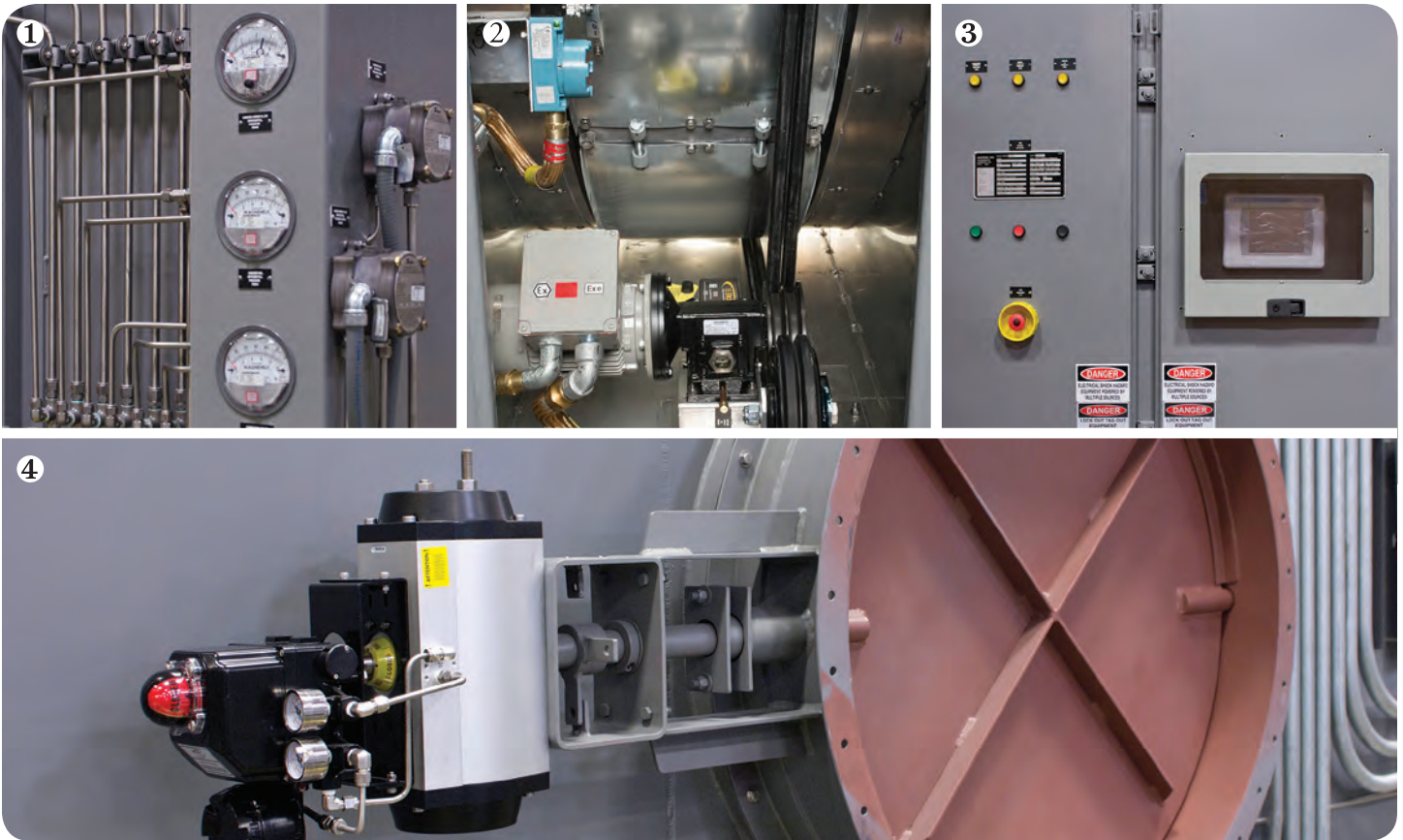
Maintenance-free, Self-Cleaning Zeolite Rotor

Munters proprietary zeolite is hydrophobic (does not adsorb water), so it uses all of its pores to attract and hold VOC molecules and is not impacted by high humidity. It is an inert, non-flammable, stable inorganic crystal, so it eliminates the fire risk associated with carbon adsorbers. Munters' zeolite HoneyCombe® rotors are manufactured from a corrugated mineral fiber substrate treated with proprietary zeolite and other inorganic materials to provide physical integrity, rigidity and enough flexibility to withstand thermal and mechanical stress. Air flow through the flutes is uniform and of low

velocity, resulting in very low pressure drop (less than 1.5" w.c.).

The rotor has few moving parts and low friction contact seals to prevent leakage. With decades of expertise, Munters engineers optimize each system for maintenance-free design including a "self-cleaning" feature that ensures 100% zeolite regeneration and zero buildup of VOC on the rotor during every revolution. High performance efficiency is maintained for the life of the rotor without the need for nuisance maintenance activities like water washing and high temperature bake-outs.





(1) Static pressure and temperature gauges provide continuous monitoring of system operation. (2) Explosion proof drive motor, inverter duty, UL listed (NEMA or IEC) with speed controller. (3) Allen Bradley controls system with touchscreen interface provided for operators. (4) Heavy duty low-leakage dampers with pneumatic actuators.

Worldwide Service

Munters manufactures engineered products that can economically control humidity and temperature, provide energy recovery, treat air emissions and/or utilize direct or indirect evaporative cooling for comfort, process and environmental protection. Munters offers a wide variety of options to meet specific climate, application and budget requirements. Munters has net sales approaching \$1 billion USD with more than 20 manufacturing facilities across the globe and sales offices in over 30 countries. Munters employs approximately 2,900 people worldwide.

24 Hour Emergency Service 1-800-843-5360

Munters can dispatch emergency service crews, provide troubleshooting by phone, or run remote diagnostics.

ServiceCaire Maintenance Programs

Field experience has repeatedly shown that customers who employ planned maintenance

can substantially extend their equipment life. By eliminating failures before they can occur, customers maximize both the utilization of Munters equipment and also lower the overall cost of ownership. The program includes a pre-determined number of visits and defined scope of work for specified equipment, or custom programs can be tailored to specific needs.

Parts

Replacement parts are inventoried at Munters Massachusetts manufacturing facility. In most cases, parts will ship out together the same day you call. Convenient spare part kits provide exact parts & intervals for guided self-service or service contracts to provide all PMs.

Startup Programs

Munters Startup service ensures that equipment has been installed properly and is commissioned to operate according to specifications. It allows the customer to receive appropriate

maintenance guidance and training for their particular installation. Munters can also provide re-assembly supervision, performance testing support, project management and turnkey installation services.

Engineered Retrofits

Munters can retrofit your existing system to increase capacity, improve performance, extend unit life and greatly reduce energy consumption. Munters also custom fabricates zeolite blocks for replacement of all zeolite and carbon rotor systems.



Industrial Applications

With hundreds of successful installations in many different industrial applications, Munters designs abatement systems to meet the individual needs of our customers. Extensive experience allows Munters to design optimal solutions for any application including, but not limited to:

- Spray paint finishing (automotive, aerospace, industrial)
- Coating operations
- Wood finishing
- Paint manufacturing
- Semiconductor manufacturing
- LCD/TFT flat panel display manufacturing
- Printing
- Flexible packaging
- Styrene/composites
- Pharmaceutical manufacturing
- Ground water remediation
- Investment casting



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Custom Options

Munters is the industry leader in zeolite rotor concentrator systems having over several hundred installed systems worldwide. Munters will optimize each system for local permit requirements and required destruction efficiency. Each system is custom designed to meet customer specific requirements. Options include:

- Modular design with flexible configurations
- Automatic system bypass to continue air exhaust during equipment shutdowns
- Redundant fans/VFDs for 100% up-time exhaust reliability
- Variable flow rates to reduce energy use
- Particulate pre-filters
- Heat exchangers for maximum fuel efficiency
- Pre-conditioning process air (i.e., temperature, humidity)
- Pressure control
- Flexible control packages with pre-programmed flatscreen interface (UL/CSA/CE)
- Remote monitoring
- Seismic restraints
- Vibration isolation
- Emission testing
- Exhaust stacks
- Carbon adsorption bypass
- Thermal Recuperative or Regenerative Oxidizers (RTOs)
- RTO hot gas bypass for high LELs can help further reduce energy consumption
- Acid gas scrubber for halogenated VOCs
- Commissioning, training, project management, turnkey installation



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