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Regional Office



# TIER I OPERATING PERMIT RENEWAL APPLICATION

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SPUNSTRAND, INC.

APRIL 2012

Prepared for: **Spunstrand, Inc.**  
**Attn: Kirk Nelson**  
**60662 Northside Frontage Road**  
**Wallace, ID 83873**  
**(208) 752-1157**

Prepared by: **Spring Environmental, Inc.**  
**1011 N. Cedar Street**  
**Spokane, WA 99201**  
**509-328-7500**

*Beth Fifield Hodgson*  
**Beth Fifield Hodgson, P.E.**  
*Principal Engineer*

Issue date: **April 23, 2012**

# TIER I RENEWAL APPLICATION

SPUNSTRAND, INC.

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Please see instructions on page 2 before filling out the form.

**COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER**

1. Company Name	Spunstrand, Inc.		
2. Facility Name	Spunstrand, Inc.	3. Facility ID No.	079-00038
4. Brief Project Description - One sentence or less	Tier 1 Operating Permit Renewal		

**PERMIT APPLICATION TYPE**

5.  Initial Tier I  Tier I Administrative Amendment  Tier I Minor Modification  Tier I Significant Modification  
 Tier I Renewal: Permit No.: TI-030111 Date Issued: October 24, 2007

**FORMS INCLUDED**

Include d	N/A	Forms	DEQ Verify
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form CSTI – Cover Sheet	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form GI – Facility Information	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form EU0 – Emissions Units General Number of EU0s attached: <u>5</u>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU1– Industrial Engine Information Please specify number of EU1s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU2– Nonmetallic Mineral Processing Plants Please specify number of EU2s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU3– Spray Paint Booth Information Please specify number of EU3s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU4– Cooling Tower Information Please specify number of EU4s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU5 – Boiler Information Please specify number of EU5s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CBP– Concrete Batch Plant Please Specify number of CBPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form HMAP – Hot Mix Asphalt Plant Please specify number of HMAPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	PERF – Portable Equipment Relocation Form	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form BCE– Baghouses Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form SCE– Scrubbers Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form VSCE – Venturi Scrubber Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form ESP – Electrostatic Precipitator	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form AO – Afterburner/Oxidizer	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CYS – Cyclone Separator	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CA – Carbon Adsorber	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Emissions Inventory - criteria pollutants (Table 1 and Table 2)	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CAM – Compliance Assurance Monitoring	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form FRA – Federal Regulation Applicability	<input type="checkbox"/>



**DEQ AIR QUALITY PROGRAM**  
 1410 N. Hilton, Boise, ID 83706  
 For assistance, call the  
**Air Permit Hotline – 1-877-5PERMIT**

General Information **Form GI**

Revision 7  
 2/18/10

Please see instructions on page 2 before filling out the form.

**All information is required. If information is missing, the application will not be processed.**

**IDENTIFICATION**

1. Company Name		2. Facility Name	
Spunstrand, Inc.		Spunstrand, Inc.	
3. Brief Project Description	Tier 1 Operating Permit Renewal		

**FACILITY INFORMATION**

4. Primary Facility Permit Contact Person/Title	Kirk Nelson	President
5. Telephone Number and Email Address	(208) 752-1157	kirkn@spunstrand.com
6. Alternate Facility Contact Person/Title	Charles Stock	Engineering Manager
7. Telephone Number and Email Address	(208) 752-1157	charles@spunstrand.com
8. Address to Which the Permit Should be Sent	620 North Post Street	
9. City/County/State/Zip Code	Post Falls	Kootenai ID 83854
10. Equipment Location Address (if different than the mailing address above)	60662 Northside Frontage Road	
11. City/County/State/Zip Code	Wallace	Shoshone County ID 83873
12. Is the Equipment Portable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
13. SIC Code(s) and NAICS Code	Primary SIC: 3084	Secondary SIC: NAICS: 326122
14. Brief Business Description and Principal Product	Spunstrand, Inc. makes fiberglass reinforced duct work, pipes, tubing and tanks using the filament winding method.	
15. Identify any adjacent or contiguous facility that this company owns and/or operates	N/A	
16. Specify the reason for the application.	<input type="checkbox"/> Permit to Construct (PTC)	
	<div style="border: 1px solid black; padding: 5px;"> <p><b>For Tier I permitted facilities only:</b> If you are applying for a PTC then you must also specify how the PTC will be incorporated into the Tier I permit.</p> <input type="checkbox"/> Incorporate the PTC at the time of the Tier I renewal  <input type="checkbox"/> Co-process the Tier I modification and PTC  <input type="checkbox"/> Administratively amend the Tier I permit to incorporate the PTC upon your request (IDAPA 58.01.01.209.05.a, b, or c)         </div>	
	<input checked="" type="checkbox"/> Tier I Permit <input type="checkbox"/> Tier II Permit <input type="checkbox"/> Tier II/Permit to Construct	

**CERTIFICATION**

In accordance with IDAPA 58.01.01.123 (Rules for the Control of Air Pollution in Idaho), I certify based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete.

17. Responsible Official's Name/Title	Kirk Nelson	President
18. Responsible Official's Signature		Date: 4/23/12
19. <input checked="" type="checkbox"/> Check here to indicate that you would like to review the draft permit prior to final issuance.		

## FACILITY DESCRIPTION

Spunstrand, Inc. is applying for renewal of their Tier I Operating Permit, permit no. TI-030111, which was issued on October 24, 2001 and expires October 24, 2012.

Under federal regulations, major sources are facilities that have the potential to emit:

1. 100 tons per year or more of any regulated air pollutant; or
2. 10 tons per year or more of any single hazardous air; or
3. 25 tons per year or more of a combination of hazardous air pollutants.

The Spunstrand facility has the potential to emit greater than 10 tons per year of styrene, a hazardous air pollutant, and is thus classified as a major source.

Spunstrand, Inc. manufactures fiberglass reinforced duct work, pipes, tubing and tanks using the filament winding method. The facility has operated at 60662 Northside Frontage Road in Wallace, Idaho since 1961. A plot plan of the facility is included in Figure 1.

The operation consists of three work areas; the Main Building, the Blue Building, and the Warehouse. Emissions from the Spunstrand facility come from two sources:

- Fabrication: Fiberglass resin and gelcoat application processes, including filament winding machines and small scale fabrication operations performed in the Main and Blue Buildings, with fugitive emissions handled through normal building ventilation, and
- Cutting and Trimming: Fiberglass cutting performed in the cutting room of the Main Building, controlled by a baghouse dust collection system.

Fabrication operations housed in the Main Building include three filament winding machines (FWM-1, FWM-2 and FWM-3). Filament winding is a process of laying a band of resin impregnated fibers onto a rotating mandrel surface in a precise geometric pattern and curing to form the product. This is an efficient method of producing cylindrical parts with optimum strength characteristics. Glass fiber is used for the filament. The filament is wetted and wound on the mandrel. The acetone storage and handling room is also located in this building.

Small scale fabrication (SSF) operations in the Main Building include a reducer machine, a pulling station and a chopper station. The reducer Machine utilizes a filament winding process similar to the filament winding machines, but on a much smaller scale. The pulling station is used to extract the fabricated pipe from the mandrels, and small repairs or corrections are made using a hand held spray chopper at the chopping station.

The Blue Building is used for small scale hand lay-up fabrication, gel coat application and painting of finished products according to customer specifications. The attached conex boxes are used for storage of tooling molds and curing product.

The Warehouse contains storage and a resin room, as well as wood cutting, and tooling operations.

In addition to fabrication operations, the Main Building houses cutting and trimming operations (CTO-1) in the a cutting room. Particulate emissions from this area are controlled by a dust collection baghouse system (DCB-1).

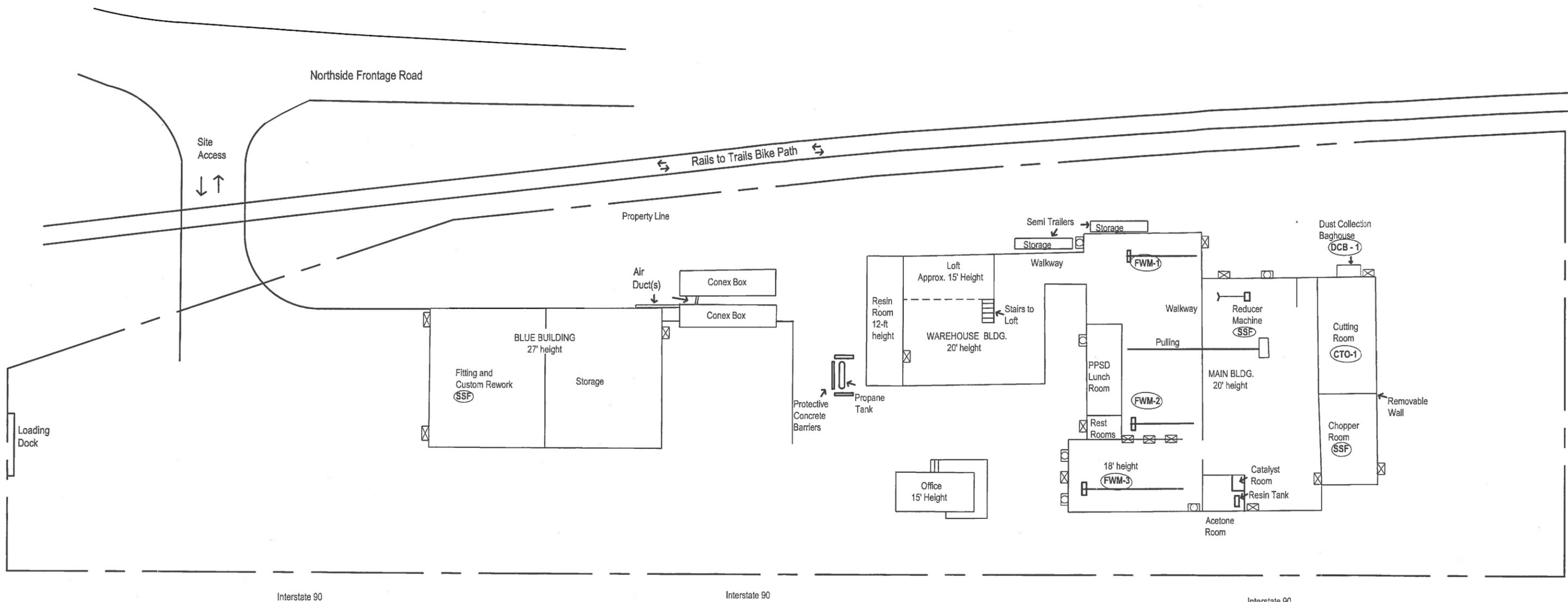
Since issuance of the current Tier I Permit in October 2001, the dust collection cyclone was replaced by a more efficient baghouse filtration system for the control of particulate emission from the cutting room. The Torit Model 54HP Dust Collector provides a higher particulate control efficiency than the previous cyclone system, decreasing the facility's particulate emissions.

Additional information about these sources is contained in the following permit application forms:

- Forms EU0: Emissions Unit – General (4)
  - Filament Winding Machine 1 (FWM-1)
  - Filament Winding Machine 2 (FWM-2)
  - Filament Winding Machine 3 (FWM-3)
  - Small Scale Fabrication (SSF)
- Form BCE: Baghouse Control Equipment (DCB-1)

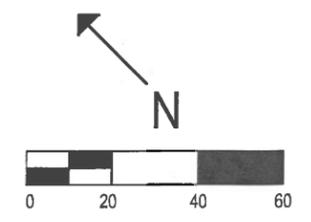
The facility also operates seven natural gas fired boilers used for building heat, each with a capacity of less than five million BTU/hr, as follows.

- 5 - 1994, Monitor Products, Inc., model MZ 20-40, 142,000 BTU/hr
- 1 - 1983 ITT Renzor, model XL105-3, 81,900 BTU/hr
- 1 - 2007 Renzor, model usda 100, 88,200 BTU/hr



**Legend**

- Emission Points: (FWM-1), (FWM-2), (FWM-3), (DCB-1), (SSF), (CTO-1)
- Building Edge: \_\_\_\_\_
- Tier Edge: - - - - -
- Property Line: - . - . - . -
- Exhaust Fan: ☒
- Makeup Air: □



**Figure 1 - Plot Plan**

Spunstrand, Inc.  
60662 Northside Frontage Road  
Wallace, ID 83873

Prepared by: B. Westby/N. Savko
Drawing Number: SPI-005
Revision Number: 04/23/2012 R2



Please see instructions on page 2 before filling out the form.

IDENTIFICATION																								
1. Company Name: Spunstrand, Inc.	2. Facility Name: Spunstrand, Inc.	3. Facility ID No: 079-00038																						
4. Brief Project Description: Tier 1 Operating Permit Renewal																								
EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION																								
5. Emissions Unit (EU) Name: FLAMENT WINDING MACHINE 1																								
6. EU ID Number: FWM1																								
7. EU Type: <input type="checkbox"/> New Source <input type="checkbox"/> Unpermitted Existing Source <input checked="" type="checkbox"/> Modification to a Permitted Source -- Previous Permit #:P-060132 Date Issued: 9/28/2007																								
8. Manufacturer: N/A - CUSTOM MADE																								
9. Model: N/A																								
10. Maximum Capacity: 20' @ 72" DIA																								
11. Date of Construction: UNKNOWN																								
12. Date of Modification (if any): N/A																								
13. Is this a Controlled Emission Unit? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If Yes, complete the following section. If No, go to line 22.																								
EMISSIONS CONTROL EQUIPMENT																								
14. Control Equipment Name and ID:																								
15. Date of Installation:																								
16. Date of Modification (if any):																								
17. Manufacturer and Model Number:																								
18. ID(s) of Emission Unit Controlled:																								
19. Is operating schedule different than emission units(s) involved? <input type="checkbox"/> Yes <input type="checkbox"/> No																								
20. Does the manufacturer guarantee the control efficiency of the control equipment? <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th rowspan="2" style="width: 15%;">Control Efficiency</th> <th colspan="5" style="text-align: center;">Pollutant Controlled</th> </tr> <tr> <th style="width: 15%;">PM</th> <th style="width: 15%;">PM10</th> <th style="width: 15%;">SO<sub>2</sub></th> <th style="width: 15%;">NOX</th> <th style="width: 15%;">VOC</th> <th style="width: 15%;">CO</th> </tr> </thead> <tbody> <tr> <td style="height: 20px;"></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						Control Efficiency	Pollutant Controlled					PM	PM10	SO <sub>2</sub>	NOX	VOC	CO							
Control Efficiency	Pollutant Controlled																							
	PM	PM10	SO <sub>2</sub>	NOX	VOC	CO																		
21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.																								
EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)																								
22. Actual Operation: 8 HOURS/DAY, 6 DAYS/WEEK, 52 WEEKS/YEAR																								
23. Maximum Operation: 24 HOURS/DAY, 7 DAYS/WEEK, 52 WEEKS/YEAR																								
REQUESTED LIMITS																								
24. Are you requesting any permit limits? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, indicate all that apply below)																								
<input type="checkbox"/> Operation Hour Limit(s):																								
<input type="checkbox"/> Production Limit(s):																								
<input type="checkbox"/> Material Usage Limit(s):																								
<input type="checkbox"/> Limits Based on Stack Testing: Please attach all relevant stack testing summary reports																								
<input type="checkbox"/> Other:																								
25. Rationale for Requesting the Limit(s):																								



Please see instructions on page 2 before filling out the form.

**IDENTIFICATION**

1. Company Name: Spunstrand, Inc.	2. Facility Name: Spunstrand, Inc.	3. Facility ID No: 079-00038
4. Brief Project Description: Tier 1 Operating Permit Renewal		

**EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION**

5. Emissions Unit (EU) Name:	FILAMENT WINDING MACHINE 2		
6. EU ID Number:	FWM2		
7. EU Type:	<input type="checkbox"/> New Source	<input type="checkbox"/> Unpermitted Existing Source	
	<input checked="" type="checkbox"/> Modification to a Permitted Source -- Previous Permit #:P-060132		Date Issued: 09/28/2007
8. Manufacturer:	N/A - CUSTOM MADE		
9. Model:	N/A		
10. Maximum Capacity:	20' @ 36" DIA		
11. Date of Construction:	UNKNOWN		
12. Date of Modification (if any):	N/A		
13. Is this a Controlled Emission Unit?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If Yes, complete the following section. If No, go to line 22.		

**EMISSIONS CONTROL EQUIPMENT**

14. Control Equipment Name and ID:						
5. Date of Installation:			16. Date of Modification (if any):			
17. Manufacturer and Model Number:						
18. ID(s) of Emission Unit Controlled:						
19. Is operating schedule different than emission units(s) involved? <input type="checkbox"/> Yes <input type="checkbox"/> No						
20. Does the manufacturer guarantee the control efficiency of the control equipment? <input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, attach and label manufacturer guarantee)						
Control Efficiency	Pollutant Controlled					
	PM	PM10	SO <sub>2</sub>	NO <sub>x</sub>	VOC	CO

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

**EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)**

22. Actual Operation:	8 HOURS/DAY, 6 DAYS/WEEK, 52 WEEKS/YEAR
23. Maximum Operation:	24 HOURS/DAY, 7 DAYS/WEEK, 52 WEEKS/YEAR

**REQUESTED LIMITS**

24. Are you requesting any permit limits?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No (If Yes, indicate all that apply below)
<input type="checkbox"/> Operation Hour Limit(s):		
<input type="checkbox"/> Production Limit(s):		
<input type="checkbox"/> Material Usage Limit(s):		
<input type="checkbox"/> Limits Based on Stack Testing: Please attach all relevant stack testing summary reports		
<input type="checkbox"/> Other:		

25. Rationale for Requesting the Limit(s):
--



Please see instructions on page 2 before filling out the form.

**IDENTIFICATION**

1. Company Name: Spunstrand, Inc.	2. Facility Name: Spunstrand, Inc.	3. Facility ID No: 079-00038
4. Brief Project Description: Tier 1 Operating Permit Renewal		

**EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION**

5. Emissions Unit (EU) Name:	FILAMENT WINDING MACHINE 3		
6. EU ID Number:	FWM3		
7. EU Type:	<input type="checkbox"/> New Source	<input type="checkbox"/> Unpermitted Existing Source	Date Issued: 09/28/2007
	<input checked="" type="checkbox"/> Modification to a Permitted Source -- Previous Permit #:P-060132		
8. Manufacturer:	N/A - CUSTOM MADE		
9. Model:	N/A		
10. Maximum Capacity:	40' @ 30" DIA		
11. Date of Construction:	UNKNOWN		
12. Date of Modification (if any):	N/A		
13. Is this a Controlled Emission Unit?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If Yes, complete the following section. If No, go to line 22.		

**EMISSIONS CONTROL EQUIPMENT**

14. Control Equipment Name and ID:						
15. Date of Installation:			16. Date of Modification (if any):			
17. Manufacturer and Model Number:						
18. ID(s) of Emission Unit Controlled:						
19. Is operating schedule different than emission units(s) involved? <input type="checkbox"/> Yes <input type="checkbox"/> No						
20. Does the manufacturer guarantee the control efficiency of the control equipment? <input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, attach and label manufacturer guarantee)						
Control Efficiency	Pollutant Controlled					
	PM	PM10	SO <sub>2</sub>	NOx	VOC	CO

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

**EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)**

22. Actual Operation:	8 HOURS/DAY, 6 DAYS/WEEK, 52 WEEKS/YEAR
23. Maximum Operation:	24 HOURS/DAY, 7 DAYS/WEEK, 52 WEEKS/YEAR

**REQUESTED LIMITS**

24. Are you requesting any permit limits?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No (If Yes, indicate all that apply below)
<input type="checkbox"/> Operation Hour Limit(s):		
<input type="checkbox"/> Production Limit(s):		
<input type="checkbox"/> Material Usage Limit(s):		
<input type="checkbox"/> Limits Based on Stack Testing: Please attach all relevant stack testing summary reports		
<input type="checkbox"/> Other:		
25. Rationale for Requesting the Limit(s):		



Please see instructions on page 2 before filling out the form.

**IDENTIFICATION**

1. Company Name: Spunstrand, Inc.	2. Facility Name: Spunstrand, Inc.	3. Facility ID No: 079-00038
4. Brief Project Description: Tier 1 Operating Permit Renewal		

**EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION**

5. Emissions Unit (EU) Name:	SMALL SCALE FABRICATION OPERATIONS (Emissions allocated to filament winding)		
6. EU ID Number:	SSF		
7. EU Type:	<input type="checkbox"/> New Source	<input type="checkbox"/> Unpermitted Existing Source	
	<input checked="" type="checkbox"/> Modification to a Permitted Source -- Previous Permit #:P-060132		Date Issued: 09/28/2007
8. Manufacturer:	N/A - CUSTOM MADE OR HAND APPLICATION		
9. Model:	N/A		
10. Maximum Capacity:	N/A		
11. Date of Construction:	N/A		
12. Date of Modification (if any):	N/A		
13. Is this a Controlled Emission Unit?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If Yes, complete the following section. If No, go to line 22.		

**EMISSIONS CONTROL EQUIPMENT**

14. Control Equipment Name and ID:			
15. Date of Installation:	16. Date of Modification (if any):		
17. Manufacturer and Model Number:			
18. ID(s) of Emission Unit Controlled:			
19. Is operating schedule different than emission units(s) involved?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	<input type="checkbox"/> Yes	<input type="checkbox"/> No (If Yes, attach and label manufacturer guarantee)	

Control Efficiency	Pollutant Controlled					
	PM	PM10	SO <sub>2</sub>	NO <sub>x</sub>	VOC	CO

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

**EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)**

22. Actual Operation:	8 HOURS/DAY, 6 DAYS/WEEK, 52 WEEKS/YEAR
23. Maximum Operation:	24 HOURS/DAY, 7 DAYS/WEEK, 52 WEEKS/YEAR

**REQUESTED LIMITS**

24. Are you requesting any permit limits?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No (If Yes, indicate all that apply below)
<input type="checkbox"/> Operation Hour Limit(s):		
<input type="checkbox"/> Production Limit(s):		
<input type="checkbox"/> Material Usage Limit(s):		
<input type="checkbox"/> Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports	
<input type="checkbox"/> Other:		

25. Rationale for Requesting the Limit(s):	
--	--



Please see instructions on page 2 before filling out the form.

**IDENTIFICATION**

1. Company Name: Spunstrand, Inc.	2. Facility Name: Spunstrand, Inc.	3. Facility ID No: 079-00038
4. Brief Project Description: Tier 1 Operating Permit Renewal		

**EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION**

5. Emissions Unit (EU) Name:	CUTTING AND TRIMMING OPERATIONS (CUTTING ROOM)		
6. EU ID Number:	CTO-1		
7. EU Type:	<input type="checkbox"/> New Source	<input type="checkbox"/> Unpermitted Existing Source	
	<input checked="" type="checkbox"/> Modification to a Permitted Source -- Previous Permit #:P-060132		Date Issued: 09/28/2007
8. Manufacturer:	N/A - VARIOUS STARIONARY AND HANDHELD CUTTERS		
9. Model:	N/A		
10. Maximum Capacity:	N/A		
11. Date of Construction:	N/A		
12. Date of Modification (if any):	N/A		
13. Is this a Controlled Emission Unit?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If Yes, complete the following section. If No, go to line 22.		

**EMISSIONS CONTROL EQUIPMENT**

14. Control Equipment Name and ID:	DUST CONTROL BAGHOUSE DCB-1					
5. Date of Installation:	11/05/2007	16. Date of Modification (if any):				
17. Manufacturer and Model Number:	TORIT 54 HP					
18. ID(s) of Emission Unit Controlled:	CTO-1					
19. Is operating schedule different than emission units(s) involved?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
20. Does the manufacturer guarantee the control efficiency of the control equipment?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, attach and label manufacturer guarantee)					
	Pollutant Controlled					
	PM	PM10	SO <sub>2</sub>	NOx	VOC	CO
Control Efficiency	90%	90%				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. See Appendix A

**EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)**

22. Actual Operation:	8 HOURS/DAY, 6 DAYS/WEEK, 52WEEKS/YEAR
23. Maximum Operation:	24 HOURS/DAY, 7 DAYS/WEEK, 52WEEKS/YEAR

**REQUESTED LIMITS**

24. Are you requesting any permit limits?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No (If Yes, indicate all that apply below)
<input type="checkbox"/> Operation Hour Limit(s):		
<input type="checkbox"/> Production Limit(s):		
<input type="checkbox"/> Material Usage Limit(s):		
<input type="checkbox"/> Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports	
<input type="checkbox"/> Other:		

25. Rationale for Requesting the Limit(s):	
--	--



Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
1. Company Name Spunstrand, Inc	2. Facility Name: Spunstrand, Inc	
3. Brief Project Description: Tier 1 Operating Permit Renewal		
BAGHOUSE INFORMATION		
4. Baghouse Manufacturer: Torit	5. Baghouse Model: 54 HP	6. Baghouse Equipment ID: DCB-1
7 (a). Baghouse particulate matter emission concentration. _____ gr/dscf <b>Note: Provide information in 7(a)-(c) or answer question #8 below.</b>	<i>Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration. <b>Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.</b> If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.</i>	
7 (b). Percentage PM <sub>10</sub> _____ % Or Provide PM <sub>10</sub> Emission Concentration _____ gr/dscf	<i>What percentage of the PM concentration listed in question #7(a) is PM<sub>10</sub>. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.</i>	
7 (c). Baghouse flow rate _____ dscfm	<i>Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm if it is <b>documented</b> that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.</i>	
8. Baghouse particulate matter control efficiency. <b>Note: Not needed if section #7 is completed.</b>	90 % PM control 90 % PM <sub>10</sub> control	<i>Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM<sub>10</sub>. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.</i>
9. Is the baghouse equipped with a bag leak detector?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<i>If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.</i>

## **DOCUMENTATION OF BAGHOUSE CONTROL EFFICIENCY**

Due to the limited availability of data on the existing baghouse, a conservative baghouse control efficiency of 90% was used for emission calculations. The 90% control efficiency is conservative based on comparable equipment design, resulting in a particulate emission rate significantly lower than the previous dust control cyclone. The calculated emission rate falls well within the particulate matter process weight limitations under IDAPA 58.01.01.700 and the pound per day emission limit under PTC No. 079-0038, as shown in the detailed emissions inventory contained in Appendix A. Actual control efficiency is expected to be significantly higher.

Manufacturer recommended bag filters are Dura-Life Polyester 10.5 ounce filters with a thickness of 0.050 - 0.060 inches.

## **EMISSIONS INVENTORY**

As required by the Idaho Department of Environmental Quality (IDEQ) for a Tier I operating permit renewal, both a facility wide potential to emit (PTE) emissions inventory for New Source Review (NSR) regulated air pollutants and a facility wide hazardous air pollutant (HAP) PTE emissions inventory are as part of this application.

Particulate emissions are generated from cutting and trimming of product in the Main Building cutting room. Emissions from the cutting room are captured by a collection hood and vented to the dust collection baghouse.

HAP and VOC are emitted from resin and gelcoat usage in the fabrication operations. The fabrication operations take place in the facility's three main work areas: the Main Building and Blue Building as described previously. Fabrication emissions are vented to the atmosphere through the buildings normal ventilation.

Emissions calculations are detailed in the spreadsheet presented in Appendix A. In addition, an electronic copy of this spreadsheet is included for agency review. Material Safety Data Sheets used in the emissions calculations for the fabrications unit are included in Appendix B.

### **FACILITY WIDE PTE FOR NSR POLLUTANTS:**

The facility wide PTE for particulate matter (PM, PM<sub>10</sub>, and PM<sub>2.5</sub>) was determined by measuring the particulate captured by the baghouse during a normal operating shift. This collected particulate was weighed, and a sample sent to Particle Technology Labs (PTL) for size distribution analysis. Particle size distribution for PM<sub>10</sub> and PM<sub>2.5</sub> was calculated using the analytical results from PTL for the baghouse collection sample. A highly conservative control efficiency of ninety percent was assumed, based on comparable equipment design. A control efficiency of 90% was assumed for each particle size. Detailed calculations for particulate emission are presented in Appendix A.

The PTE for VOCs was calculated using product MSDSs to determine VOC content, then applying emission factors for HAP VOCs as determined by Table 1 of 40 CFR 63 Subpart WWWW - *National Emissions Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production*, and utilizing an emission factor of 100% for non-HAP VOCs. The PTE was calculated based on 2011 actual usage data, scaled up to 8760 hours of operation. Detailed VOC emission calculations are presented in the spreadsheet in Appendix A.

**TABLE 1. POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS**

Emissions Unit	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	VOC
	Tons/Year	Tons/Year	Tons/Year	Tons/Year
<b>Fugitive Sources</b>				
Fabrication	---	---	---	42
<b>Point Sources</b>				
Dust Collection Baghouse	0.19	0.076	0.016	---
<b>Totals:</b>	<b>0.19</b>	<b>0.076</b>	<b>0.016</b>	<b>42</b>

**FACILITY WIDE PTE FOR HAPS:**

The facility wide PTE for HAPs was calculated using product MSDSs to determine HAP content, then applying emission factors as determined from Table 1 of 40 CFR 63 Subpart WWWW for organics. A cobalt emission factor was determined by assuming a 65% airborne metals control efficiency for the building vent filters. PTE was then calculated based on 2011 actual usage data, scaled up to 8760 hours of operation. Detailed HAP emission calculations are also presented in the spreadsheet in Appendix A.

**TABLE 2. HAP POTENTIAL TO EMIT EMISSIONS SUMMARY**

HAP Pollutants	PTE Tons/Year
Cobalt Compounds	0.07
Ethylene Glycol	0.001
Methyl Methacrylate	0.02
Styrene*	40
<b>Total</b>	<b>40</b>

\* Maximum Individual HAP



**DEQ AIR QUALITY PROGRAM**  
 1410 N. Hilton, Boise, ID 83706  
 For assistance, call the  
**Air Permit Hotline – 1-877-5PERMIT**

# AIR PERMIT APPLICATION

Revision 6  
 10/7/09

For each box in the table below, CTRL+click on the blue underlined text for instructions and information.

## IDENTIFICATION

1. Company Name: Spunstrand, Inc.	2. Facility Name: Spunstrand, Inc.
3. Brief Project Description: Tier 1 Operating Permit Renewal	

## APPLICABILITY DETERMINATION

<p>4. List applicable subparts of the New Source Performance Standards (NSPS) (<a href="#">40 CFR part 60</a>).</p> <p>Examples of NSPS affected emissions units include internal combustion engines, boilers, turbines, etc. The applicant must thoroughly review the list of affected emissions units.</p>	<p>List of applicable subpart(s):</p> <p><input checked="" type="checkbox"/> Not Applicable</p>
<p>5. List applicable subpart(s) of the National Emission Standards for Hazardous Air Pollutants (NESHAP) found in <a href="#">40 CFR part 61</a> and <a href="#">40 CFR part 63</a>.</p> <p>Examples of affected emission units include solvent cleaning operations, industrial cooling towers, paint stripping and miscellaneous surface coating. <a href="#">EPA has a web page dedicated to NESHAP</a> that should be useful to applicants.</p>	<p>List of applicable subpart(s):</p> <p>40 CFR 63, Subpart WWWW – National Emission Standards for Hazardous Air Pollutants for Reinforced Plastic Composites Production. (See Appendix C for detailed regulatory review.)</p> <p>40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (See Appendix D for detailed regulatory Review.)</p> <p><input type="checkbox"/> Not Applicable</p>
<p>6. For each subpart identified above, conduct a complete a regulatory analysis using the instructions and referencing the example provided on the following pages.</p> <p><b>Note</b> - Regulatory reviews must be submitted with sufficient detail so that DEQ can verify applicability and document in legal terms why the regulation applies. Regulatory reviews that are submitted with insufficient detail will be determined incomplete.</p>	<p><input checked="" type="checkbox"/> A detailed regulatory review is provided (Follow instructions and example).</p> <p><input type="checkbox"/> DEQ has already been provided a detailed regulatory review. Give a reference to the document including the date.</p>

## APPLICABLE REQUIREMENTS

As part of the Tier I permitting process, an applicant must cite and describe all applicable requirements affecting each emissions unit. The applicant must also describe or reference all methods required by each applicable requirement for determining the compliance status of the emission unit within the applicable requirement, including any applicable monitoring, recordkeeping and reporting requirements or test methods.

Table 3 provides a listing of these applicable requirements. For those applicable regulatory requirements without specific methods for determining compliance, such as monitoring, recordkeeping, reporting or testing requirements, compliance will be assured through annual certification by a responsible official.

TABLE 3. APPLICABLE REQUIREMENTS

Regulatory Citation	Applicable Requirement	Facility Wide	Process Specific	Method for Determining Compliance Status, including Required Monitoring, Recordkeeping, Reporting or Test Method <sup>1</sup>
<b>Permit to Construct No. P-060132</b>				
1	Scope	X		---
2.1	Source Description	X		---
2.2	Emissions Control Description		X	---
2.3	MACT Limitations		X	See Federal Requirements below.
2.4	PM <sub>10</sub> Emission Limit – 14.4 lb/day PM <sub>10</sub>		X	---
2.5	Opacity Limit – 20%		X	---
2.6	Odorous Emissions	X		---
2.7	MACT Compliance Demonstration Requirements		X	See Federal Requirements below.
2.8	Dust Collection Cyclone		X	Maintain O&M manual for dust collection system.
2.9	Odor Management Plan	X		Maintain Odor Management Plan.
2.10	MACT Notification and Reporting Requirements		X	See Federal Requirements below.
2.11	Certification of Documents	X		---
3.1 - 3.3	General Compliance		X	---
3.4	Inspection and Entry	X		---
3.6	Performance Testing	X		---
3.7	Monitoring and Recordkeeping	X		Maintain sufficient records to ensure compliance with all of the terms and conditions of permit.
3.8	Excess Emissions	X		---
3.9	Certification	X		All documents submitted to DEQ shall contain certification by a responsible official.
3.10 - 3.13	False Statements, Tampering, Transferability, Severability	X		---
<b>IDAPA 58.01.01 - Rules for the Control of Air Pollution in Idaho</b>				
003	Administrative Appeals	X		---
004	Catchlines	X		---
005 - 011	Definitions	X		---
106	Abbreviations	X		---

Regulatory Citation	Applicable Requirement	Facility Wide	Process Specific	Method for Determining Compliance Status, including Required Monitoring, Recordkeeping, Reporting or Test Method <sup>1</sup>
107	Incorporations by Reference	X		---
121	Compliance Requirements by Department	X		---
122	Information Orders by the Department	X		---
123	Certification of Documents	X		Certification by a responsible individual of all documents, including but not limited to, application forms for permits to construct, application forms for operating permits, progress reports, records, monitoring data, supporting information, requests for confidential treatment, testing reports or compliance certifications submitted to the Idaho Department of Environmental Quality (IDEQ). The certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
124	Truth, Accuracy And Completeness of Documents	X		---
125	False Statements	X		---
126	Tampering	X		---
127	Format of Responses	X		---
128	Confidential Information	X		---
130	Startup, Shutdown, Scheduled Maintenance, Safety Measures, Upset And Breakdown	X		---
131	Excess Emissions	X		---
132	Correction of Condition	X		---
133	Startup, Shutdown And Scheduled Maintenance Requirements	X		---
133.01	General Provisions	X		Notify IDEQ of any startup, shutdown, or scheduled maintenance event that is expected to cause an excess emissions event no later than two (2) hours prior to the start of the excess emissions event.
133.02 - .03	Excess Emissions Procedures	X		Maintain procedures which will be used to minimize excess emissions during such events.
134	Upset, Breakdown And Safety Requirements	X		---
134.02	Excess Emissions Minimization and Notification	X		Notify IDEQ of any upset/breakdown/safety event that results in excess emissions no later than twenty-four hours after the event.
134.04 - .05	Excess Emissions Procedures	X		Maintain procedures which will be used to minimize excess emissions during such events.

Regulatory Citation	Applicable Requirement	Facility Wide	Process Specific	Method for Determining Compliance Status, including Required Monitoring, Recordkeeping, Reporting or Test Method <sup>1</sup>
135	Excess Emissions Reports	X		A written report for each excess emissions event shall be submitted to IDEQ no later than fifteen (15) days after the beginning of each such event.
136	Excess Emissions Records	X		Maintain excess emissions records at the facility for the most recent five (5) calendar year period.
140 - 149	Variances	X		---
155	Circumvention	X		---
156	Total Compliance	X		---
157	Test Methods And Procedures	X		---
157.04	Reporting Requirements	X		For any source test performed to satisfy a performance test requirement imposed by state or federal regulation, rule, permit, order, or consent decree, submit a written report to the IDEQ within thirty (30) days of the completion of the test.
160	Provisions Governing Specific Activities And Conditions	X		---
161	Toxic Substances	X		---
200 - 228	Procedures And Requirements For Permits To Construct	X		A permit to Construct must be obtained prior to the commencement of construction or modification of any stationary source, facility, major facility or major modification.
300 - 312 and 314 - 386	Procedures And Requirements For Tier I Operating Permits	X		A Tier I facility shall not be operated without an effective Tier I operating permit.
313	Timely Application	X		Submit a complete application to IDEQ for a renewal of the Tier I operating permit at least six (6) months before, but no earlier than eighteen (18) months before, the expiration date of the existing Tier I operating permit.
387 - 397	Registration And Registration Fees	X		Register with IDEQ by April 1 of each year using POSST.
440	Requirements For Alternative Emission Limits (Bubbles)	X		---
510 - 516	Stack Heights And Dispersion Techniques		X	---
561	General Rules	X		---
562	Specific Emergency Episode Abatement Plans For Point Sources	X		---
585	Toxic Air Pollutants Non-carcinogenic Increments	X		---
586	Toxic Air Pollutants Carcinogenic Increments	X		---
587	Listing Or Delisting Toxic Air Pollutant Increments	X		---

Regulatory Citation	Applicable Requirement	Facility Wide	Process Specific	Method for Determining Compliance Status, including Required Monitoring, Recordkeeping, Reporting or Test Method <sup>1</sup>
591	National Emission Standards For Hazardous Air Pollutants		X	The facility must comply with the requirements of 40 CFR Part 63 as indicated in the applicable Federal Requirements section below.
600	Rules For Control of Open Burning	X		---
601	Fire Permits, Hazardous Materials, And Liability	X		---
602	Nonpreemption of Other Jurisdictions	X		---
603	General Restrictions	X		---
606	Categories of Allowable Burning	X		---
607	Recreational And Warming Fires	X		---
609	Training Fires	X		---
625	Visible Emissions	X		EPA Method 9, with the method of calculating opacity exceedances altered according to 625.04.
650	Rules For Control of Fugitive Dust	X		---
651	General Rules	X		---
675, 677 - 681	Fuel Burning Equipment - Particulate Matter		X	EPA Method 5 or approved comparable and equivalent method.
700	Particulate Matter -- Process Weight Limitations		X	---
775 - 776	Rules For Control of Odors	X		---
<b>Federal Requirements</b>				
40 CFR 52 Subpart NN	Idaho State SIP	X		---
40 CFR 61 Subpart M	National Emissions Standards for Asbestos	X		Written notice of intention to demolish or renovate.
40 CFR 63 Subpart WWW	National Emissions Standards for Hazardous Air Pollutants: Reinforces Plastic Composites Production		X	<ul style="list-style-type: none"> <li>Collect required data to demonstrate compliance with organic HAP limit on a 12-month rolling average beginning on the compliance date (April 22, 2006), and demonstrate compliance 1-year after the compliance date.</li> <li>Semi-annual Compliance Reports by July 31 and January 31 of each year.</li> <li>Retain records for a period of five years (first two years on-site).</li> </ul>

Regulatory Citation	Applicable Requirement	Facility Wide	Process Specific	Method for Determining Compliance Status, including Required Monitoring, Recordkeeping, Reporting or Test Method <sup>1</sup>
40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters		X	<ul style="list-style-type: none"> <li>• Compliance with Subpart DDDDD by March 21, 2014.</li> <li>• Biennial Performance Tune-up.</li> <li>• One-time Energy Assessment performed by qualified energy assessor.</li> <li>• Initial Notification within 120 days after May 20, 2011.</li> <li>• Notification of Compliance Status report for tune-up and energy assessment.</li> <li>• Biennial Compliance Reports.</li> <li>• Notification of alternative fuel use within 48 hours of supply interruption.</li> <li>• Retain required records for a period of five years (first two years on-site).</li> </ul>
40 CFR 70.6(a)(3)	Standard permit requirements	X		---
40 CFR 82 Subparts E	Protection of stratospheric ozone – labeling of products containing	X		---
40 CFR 82 Subparts F	Protection of stratospheric ozone – recycling and emissions reduction	X		---

<sup>1</sup> For those applicable regulatory requirements without specific monitoring, recordkeeping, reporting or testing requirements, compliance will be assured through annual certification by a responsible official.

## PROPOSED DETERMINATION OF NON-APPLICABILITY

Spunstrand, Inc. seeks a determination of non-applicability for those IDAPA and Federal requirements listed in Table 4.

**TABLE 4. LISTING OF NON-APPLICABLE REQUIREMENTS**

Regulatory Citation	Requirement	Explanation of Non-Applicability
<b>Permit to Construct No. P-060132</b>		
3.5	Construction and Operation Notification	Requirement to Submit Construction and Operation Notifications already met.
<b>IDAPA 58.01.01 - Rules for the Control of Air Pollution in Idaho</b>		
000	Legal Authority	Applies to Board of Environmental Quality.
001	Title and Scope	Administrative description of Rules.
002	Written Interpretations	Administrative discussion of interpretation of rules.
162	Modifying Physical Conditions	Administrative function of Board.
163	Source Density	Administrative function of Board.
164	Polychlorinated Biphenyls (PCBs)	Facility does not burn any materials containing PCBs.
175 - 181	Procedures And Requirements For Permits Establishing A Facility Emissions Cap	Facility is already a major source.
400 - 410	Procedures And Requirements For Tier II Operating Permits	Facility is subject to Tier I requirements.
441	Demonstration of Ambient Equivalence	Facility is not proposing emission trades.
460	Requirements For Emission Reduction Credit	Facility is not requested emission reduction credits.
461	Requirements For Banking Emission Reduction Credits (ERC's)	Facility is not requesting to bank emission reduction credits.
500	Registration Procedures And Requirements For Portable Equipment	Facility does not operate portable equipment.
517 - 526	Motor Vehicle Inspection And Maintenance Program	Requirements apply to specified counties, not individual sources.
550 - 560	Air Pollution Emergency Rule	Administrative rules defining air pollution emergencies.
563 - 574	Transportation Conformity	Administrative rules for adoption and implementation of CAA Section 176 (c) and 23 USC 109(j).
575 - 582	Air Quality Standards And Area Classification	Rules requiring the state to establish ambient air quality standards and classification areas.
590	New Source Performance Standards	Facility does not contain specified sources.
592 - 598	Stage 1 Vapor Collection	Facility does not meet applicability requirements.
599	Gasoline Cargo Tanks	Facility does not operate gasoline cargo tanks.
608	Weed Control Fires	Facility does not utilize weed control fires.
610	Industrial Flares	Facility does not operate industrial flares.
611	Residential Solid Waste Disposal Fires	Facility is not a residential facility.
612	Landfill Disposal Site Fires	Facility is not a landfill disposal site.
613	Orchard Fires	Facility does not include an orchard.
614	Prescribed Burning	Facility does not conduct prescribed burning.
615	Dangerous Material Fires	Facility does not conduct dangerous materials burning.
616	Infectious Waste Burning	Facility does not handle infectious waste.
617 - 623	Crop Residue Disposal	Facility does not conduct crop residue burning.

<b>Regulatory Citation</b>	<b>Requirement</b>	<b>Explanation of Non-Applicability</b>
626	General Restrictions On Visible Emissions From Wigwam Burners	Facility does not utilize wigwam burners.
665 - 668	Regional Haze Rules	Facility is not located in a Class 1 Area.
676	Standards For New Sources	Spunstrand boilers do not have a maximum rated input of 10 MMBtu/hr or more.
701 - 703	Particulate Matter	Facility was constructed after October 1, 1979 applicability date.
725	Rules For Sulfur Content of Fuels.	Facility does not burn fuel oil or coal.
750 - 751	Rules For Control of Fluoride Emissions	Facility does not include a phosphate fertilizer plant.
760 - 764	Rules For The Control of Ammonia From Dairy Farms	Facility does not include a dairy farm.
785 - 787	Rules For Control of Incinerators	Facility does not include an incinerator.
790 - 799	Rules For The Control of Nonmetallic Mineral Processing Plants	Facility does not include a nonmetallic mineral processing plant.
800 - 802	Registration Fee For Permit By Rule	Facility does not include any operations covered by a permit by rule.
805 - 808	Rules For Control of Hot-Mix Asphalt Plants	Facility does not include a hot-mix asphalt plant.
815 - 826	Rules For Control of Kraft Pulp Mill	Facility does not include a kraft pulping mill.
835 - 839	Rules For Control of Rendering Plants	Facility does not include a rendering plant.
845 - 848	Rules For Control of Sulfur Oxide Emissions From Sulfuric Acid Plants	Facility does not include a sulfuric acid plant.
855 - 858	Combined Zinc And Lead Smelters	Facility does not include a combined zinc and lead smelter.
859 - 860	Standards of Performance For Municipal Solid Waste Landfills	Facility does not include a municipal solid waste landfill.
861 - 862	Standards of Performance For Hospital/Medical/Infectious Waste Incinerators	Facility does not include a hospital/medical/infectious waste incinerator.
<b>Federal Requirements</b>		
40 CFR 52.2	Prevention of Significant Deterioration (PSD)	Applicant is not currently subject to PSD.
40 CFR 60	New Source Performance Standards (NSPS)	Applicant's facility does not contain specified sources.
40 CFR 61, except Subpart M	National Emission Standards for Hazardous Air Pollutants (NESHAPS)	Applicant's facility does not contain or process specified chemicals, except as listed in Table 3.
40 CFR 63, except Subparts WWW and DDDDD	National Emission Standards for Hazardous Air Pollutants (NESHAPS)	Applicant's facility does not include specified processes, except as listed in Table 3.
40 CFR 64	Compliance Assurance Monitoring	The only control device is the baghouse for particulate control. The facility does not have a potential pre-control device particulate emission such that the source would be classified as a "major source" due to particulate.
40 CFR 68	Chemical Accident Prevention Provisions	Facility does not utilize listed chemicals above threshold amounts.
40 CFR 98	Mandatory Greenhouse Gas Reporting	Applicant's facility does not meet the requirements for applicability for this standard.

## **ALTERNATIVE OPERATING SCENARIOS**

No alternative operating scenarios are proposed or requested as part of this permit application.

## **COMPLIANCE CERTIFICATION**

Spunstrand, Inc. will submit compliance certifications during the term of their Tier I operating permit on a semi-annual basis as specified by the underlying applicable requirements of this application.

Tables 5 through 8 identify the applicable requirements affecting each emissions unit, and list the current compliance status and methods used for determining that compliance status.

**TABLE 5. COMPLIANCE CERTIFICATION**

<b>Regulatory Citation</b>	<b>Applicable Requirement</b>	<b>Required Monitoring, Recordkeeping, Reporting or Test Method<sup>1</sup></b>	<b>Current Compliance Status (In or Out)</b>	<b>Method Used to Determine Compliance Status</b>
<b>Permit to Construct No. P-060132</b>				
1	Scope	---	In	Knowledge of operations.
2.1	Source Description	---	In	Knowledge of operations.
2.6	Odorous Emissions			Knowledge of operations.
2.9	Odor Management Plan	Maintain Odor Management Plan.	In	Knowledge of operations and review of documentation.
2.11	Certification of Documents	---	In	Knowledge of operations.
3.1 - 3.3	General Compliance	---	In	Knowledge of operations.
3.4	Inspection and Entry	---	In	Knowledge of operations.
3.6	Performance Testing	---	In	Knowledge of operations.
3.7	Monitoring and Recordkeeping	Maintain sufficient records to ensure compliance with all of the terms and conditions of permit.	In	Facility records maintained in annual compliance binder.
3.8	Excess Emissions	---	In	Knowledge of operations.
3.9	Certification	All documents submitted to DEQ shall contain certification by a responsible official.	In	Knowledge of operations and review of documentation in facility's annual compliance binders.
3.10 - 3.13	False Statements, Tampering, Transferability, Severability	---		Knowledge of operations and review of documentation.
<b>IDAPA 58.01.01 - Rules for the Control of Air Pollution in Idaho</b>				
003	Administrative Appeals	---	In	Knowledge of operations.
004	Catchlines	---	In	Knowledge of operations.
005 - 011	Definitions	---	In	Knowledge of operations.
106	Abbreviations	---	In	Knowledge of operations.
107	Incorporations by Reference	---	In	Knowledge of operations.
121	Compliance Requirements by Department	---	In	Knowledge of operations.
122	Information Orders by the Department	---	In	Knowledge of operations.

Regulatory Citation	Applicable Requirement	Required Monitoring, Recordkeeping, Reporting or Test Method <sup>1</sup>	Current Compliance Status (In or Out)	Method Used to Determine Compliance Status
123	Certification of Documents	Certification by a responsible individual of all documents, including but not limited to, application forms for permits to construct, application forms for operating permits, progress reports, records, monitoring data, supporting information, requests for confidential treatment, testing reports or compliance certifications submitted to the Idaho Department of Environmental Quality (IDEQ). The certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.	In	Knowledge of operations and review of documentation in facility's annual compliance binders.
124	Truth, Accuracy And Completeness of Documents	---	In	Knowledge of operations and review of documentation.
125	False Statements	---	In	Knowledge of operations.
126	Tampering	---	In	Knowledge of operations.
127	Format of Responses	---	In	Knowledge of operations.
128	Confidential Information	---	In	Knowledge of operations.
130	Startup, Shutdown, Scheduled Maintenance, Safety Measures, Upset And Breakdown	---	In	Knowledge of operations and review of documentation in facility's annual compliance binders.
131	Excess Emissions	---	In	Knowledge of operations and review of documentation in facility's annual compliance binders.
132	Correction of Condition	---	In	Knowledge of operations.
133	Startup, Shutdown And Scheduled Maintenance Requirements	---	In	Knowledge of operations.
133.01	General Provisions	Notify IDEQ of any startup, shutdown, or scheduled maintenance event that is expected to cause an excess emissions event no later than two (2) hours prior to the start of the excess emissions event.	In	Knowledge of operations and review of documentation in facility's annual compliance binders.

Regulatory Citation	Applicable Requirement	Required Monitoring, Recordkeeping, Reporting or Test Method <sup>1</sup>	Current Compliance Status (In or Out)	Method Used to Determine Compliance Status
133.02 - .03	Excess Emissions Procedures	Maintain procedures which will be used to minimize excess emissions during such events.	In	Knowledge of operations, review of documentation in facility's annual compliance binders, and review of facility O&M procedures.
134	Upset, Breakdown And Safety Requirements	---	In	Knowledge of operations.
134.02	Excess Emissions Minimization and Notification	Notify IDEQ of any upset/breakdown/safety event that results in excess emissions no later than twenty-four hours after the event.	In	Knowledge of operations and review of documentation in facility's annual compliance binders.
134.04 - .05	Excess Emissions Procedures	Maintain procedures which will be used to minimize excess emissions during such events.	In	Knowledge of operations, review of documentation in facility's annual compliance binders, and review of facility O&M procedures.
135	Excess Emissions Reports	A written report for each excess emissions event shall be submitted to IDEQ no later than fifteen (15) days after the beginning of each such event.	In	Knowledge of operations and review of documentation in facility's annual compliance binders.
136	Excess Emissions Records	Maintain excess emissions records at the facility for the most recent five (5) calendar year period.	In	Knowledge of operations and review of documentation in facility's annual compliance binders.
140 - 149	Variances	---	In	Knowledge of operations.
155	Circumvention	---	In	Knowledge of operations.
156	Total Compliance	---	In	Knowledge of operations.
157	Test Methods And Procedures	---	In	Knowledge of operations.
157.04	Reporting Requirements	For any source test performed to satisfy a performance test requirement imposed by state or federal regulation, rule, permit, order, or consent decree, submit a written report to the IDEQ within thirty (30) days of the completion of the test.	In	Knowledge of operations.
160	Provisions Governing Specific Activities And Conditions	---	In	Knowledge of operations.
161	Toxic Substances	---	In	Knowledge of operations.
200 - 228	Procedures And Requirements For Permits To Construct	A permit to Construct must be obtained prior to the commencement of construction or modification of any stationary source, facility, major facility or major modification.	In	Knowledge of operations. No construction or modification has occurred at the facility that triggers this requirement. <sup>2</sup>

Regulatory Citation	Applicable Requirement	Required Monitoring, Recordkeeping, Reporting or Test Method <sup>1</sup>	Current Compliance Status (In or Out)	Method Used to Determine Compliance Status
300 - 312 & 314 - 386	Procedures And Requirements For Tier I Operating Permits	A Tier I facility shall not be operated without an effective Tier I operating permit.	In	Tier I permit no. T1-030111, issued October 24, 2007 and semiannual Tier I reporting.
313	Timely Application	Submit a complete application to IDEQ for a renewal of the Tier I operating permit at least six (6) months before, but no earlier than eighteen (18) months before, the expiration date of the existing Tier I operating permit.	In	Tier I permit no. T1-030111, issued October 24, 2007, expires October 24, 2012.
387 - 397	Registration And Registration Fees	Register with IDEQ by April 1 of each year.	In	Knowledge of operations and review of documentation in facility's annual compliance binders.
440	Requirements For Alternative Emission Limits (Bubbles)	---	In	Knowledge of operations.
561	General Rules	---	In	Knowledge of operations.
562	Specific Emergency Episode Abatement Plans For Point Sources	---	In	Knowledge of operations.
585	Toxic Air Pollutants Non-carcinogenic Increments	---	In	Knowledge of operations.
586	Toxic Air Pollutants Carcinogenic Increments	---	In	Knowledge of operations.
587	Listing Or Delisting Toxic Air Pollutant Increments	---	In	Knowledge of operations.
591	National Emission Standards For Hazardous Air Pollutants	The facility must comply with the requirements of 40 CFR Part 63 as indicated in the applicable Federal Requirements section under each emissions unit.	In	Knowledge of operation and review of documentation contained in facility annual compliance binders.
600	Rules For Control of Open Burning	---	In	Knowledge of operations.
601	Fire Permits, Hazardous Materials, And Liability	---	In	Knowledge of operations.
602	Nonpreemption of Other Jurisdictions	---	In	Knowledge of operations.
603	General Restrictions	---	In	Knowledge of operations.
606	Categories of Allowable Burning	---	In	Knowledge of operations.
607	Recreational And Warming Fires	---	In	Knowledge of operations.
609	Training Fires	---	In	Knowledge of operations.

Regulatory Citation	Applicable Requirement	Required Monitoring, Recordkeeping, Reporting or Test Method <sup>1</sup>	Current Compliance Status (In or Out)	Method Used to Determine Compliance Status
625	Visible Emissions	EPA Method 9, with the method of calculating opacity exceedances altered according to 625.04.	In	Quarterly facility wide inspections as documented in the annual compliance binder.
650	Rules For Control of Fugitive Dust	---	In	Knowledge of operations.
651	General Rules	---	In	Knowledge of operations.
775 - 776	Rules For Control of Odors	---	In	Knowledge of operations and review of documentation in facility's annual compliance binders.
<b>Federal Requirements</b>				
40 CFR 52 Subpart NN	Idaho State SIP	---	In	Knowledge of operations.
40 CFR 61 Subpart M	National Emissions Standards for Asbestos	Written notice of intention to demolish or renovate.	In	Knowledge of operations.
40 CFR 70.6(a)(3)	Standard permit requirements	---	In	Knowledge of operations.
40 CFR 82 Subparts E	Protection of stratospheric ozone – labeling of products containing	---	In	Knowledge of operations.
40 CFR 82 Subparts F	Protection of stratospheric ozone – recycling and emissions reduction	---	In	Knowledge of operations.

<sup>1</sup> For those applicable requirements without specific monitoring, recordkeeping, reporting or testing requirements, compliance is assured through annual certification by a responsible official.

<sup>2</sup> Since the issuance of the original operating permit in 2007, the facility replaced the particulate emission control cyclone with a baghouse. The baghouse has a higher control efficiency and thus lower particulate emissions. Accordingly, the baghouse did not require a permit to construct for installation.

**TABLE 6. FABRICATION UNITS - COMPLIANCE CERTIFICATION**

Regulatory Citation	Applicable Requirement	Required Monitoring, Recordkeeping, Reporting or Test Method	Current Compliance Status (In or Out)	Method Used to Determine Compliance Status
<b>Permit to Construct No. P-060132</b>				
2.3	MACT Limitations	See Federal Requirements below.		
2.7	MACT Compliance Demonstration Requirements	See Federal Requirements below.		
2.1	MACT Notification and Reporting Requirements	See Federal Requirements below.		
<b>Federal Requirements</b>				
40 CFR 63 Subpart WWW	National Emissions Standards for Hazardous Air Pollutants: Reinforces Plastic Composites Production	<ul style="list-style-type: none"> <li>• Collect required data to demonstrate compliance with organic HAP limit on a 12-month rolling average beginning on the compliance date (April 22, 2006), and demonstrate compliance 1-year after the compliance date.</li> <li>• Semi-annual Compliance Reports by July 31 and January 31 of each year.</li> <li>• Retain records for a period of five years (first two years on-site).</li> </ul>	In	Knowledge of operation and review of documentation contained in facility annual compliance binders.

**TABLE 7. DUST CONTROL BAGHOUSE - COMPLIANCE CERTIFICATION**

<b>Regulatory Citation</b>	<b>Applicable Requirement</b>	<b>Required Monitoring, Recordkeeping, Reporting or Test Method<sup>1</sup></b>	<b>Current Compliance Status (In or Out)</b>	<b>Method Used to Determine Compliance Status</b>
<b>Permit to Construct No. P-060132</b>				
2.2	Emissions Control Description	---	In	Knowledge of operations.
2.4	PM <sub>10</sub> Emission Limit - 14.4 lb./day PM <sub>10</sub>	---	In	Semiannual reporting and Knowledge of operations.
2.5	Opacity Limit – 20%	---	In	Knowledge of operation and quarterly inspection for visible emissions.
2.8	Dust Collection Cyclone	Maintain O&M manual for dust collection system.	In	Knowledge of operations and review of documentation.
<b>IDAPA 58.01.01 - Rules for the Control of Air Pollution in Idaho</b>				
510 - 516	Stack Heights And Dispersion Techniques	---	In	Knowledge of operations.
700	Particulate Matter -- Process Weight Limitations	---	In	Semiannual reporting and Knowledge of operations.

<sup>1</sup>For those applicable requirements without specific monitoring, recordkeeping, reporting or testing requirements, compliance will be assured through annual certification by a responsible official.

**TABLE 8. BOILERS- COMPLIANCE CERTIFICATION**

Regulatory Citation	Applicable Requirement	Required Monitoring, Recordkeeping, Reporting or Test Method	Current Compliance Status (In or Out)	Method Used to Determine Compliance Status
<b>Permit to Construct No. P-060132</b>				
2.3	MACT Limitations	See Federal Requirements below.		
2.7	MACT Compliance Demonstration Requirements	See Federal Requirements below.		
2.1	MACT Notification and Reporting Requirements	See Federal Requirements below.		
<b>IDAPA 58.01.01 - Rules for the Control of Air Pollution in Idaho</b>				
675, 677 - 681	Fuel Burning Equipment - Particulate Matter	EPA Method 5 or approved comparable and equivalent method.	In	Knowledge of operations and review of documentation in facility's annual compliance binders.
<b>Federal Requirements</b>				
40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters	<ul style="list-style-type: none"> <li>• Compliance with Subpart DDDDD by March 21, 2014.</li> <li>• Biennial Performance Tune-up.</li> <li>• One-time Energy Assessment performed by qualified energy assessor.</li> <li>• Initial Notification within 120 days after May 20, 2011.</li> <li>• Notification of Compliance Status report for tune-up and energy assessment.</li> <li>• Biennial compliance reporting.</li> <li>• Notification of alternative fuel use.</li> <li>• Retain required records for a period of five years (first two years on-site).</li> </ul>	In	<p>Facility will submit initial notification as specified by the rule, and comply with other requirements in a timely manner.</p> <p>Per May 76 FR 28664, dated May 18, 2011, the effective dates of this regulation are delayed until further notice.</p>

## COMPLIANCE PLAN

Spunstrand, Inc. will maintain compliance with the applicable requirements listed in Table 5 as outlined below:

- For each applicable requirement with which the emissions unit is in compliance the emissions unit will continue to comply with the applicable requirement.
- For each applicable requirement that will become effective during the term of the Tier I operating permit that does not contain a more detailed schedule, the emissions unit will meet the applicable requirement on a timely basis.
- For each applicable requirement that will become effective during the term of the Tier I operating permit that contains a more detailed schedule, the emissions unit will comply with the applicable requirement on the schedule provided in the applicable requirement.
- For each applicable requirement with which the emission unit is not in compliance, the emissions unit will be in compliance with the applicable requirement by the time the Tier I operating permit is issued.

At this time, Spunstrand, Inc. is in compliance with all applicable requirements as certified in the Compliance Certification Tables above, and no compliance plans are needed.

## INSIGNIFICANT ACTIVITIES BASED ON SIZE OR PRODUCTION RATE

The Spunstrand facility operates seven natural gas boilers listed below. These boilers are determined to be insignificant based on their size, in accordance with IDAPA 58.01.01.317.01 b. i. (5), as combustion sources less than five million BTU/hr, exclusively using natural gas, butane, propane and/or LPG.

**TABLE 6. SPUNSTRAND BOILERS AS INSIGNIFICANT ACTIVITIES**

# of Boilers	Make	Model	Size (BTU)	Manufacture Date
5	Monitor Products, Inc.	MZ 20-40	142,000	1994
1	ITT Renzor	XL 105-3	81,900	1983
1	Renzor	usda 100	88,200	2007

## PERMIT SHIELD REQUEST

Spunstrand, Inc. has been operating under Air Operating Permit no. TI-030111, since its issue date of October 24, 2007. The current AOP expires October 24, 2012 and the renewal permit must be submitted at least six months prior to the expiration, or April 24, 2012.

Since issuance of the current Tier I Operating Permit in October 2007, no changes have occurred at the facility that trigger Permit to Construct requirements under IDAPA 58.01.01.200. Since issuance of the permit, the dust collection cyclone has been replaced with a baghouse filtration system for the control of particulate emissions from the cutting room. The Torit Model 54HP

Dust Collector provides a higher particulate control than the previous cyclone system, decreasing the facility's particulate emissions as shown in the detailed emissions inventory presented in Appendix A. In accordance with IDAPA PTC requirements, the facility was not required to obtain a permit to construct to install the more efficient baghouse.

Based on the information included in this application, Spunstrand, Inc. requests that compliance with the terms of the enclosed application shall be deemed compliance with any applicable requirements as of the date of submittal.

Furthermore, Spunstrand, Inc. requests that the Permit Shield apply to the inapplicable requirements identified in Table 4.

**APPENDIX A**  
**EMMISSIONS INVENTORY**

- Baghouse Control Efficiency Documentation
- Emissions Calculations – Particulate
- Emissions Calculations – HAP and VOC
- Particle Size Analysis by Particle Technology Labs

## Baghouse Sampling and Control

### Baghouse Control Efficiency:

A conservative baghouse control efficiency of 90% was used for emission calculations. A 90% control efficiency is highly conservative based on comparable equipment design, resulting in a particulate emission rate significantly lower than the previous dust control cyclone, and well within the particulate matter process weight limitations under IDAPA 58.01.01.700, as shown below. Actual control efficiency is expected to be higher.

**IDAPA.58.01.01.700.02** - Particulate Matter Process Weight Limitations: Minimum allowable Emissions = 1 lb/hr.

**PTC No. 079-0038, 2.4** - PM10 Emission Limits for Dust Collection Unit = 14.4 lb/day.

### Baghouse Sampling

Total particulate matter collected by the baghouse was sampled and measured by Spunstrand on 11/17/2011. First, the collection bin was emptied and weighed. The amount of material collected by the baghouse under normal operating conditions over a one-day period was then weighed. A sample was sent to Particle Technology Labs for analysis of PM<sub>10</sub> and PM<sub>2.5</sub>. The results of the 11/17/2011 sampling are as follows:

Weight of particulate collected: 1.5 pounds  
Hours in operation: 9.4 hours (6:10 am - 3:35 pm)  
# cutters/grinders in operation: 2 cutters/grinders

Particle Analysis:	PM <sub>10</sub>	40.8%
	PM <sub>2.5</sub>	8.8%

The PTL report is presented following the emissions calculations below.

## Emissions Calculations - Particulate

### Normal Operations:

#### Assumptions:

Normal operation in cutting room = 2 cutters/grinders  
Normal operating hours = 2496 hours / year (8 hr/day, 6 days/week, 52 weeks/yr)  
Baghouse control efficiency of 90%. Actual efficiency expected to be higher.  
Baghouse hopper collection rate as measured by Spunstrand on November 17, 2011.  
Additional 20% safety factor added.

#### Baghouse Collection Rate:

$$1.5 \text{ lb} \quad / \quad 9.4 \text{ hrs} \quad = \quad 0.16 \text{ lb/hr}$$

Uncontrolled Particulate Emission Rate (with 20% safety factor):

$$0.16 \text{ lb/hr} / 0.90 * 120\% = 0.21 \text{ lb/hr}$$

PM Emissions from Baghouse Stack DCB-1:

$$\begin{aligned} 0.21 \text{ lb/hr} * (1-0.90) \text{ effic.} &= 0.021 \text{ lb/hr} \\ 0.021 \text{ lb/hr} * 8 \text{ hr/day} &= 0.17 \text{ lb/day} \\ 0.021 \text{ lb/hr} / 2000 \text{ lb/ton} * 2496 \text{ hr/yr} &= 0.026 \text{ ton/yr} \end{aligned}$$

Particle Size Distribution:

0.026 ton/yr	*	100%	=	0.026 ton/yr	PM <sub>TOT</sub>
0.026 ton/yr	*	40.8%	=	0.011 ton/yr	PM <sub>10</sub>
0.026 ton/yr	*	8.8%	=	0.0023 ton/yr	PM <sub>2.5</sub>

**Potential to Emit:**

Assumptions:

Maximum operation in cutting room = 4 cutters/grinders

Maximum operating hours = 8760 hours / year

Uncontrolled Maximum Particulate Rate:

$$\begin{aligned} 0.21 \text{ lb/hr} / 2 \text{ cutters} * 4 \text{ cutters} &= 0.42 \text{ lb/hr} \\ 0.42 \text{ lb/hr} * 24 \text{ hr/day} &= 10.2 \text{ lb/day} \\ 0.42 \text{ lb/hr} / 2000 \text{ lb/ton} * 8760 \text{ hr/yr} &= 1.9 \text{ ton/yr} \end{aligned}$$

PTE from Baghouse Stack DCB-1:

$$\begin{aligned} 0.42 \text{ lb/hr} * (1-0.90) \text{ effic.} &= 0.042 \text{ lb/hr} \\ 0.042 \text{ lb/hr} * 24 \text{ hr/day} &= 1.01 \text{ lb/day} \\ 0.042 \text{ lb/hr} / 2000 \text{ lb/ton} * 8760 \text{ hr/yr} &= 0.18 \text{ ton/yr} \end{aligned}$$

Particle Size Distribution:

0.18 ton/yr	*	100%	=	0.18 ton/yr	PM <sub>TOT</sub>
0.18 ton/yr	*	40.8%	=	0.075 ton/yr	PM <sub>10</sub>
0.18 ton/yr	*	8.8%	=	0.016 ton/yr	PM <sub>2.5</sub>

COPY

January 12, 2012

Mr. Charles Stock  
SPUNSTRAND, INC.  
PO Box 1147  
Wallace, ID 83873

**Subject: Image Particle Size and Shape Analysis of One Bag House Dust Sample**

**P.O. #: 6667**

**PTL Project: 23792**

Dear Mr. Stock:

Enclosed are the results from the image particle size and shape analysis conducted on your one Bag House Dust sample. The sample information is detailed in Table 1 below.

**TABLE 1**  
**SAMPLE DETAILS**

SAMPLE TYPE	SAMPLE ID	DATE RECEIVED
Bag House Dust	FRP Composite Duct	11/22/11

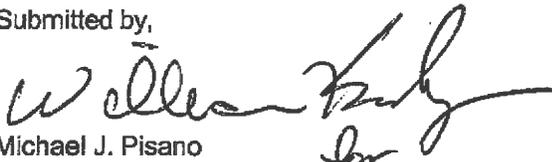
The particle size was determined on our Malvern® Morphologi G3S automated particle characterization image analysis system. The sample was analyzed using a suitable liquid dispersion. The analysis was conducted according to standard operating procedures for this instrumentation type.

Definitions of each of the provided parameters have been taken from the instrument manual and summarized in Table 2.

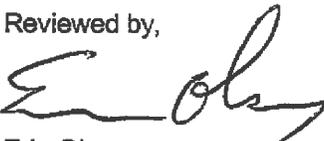
Please note that two data sets have been provided. The first set represents the entire particle size distribution. Fibers with an aspect ratio less than 0.2 were then removed from the distribution in the second set of data. Per your request, the PM 2.5 and PM 10 results, both with and without the large fibers, have been summarized in Table 3. The original data pages have been included for your review.

We trust this information will be beneficial for your future use. If there are any questions concerning this data or the methods used to acquire the data, please do not hesitate to contact us here at Particle Technology Labs.

Submitted by,

  
Michael J. Pisano  
Fine Particle Analyst II

Reviewed by,

  
Eric Olson  
Senior Chemist

**TABLE 2**  
**MORPHOLOGICAL G3S PARAMETER DEFINITIONS**

<b>PARAMETER</b>	<b>DEFINITION</b>
Aspect Ratio	Width divided by length; values range from 0 to 1
Circular Equivalent (CE) Diameter	The diameter for the particle is determined by the diameter of a circle with the same area
Circularity	The ratio of the circumference of a circle equal to the object's projected area to the perimeter of the object; values range from 0 to 1
Convexity	The convexity number illustrates how much a particle curves in or bulges. A circle has a value of 1.0. A particle curving in has a lower value, approaching 0.
Solidity	The object's area divided by the area enclosed within the convex hull (border created by an imaginary rubber band wrapped around the object)

**TABLE 3**  
**IMAGE ANALYSIS PARTICLE SIZE DATA SUMMARY**

<b>SAMPLE ID</b>	<b>Circular Equivalent (CE) Diameter</b>	
	<b>CUMULATIVE VOLUME % LESS THAN INDICATED SIZE</b>	
FRP Composite Duct	<b>PM 2.5</b>	<b>PM 10</b>
With Fibers	8.7	40.4
Without Fibers	8.8	40.8

# Particle Report

Comments: SPUNSTRAND, INC  
FRP Composite Duct  
mjp Particle Technology Labs  
PTL ID: 87129

Sample Name: Bag house Dust

User Name: Michael Pisano

Date: 28 December 2011 16:46:32

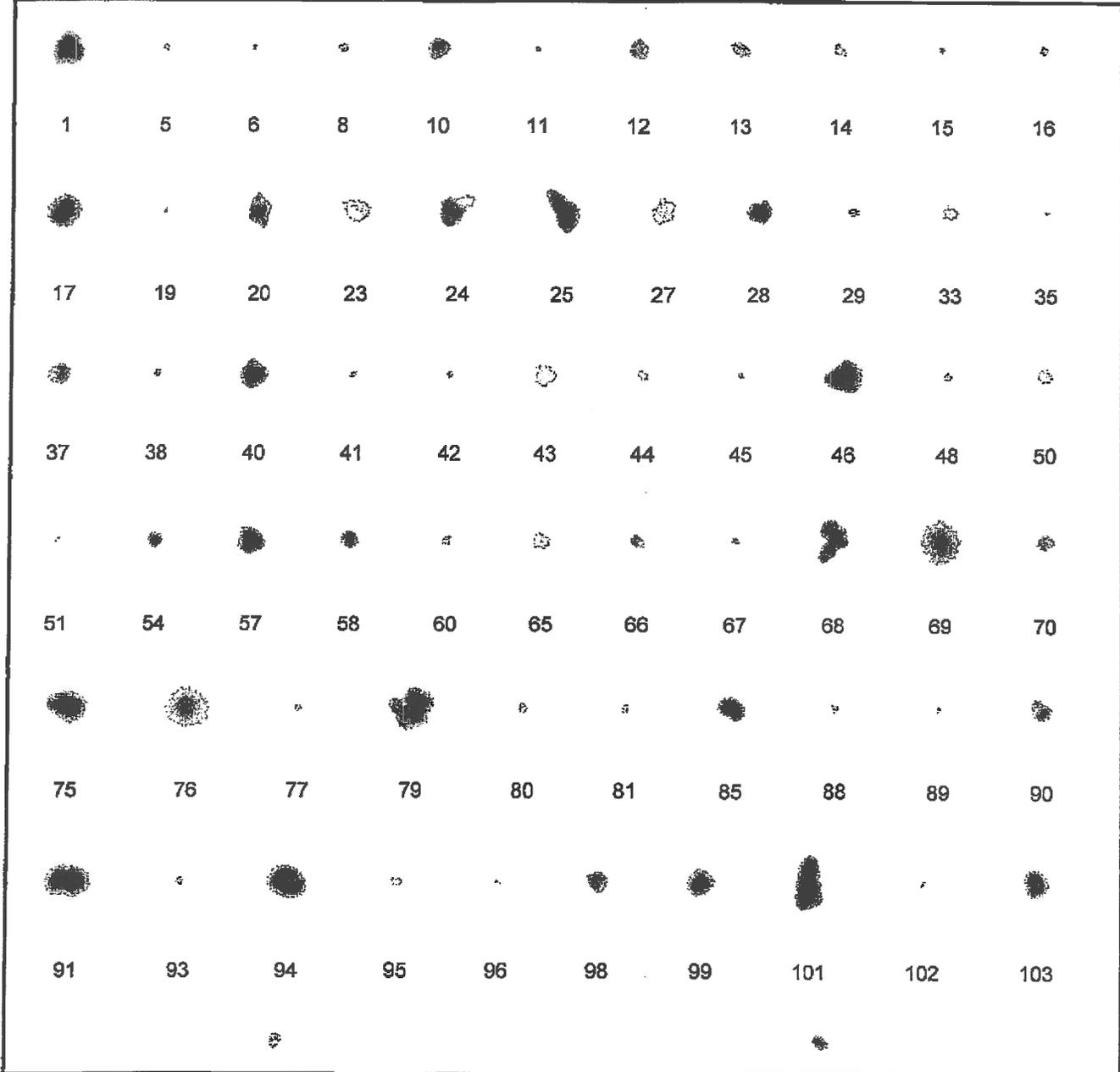
Edited On: 04 January 2012 10:50:46

SOP Analysis: 3.0

SOP Trash Size (pixels): 10

SOP Name: Spunstrand - Baghouse Dust.v SOP

SOP Optic(s) used: 5x, 20x



20 μm 105

Scale 1:1000

106

*mjp*  
1/3/12  
6:30pm

# Aspect Ratio Report - Number Distribution

**Comments:** SPUNSTRAND, INC  
FRP Composite Duct  
mjp Particle Technology Labs  
PTL ID: 87129

**Sample Name:** Bag house Dust

**User Name:** Michael Pisano

**Date:** 28 December 2011 16:46:32

**Edited On:** 04 January 2012 10:50:46

**SOP Analysis:** 3.0

**SOP Trash Size (pixels):** 10

**SOP Optic(s) used:** 5x, 20x

**SOP Name:** Spunstrand - Baghouse Dust.vsop

**Aspect Ratio Minimum:** 0.038

**Aspect Ratio D[n, 0.1]:** 0.617

**Aspect Ratio Maximum:** 0.995

**Aspect Ratio D[n, 0.5]:** 0.803

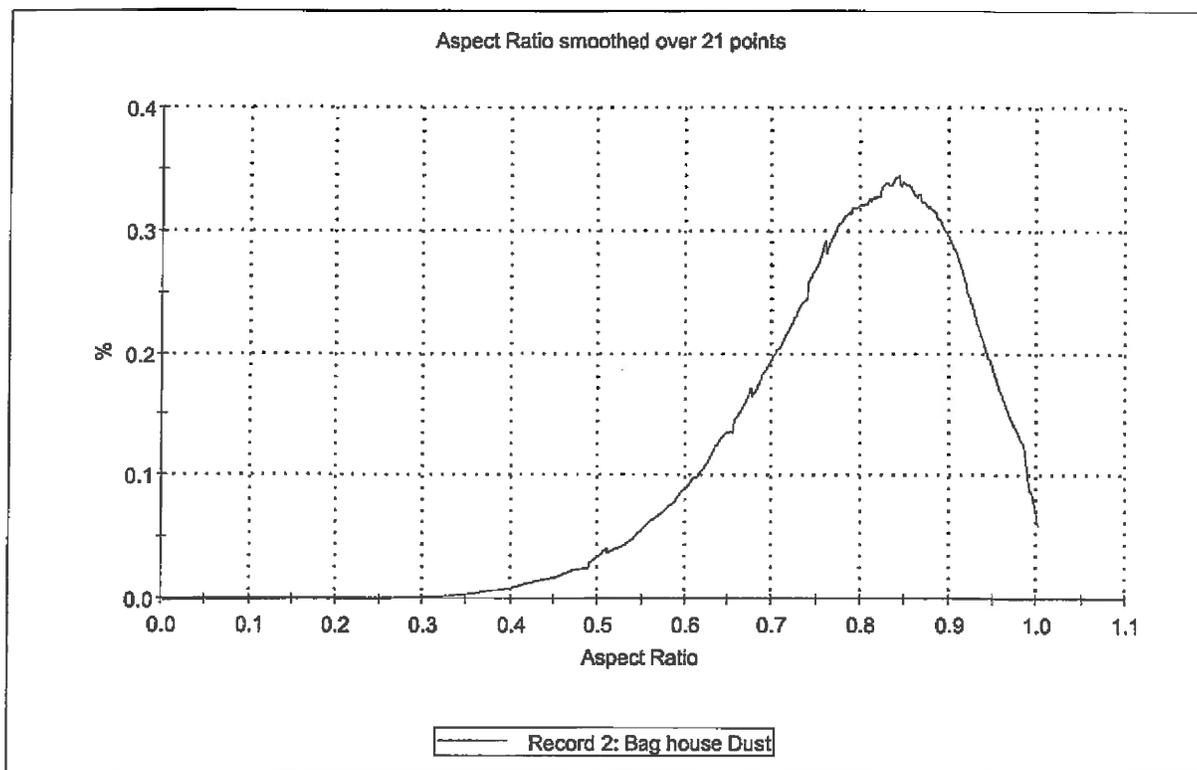
**Aspect Ratio Mean:** 0.787

**Aspect Ratio D[n, 0.9]:** 0.932

**Particles Counted:** 435334

**Aspect Ratio STDV:** 0.124

**Aspect Ratio RSD (%):** 15.71



# CE Diameter Report - Number Distribution

Comments: SPUNSTRAND, INC  
FRP Composite Duct  
mjp Particle Technology Labs  
PTL ID: 87129

Sample Name: Bag house Dust

User Name: Michael Pisano

Date: 28 December 2011 16:46:32

Edited On: 04 January 2012 10:50:46

SOP Analysis: 3.0

SOP Trash Size (pixels): 10

SOP Optic(s) used: 5x, 20x

SOP Name: Spunstrand - Baghouse Dust.vsop

CE Diameter Minimum ( $\mu\text{m}$ ): 0.78

CE Diameter D[n, 0.10] ( $\mu\text{m}$ ): 0.87

CE Diameter Maximum ( $\mu\text{m}$ ): 291.54

CE Diameter D[n, 0.14] ( $\mu\text{m}$ ): 0.95

CE Diameter Mean ( $\mu\text{m}$ ): 2.59

CE Diameter D[n, 0.50] ( $\mu\text{m}$ ): 1.57

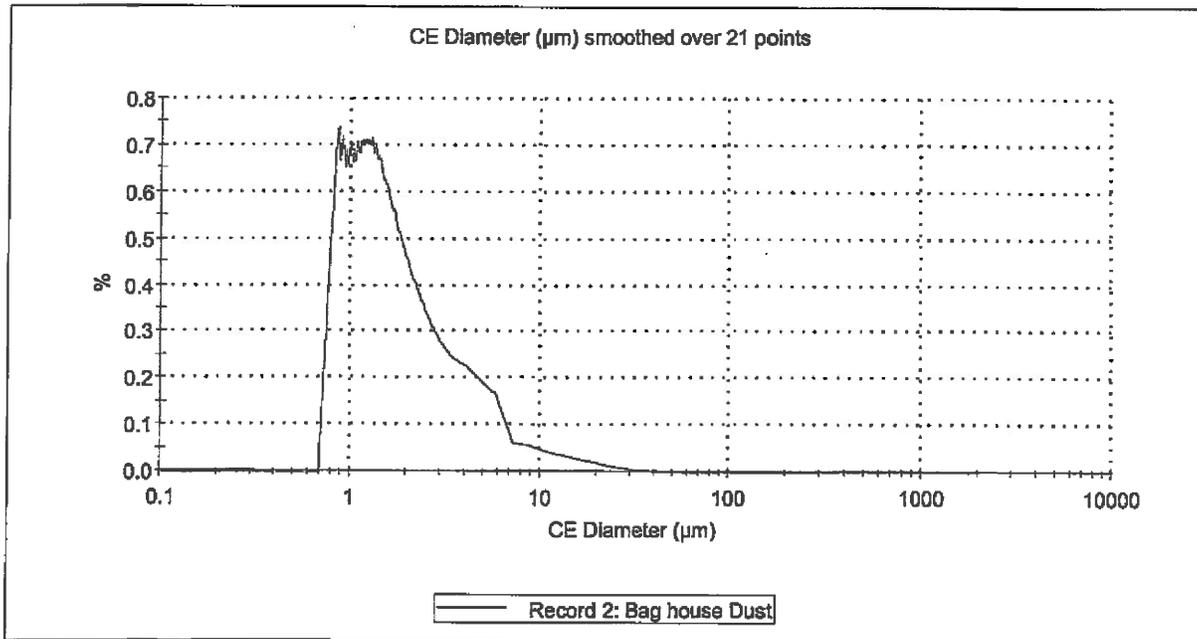
CE Diameter STDV ( $\mu\text{m}$ ): 3.27

CE Diameter D[n, 0.86] ( $\mu\text{m}$ ): 3.81

CE Diameter RSD (%): 125.92

CE Diameter D[n, 0.90] ( $\mu\text{m}$ ): 5.03

Particles Counted: 435334




# CE Diameter Report - Volume Distribution

Comments: SPUNSTRAND, INC  
FRP Composite Duct  
mjp Particle Technology Labs  
PTL ID: 87129

Sample Name: Bag house Dust

User Name: Michael Pisano

Date: 28 December 2011 16:46:32

Edited On: 04 January 2012 10:50:46

SOP Analysis: 3.0

SOP Trash Size (pixels): 10

SOP Optic(s) used: 5x, 20x

SOP Name: Spunstrand - Baghouse Dust.vsop

CE Diameter Minimum ( $\mu\text{m}$ ): 0.78

CE Diameter D[v, 0.1]: 10.42

CE Diameter Maximum ( $\mu\text{m}$ ): 291.54

CE Diameter D[v, 0.5]: 31.19

CE Diameter D[4,3] ( $\mu\text{m}$ ): 78.61

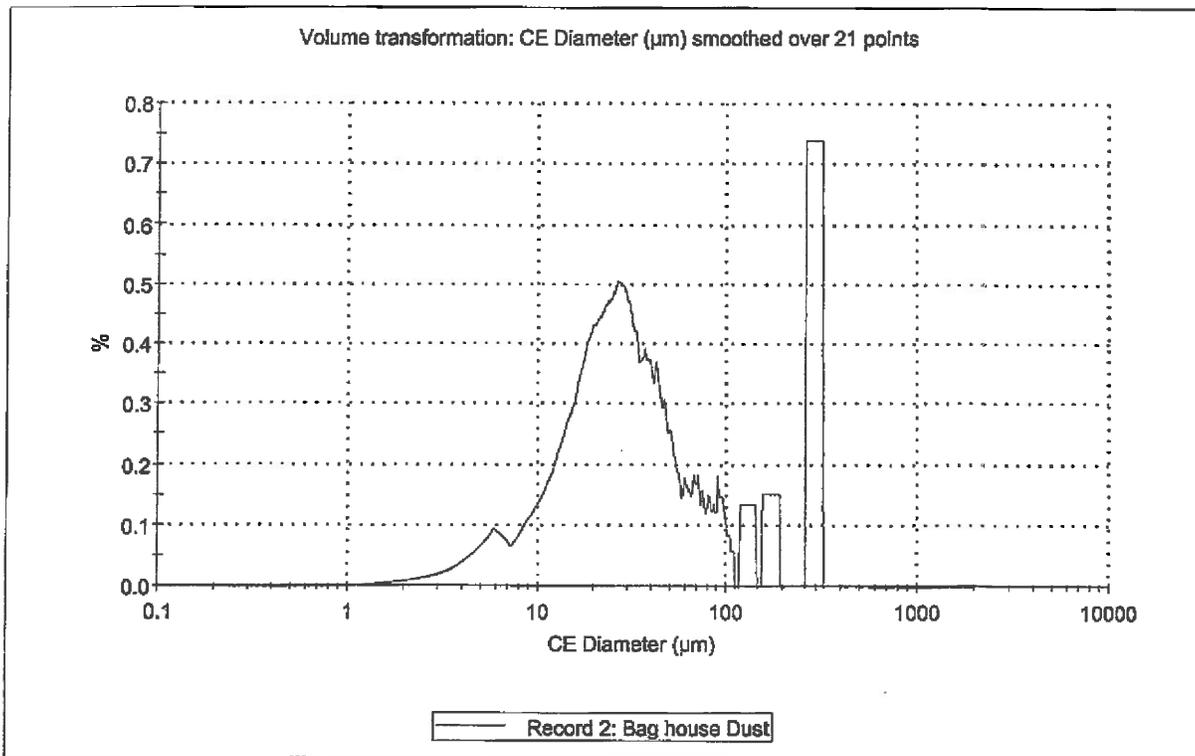
CE Diameter D[v, 0.9]: 288.1

CE Diameter D[3,2] ( $\mu\text{m}$ ): 21.08

CE Diameter STDV ( $\mu\text{m}$ ): 3.27

Particles Counted: 435334

CE Diameter RSD (%): 125.92



# Circularity Report - Number Distribution

Comments: SPUNSTRAND, INC  
FRP Composite Duct  
mjp Particle Technology Labs  
PTL ID: 87129

Sample Name: Bag house Dust

User Name: Michael Pisano

Date: 28 December 2011 16:46:32

Edited On: 04 January 2012 10:50:46

SOP Analysis: 3.0

SOP Trash Size (pixels): 10

SOP Optic(s) used: 5x, 20x

SOP Name: Spunstrand - Baghouse Dust.vso

Circularity Minimum: 0.000

Circularity D[n, 0.1]: 0.568

Circularity Maximum: 0.995

Circularity D[n, 0.5]: 0.698

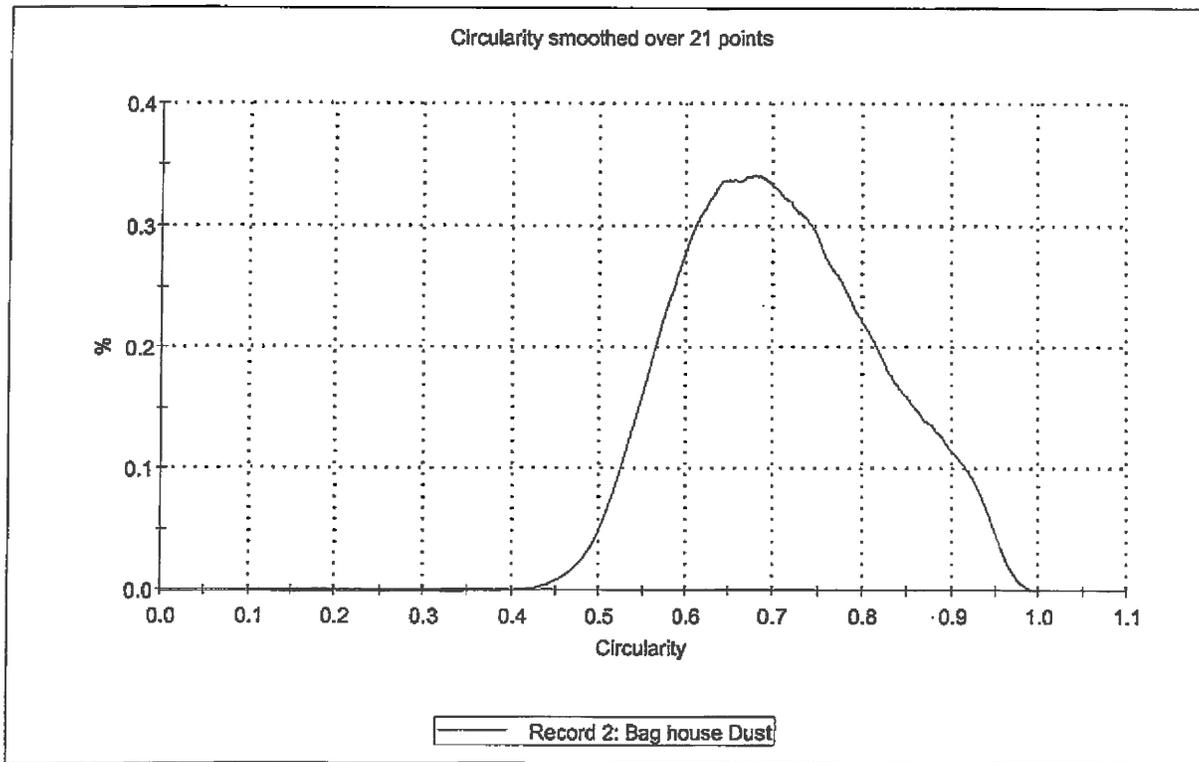
Circularity Mean: 0.706

Circularity D[n, 0.9]: 0.861

Particles Counted: 435334

Circularity STDV: 0.109

Circularity RSD: 15.44



# Convexity Report - Number Distribution

Sample Name: Bag house Dust

SOP Name: Spunstrand - Baghouse Dust.vsop

Edited: True

User Name: Michael Pisano

Edited On: 04 January 2012 10:50:46

Date: 28 December 2011 16:46:32

SOP Analysis: 3.0

SOP Fill Holes: True

SOP Segmentation: None

SOP Trash Size: 10

SOP Optic(s) used: 5x, 20x

Convexity Minimum: 0.600

Convexity D[n, 0.1]: 0.721

Convexity Maximum: 1.000

Convexity D[n, 0.5]: 0.848

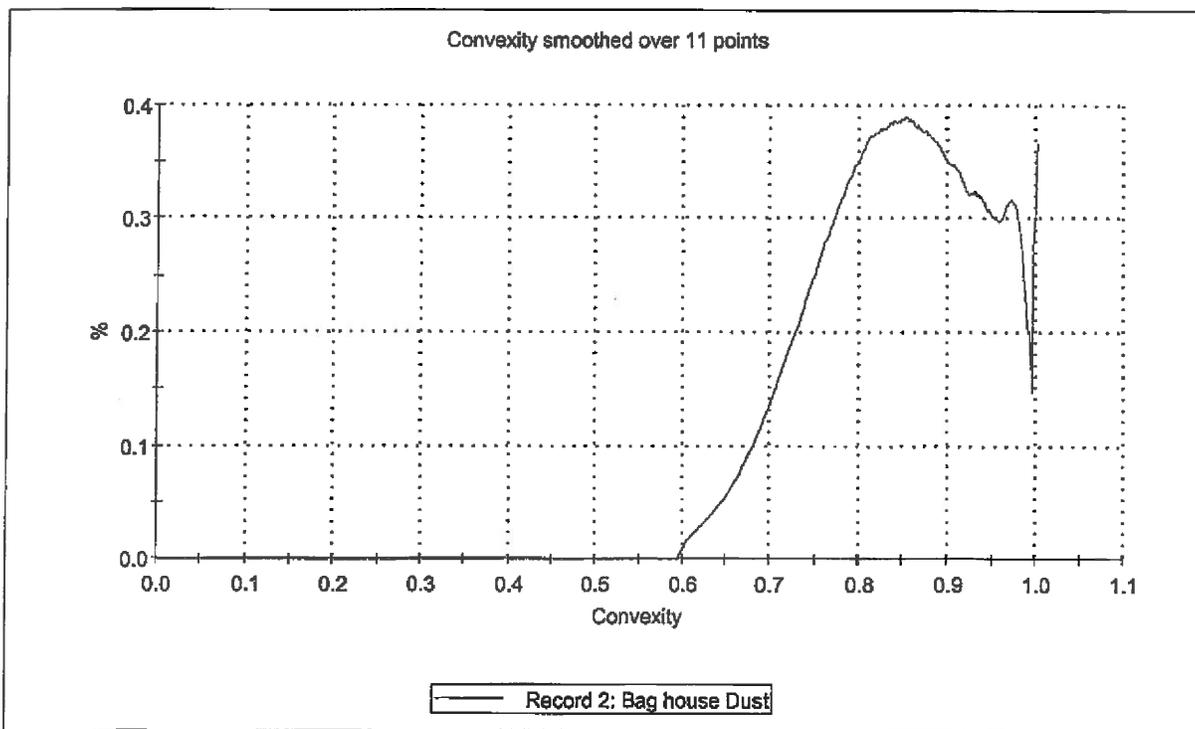
Convexity Mean: 0.846

Convexity D[n, 0.9]: 0.965

Particles Counted: 435334

Convexity STDV: 0.090

Convexity RSD (%): 10.64



Comments: SPUNSTRAND, INC  
FRP Composite Duct  
mjp Particle Technology Labs  
PTL ID: 87129

# Solidity Report - Number Distribution

Sample Name: Bag house Dust

SOP Name: Spunstrand - Baghouse Dust.vsop

Edited: True

User Name: Michael Pisano

Edited On: 04 January 2012 10:50:46

Date: 28 December 2011 16:46:32

SOP Analysis: 3.0

SOP Fill Holes: True

SOP Segmentation: None

SOP Trash Size: 10

SOP Optic(s) used: 5x, 20x

Solidity Minimum: 0.801

Solidity D[n, 0.1]: 0.826

Solidity Maximum: 1.000

Solidity D[n, 0.5]: 0.894

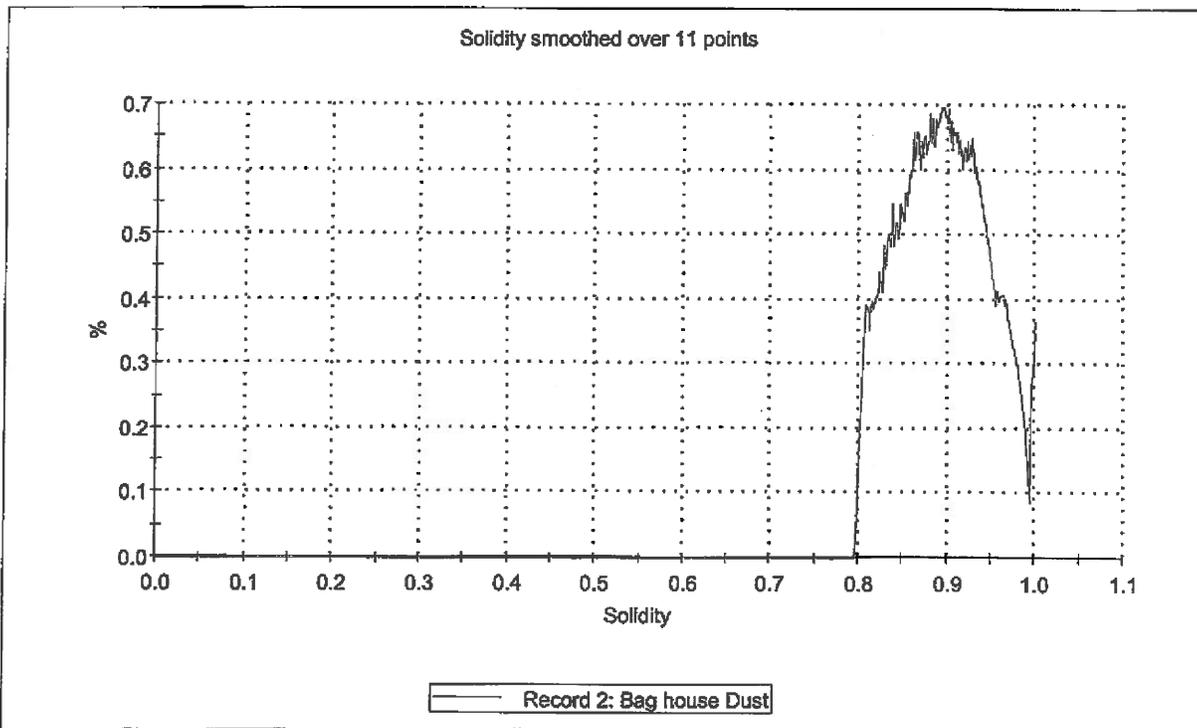
Solidity Mean: 0.896

Solidity D[n, 0.9]: 0.965

Particles Counted: 435334

Solidity STDV: 0.051

Solidity RSD (%): 5.65



Comments: SPUNSTRAND, INC  
 FRP Composite Duct  
 mjp Particle Technology Labs  
 PTL ID: 87129



# Particle Report

**Comments:** SPUNSTRAND, INC  
FRP Composite Duct  
Filtered Aspect Ratio < 0.2  
mjp Particle Technology Labs  
PTL ID: 87129

**Sample Name:** Bag house Dust

**User Name:** Michael Pisano

**Date:** 28 December 2011 16:46:32

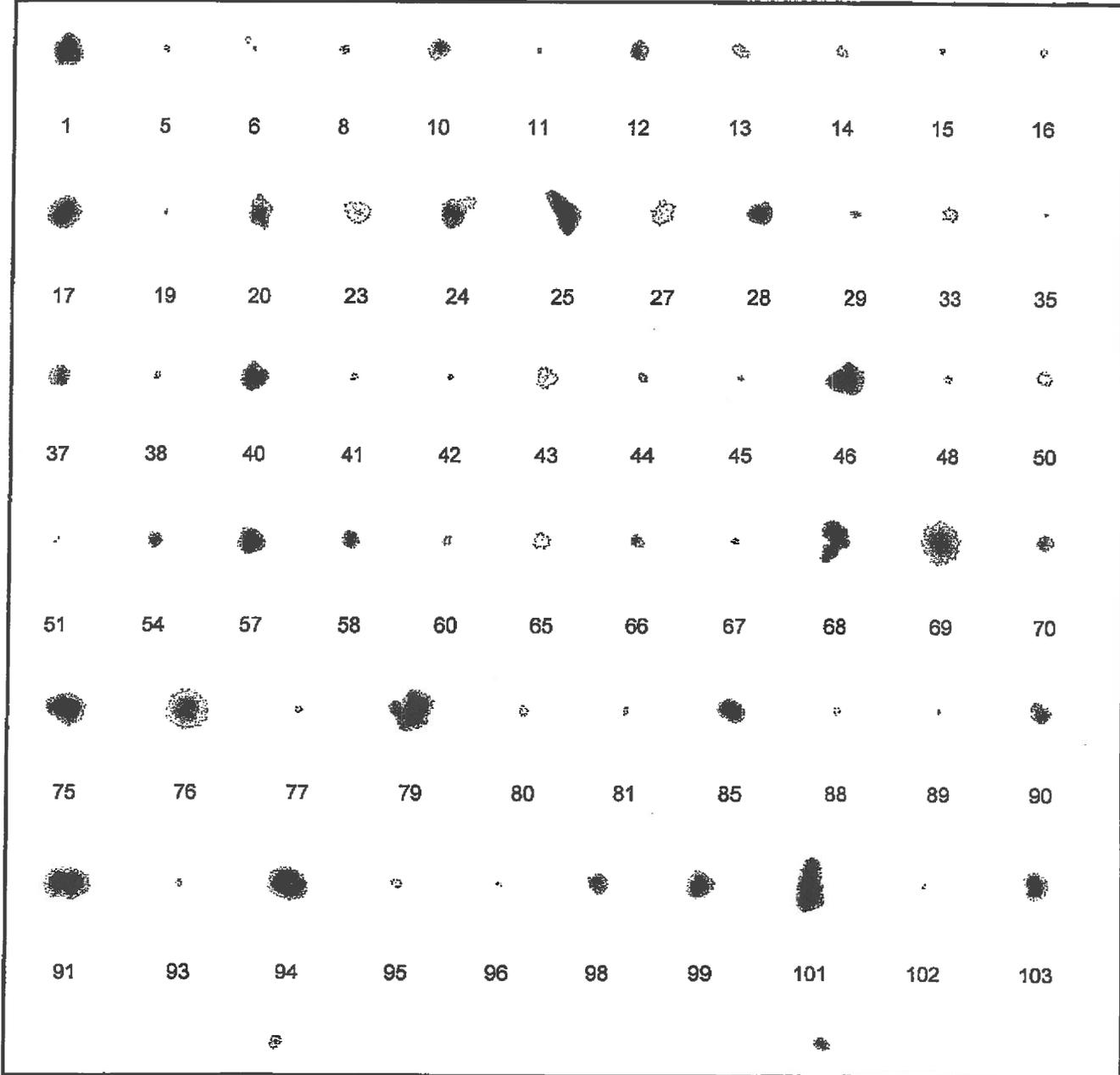
**Edited On:** 04 January 2012 11:08:52

**SOP Analysis:** 3.0

**SOP Trash Size (pixels):** 10

**SOP Name:** Spunstrand - Baghouse Dust.vsop

**SOP Optic(s) used:** 5x, 20x



20 µm 105

Scale 1:1000

106

# Aspect Ratio Report - Number Distribution

**Comments:** SPUNSTRAND, INC  
FRP Composite Duct  
Filtered Aspect Ratio < 0.2  
mjp Particle Technology Labs  
PTL ID: 87129

**Sample Name:** Bag house Dust  
**User Name:** Michael Pisano  
**Date:** 28 December 2011 16:46:32  
**Edited On:** 04 January 2012 11:08:52

**SOP Analysis:** 3.0

**SOP Trash Size (pixels):** 10

**SOP Optic(s) used:** 5x, 20x

**SOP Name:** Spunstrand - Baghouse Dust.v SOP

**Aspect Ratio Minimum:** 0.200

**Aspect Ratio D[n, 0.1]:** 0.617

**Aspect Ratio Maximum:** 0.995

**Aspect Ratio D[n, 0.5]:** 0.803

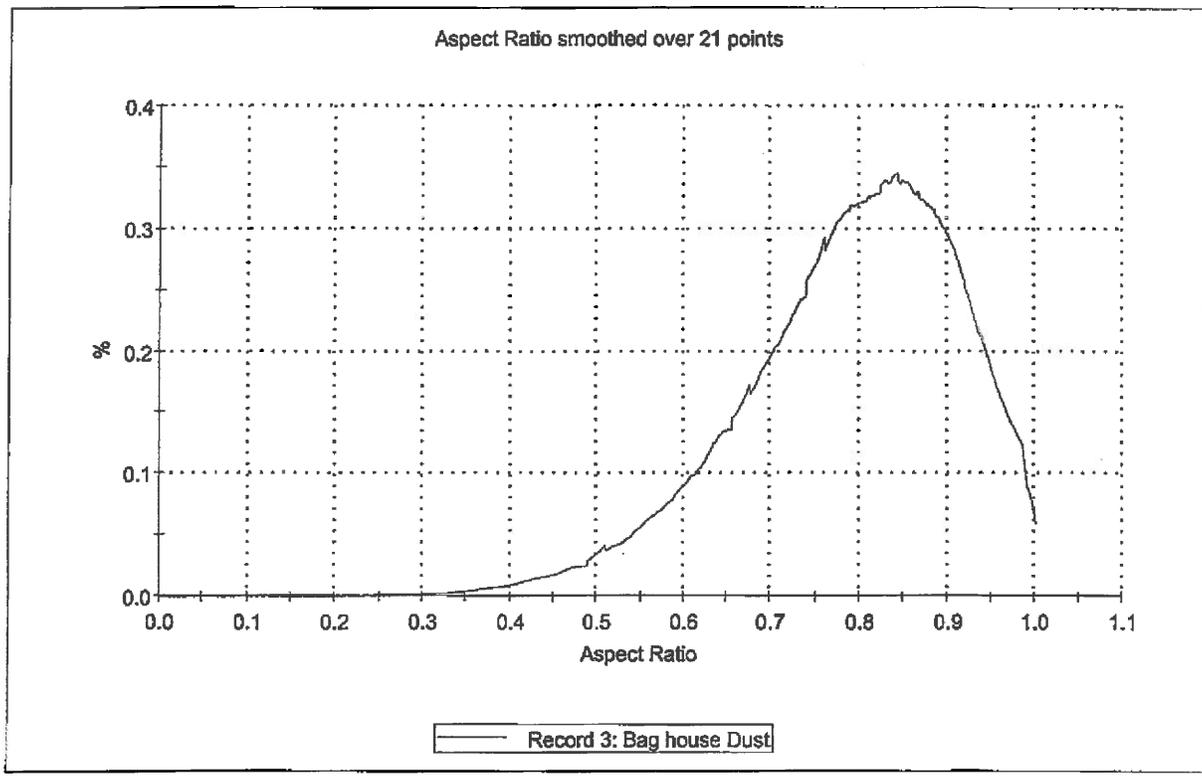
**Aspect Ratio Mean:** 0.787

**Aspect Ratio D[n, 0.9]:** 0.932

**Particles Counted:** 435250

**Aspect Ratio STDV:** 0.123

**Aspect Ratio RSD (%):** 15.67



# CE Diameter Report - Number Distribution

**Comments:** SPUNSTRAND, INC  
FRP Composite Duct  
Filtered Aspect Ratio < 0.2  
mjp Particle Technology Labs  
PTL ID: 87129

**Sample Name:** Bag house Dust  
**User Name:** Michael Pisano  
**Date:** 28 December 2011 16:46:32  
**Edited On:** 04 January 2012 11:08:52

**SOP Analysis:** 3.0

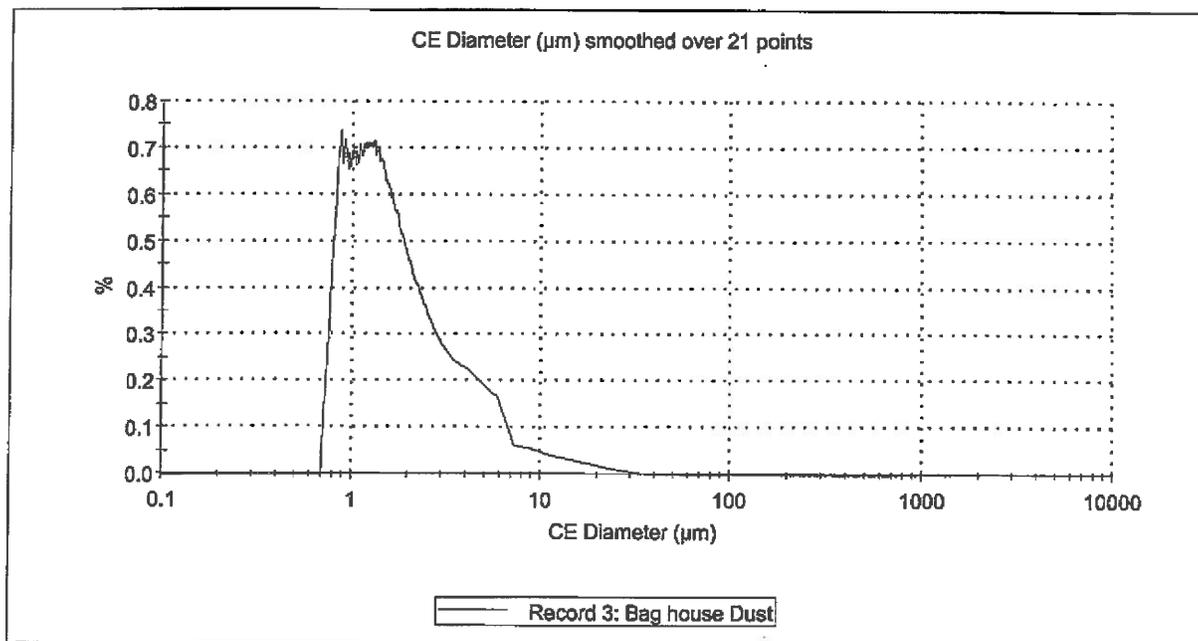
**SOP Trash Size (pixels):** 10

**SOP Optic(s) used:** 5x, 20x

**SOP Name:** Spunstrand - Baghouse Dust.vsop

<b>CE Diameter Minimum (<math>\mu\text{m}</math>):</b> 0.78	<b>CE Diameter D[n, 0.10] (<math>\mu\text{m}</math>):</b> 0.87
<b>CE Diameter Maximum (<math>\mu\text{m}</math>):</b> 291.54	<b>CE Diameter D[n, 0.14] (<math>\mu\text{m}</math>):</b> 0.95
<b>CE Diameter Mean (<math>\mu\text{m}</math>):</b> 2.59	<b>CE Diameter D[n, 0.50] (<math>\mu\text{m}</math>):</b> 1.57
<b>CE Diameter STDV (<math>\mu\text{m}</math>):</b> 3.24	<b>CE Diameter D[n, 0.86] (<math>\mu\text{m}</math>):</b> 3.81
<b>CE Diameter RSD (%):</b> 125.20	<b>CE Diameter D[n, 0.90] (<math>\mu\text{m}</math>):</b> 5.02

**Particles Counted:** 435250



# CE Diameter Report - Volume Distribution

**Comments:** SPUNSTRAND, INC  
FRP Composite Duct  
Filtered Aspect Ratio < 0.2  
mjp Particle Technology Labs  
PTL ID: 87129

**Sample Name:** Bag house Dust  
**User Name:** Michael Pisano  
**Date:** 28 December 2011 16:46:32  
**Edited On:** 04 January 2012 11:08:52

**SOP Analysis:** 3.0

**SOP Trash Size (pixels):** 10

**SOP Optic(s) used:** 5x, 20x

**SOP Name:** Spunstrand - Baghouse Dust.vsop

**CE Diameter Minimum ( $\mu\text{m}$ ):** 0.78

**CE Diameter D[v, 0.1]:** 10.25

**CE Diameter Maximum ( $\mu\text{m}$ ):** 291.54

**CE Diameter D[v, 0.5]:** 30.49

**CE Diameter D[4,3] ( $\mu\text{m}$ ):** 79.2

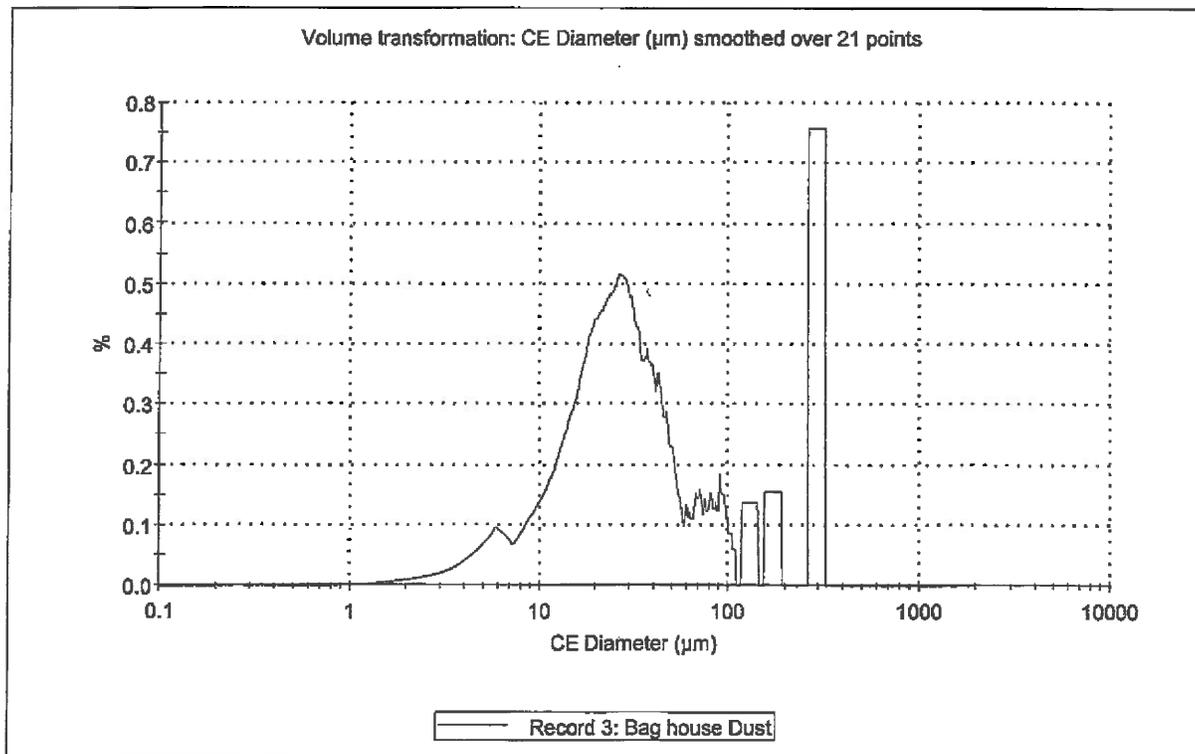
**CE Diameter D[v, 0.9]:** 288.2

**CE Diameter D[3,2]( $\mu\text{m}$ ):** 20.78

**CE Diameter STDV ( $\mu\text{m}$ ):** 3.24

**Particles Counted:** 435250

**CE Diameter RSD (%):** 125.20



## Circularity Report - Number Distribution

**Comments:** SPUNSTRAND, INC  
FRP Composite Duct  
Filtered Aspect Ratio < 0.2  
mjp Particle Technology Labs  
PTL ID: 87129

**Sample Name:** Bag house Dust

**User Name:** Michael Pisano

**Date:** 28 December 2011 16:46:32

**Edited On:** 04 January 2012 11:08:52

**SOP Analysis:** 3.0

**SOP Trash Size (pixels):** 10

**SOP Optic(s) used:** 5x, 20x

**SOP Name:** Spunstrand - Baghouse Dust.vsop

**Circularity Minimum:** 0.335

**Circularity D[n, 0.1]:** 0.568

**Circularity Maximum:** 0.995

**Circularity D[n, 0.5]:** 0.698

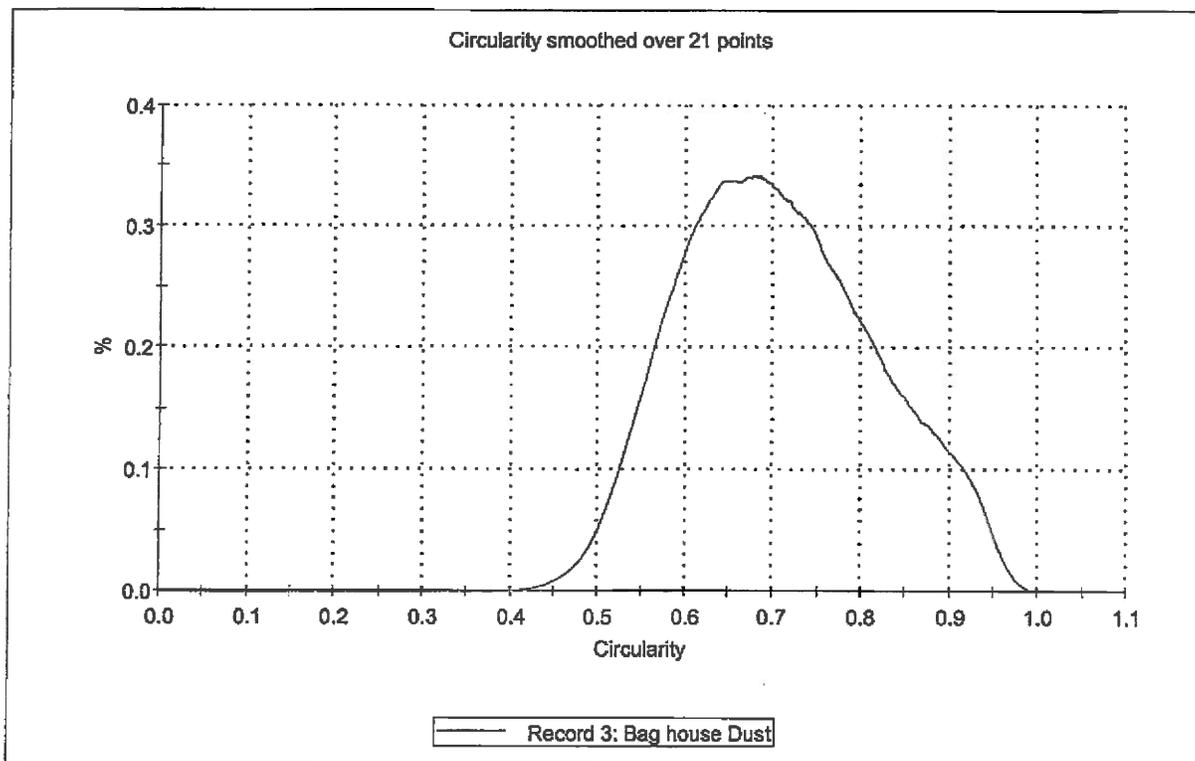
**Circularity Mean:** 0.707

**Circularity D[n, 0.9]:** 0.861

**Particles Counted:** 435250

**Circularity STDV:** 0.109

**Circularity RSD:** 15.43



# Convexity Report - Number Distribution

Sample Name: Bag house Dust

SOP Name: Spunstrand - Baghouse Dust.vsop

Edited: True

User Name: Michael Pisano

Edited On: 04 January 2012 11:08:52

Date: 28 December 2011 16:46:32

SOP Analysis: 3.0

SOP Fill Holes: True

SOP Segmentation: None

SOP Trash Size: 10

SOP Optic(s) used: 5x, 20x

Convexity Minimum: 0.600

Convexity D[n, 0.1]: 0.721

Convexity Maximum: 1.000

Convexity D[n, 0.5]: 0.848

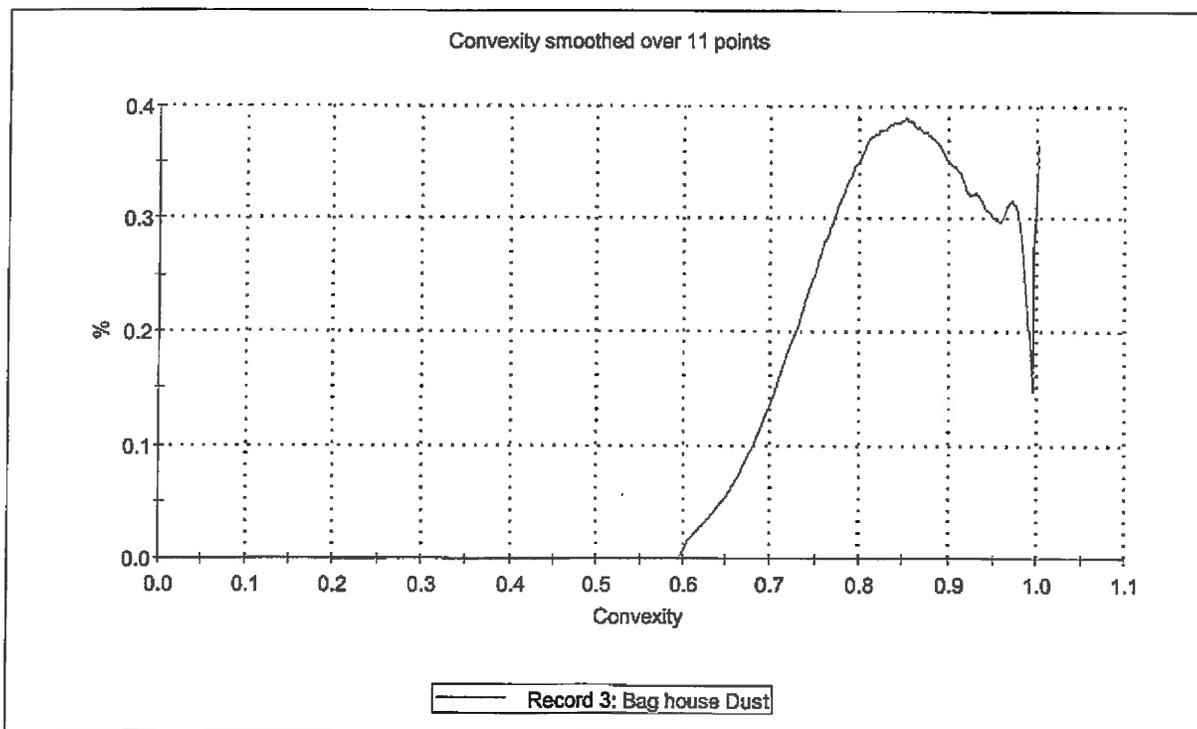
Convexity Mean: 0.846

Convexity D[n, 0.9]: 0.965

Particles Counted: 435250

Convexity STDV: 0.090

Convexity RSD (%): 10.64



Comments: SPUNSTRAND, INC  
 FRP Composite Duct  
 Filtered Aspect Ratio < 0.2  
 mjp Particle Technology Labs  
 PTL ID: 87129

# Solidity Report - Number Distribution

Sample Name: Bag house Dust

SOP Name: Spunstrand - Baghouse Dust.vsop

Edited: True

User Name: Michael Pisano

Edited On: 04 January 2012 11:08:52

Date: 28 December 2011 16:46:32

SOP Analysis: 3.0

SOP Fill Holes: True

SOP Segmentation: None

SOP Trash Size: 10

SOP Optic(s) used: 5x, 20x

Solidity Minimum: 0.801

Solidity D[n, 0.1]: 0.826

Solidity Maximum: 1.000

Solidity D[n, 0.5]: 0.894

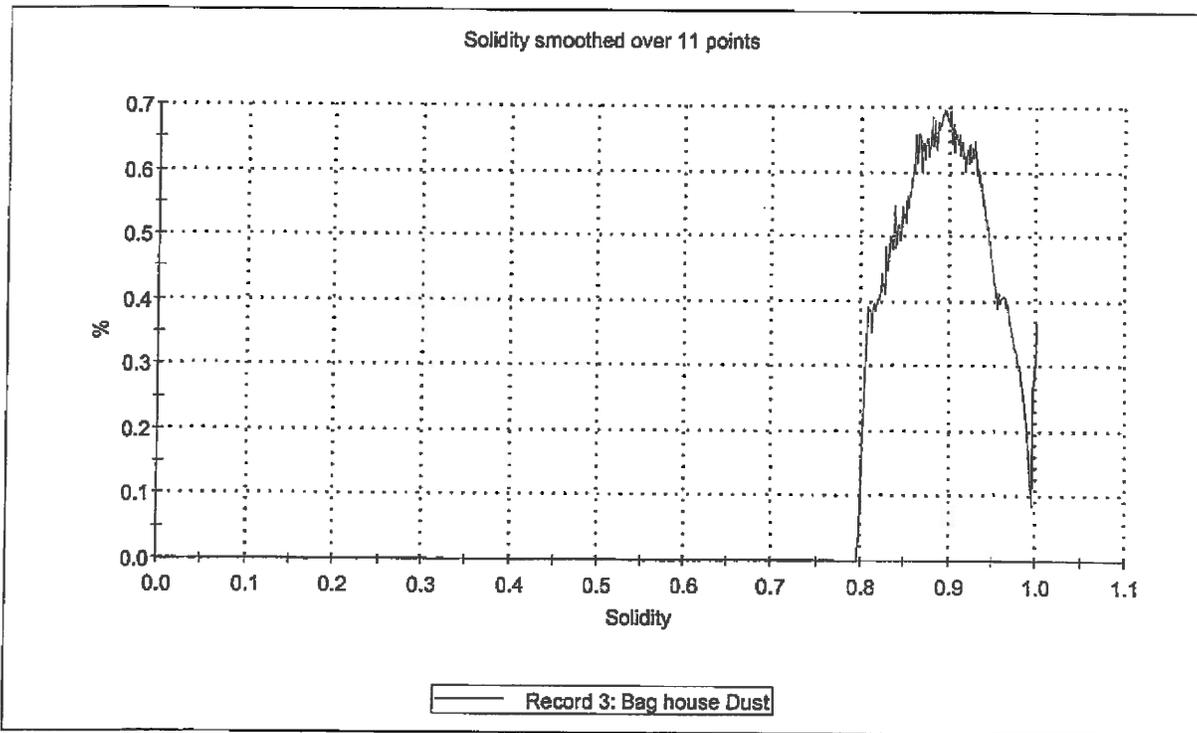
Solidity Mean: 0.896

Solidity D[n, 0.9]: 0.965

Particles Counted: 435250

Solidity STDV: 0.051

Solidity RSD (%): 5.65



Comments: SPUNSTRAND, INC  
FRP Composite Duct  
Filtered Aspect Ratio < 0.2  
mjp Particle Technology Labs  
PTL ID: 87129

## APPENDIX B

### MATERIAL SAFETY DATA SHEETS

- Ashland 05711WF White
- Ashland 120737 Aropol Q 6490
- Ashland 563101 Hetron 92
- Ashland 563115 Hetron 99 P
- Ashland 66087 Hetron 992 SB
- Ashland 566105 Hetron 197 P
- Ashland 566604 Hetron 922
- Ashland 566621 Hetron FR 992
- Ashland Derakane 470-300
- Ashland Hetron 620T 20M
- Cook Composites 0400004 Styrene Monomer
- Cook Composites 998WK581 Polycor Arctic White
- Fiberlay 057B396F Roberts Gray
- Fiberlay 0583076 Black Gray
- Gel Coat Products 9037MC Sandstone
- Gel Coat Products GCP 9385 Platinum
- Orca 052320D -0320 ISO
- Orca 0571100F White
- Orca 05803086 Brown Generic
- Orca 0583016 Beige White
- Valspar 5776W90065ZF
- Valspar 5777E90028
- Valspar 5777W90032
- Valspar 5788C90007

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311 SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION 9-8-02

CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT ID : WE-0317
TRADE NAME : WHITE ENAMEL GEL COAT
FORMULA ID : WE-0317
FORMULA VERSION NUMBER : 1
MSDS PREPARATION DATE : 03/01/2002

03/27/2-002

05711WF

MANUFACTURER IDENTIFICATION:

NAME : ASHLAND SPECIALTY CHEMICAL CO.
ADDRESS : Composite Polymers Division
5106 Wheeler Ave

FORT SMITH AR 72901

REGULATORY INFORMATION TELEPHONE : 1-800-325-3751
EMERGENCY TELEPHONE NUMBER : 1-800-ASHLAND (1-800-274-5263)

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

1
CAS# 80626
METHYL METHACRYLATE
PCT BY WT: 3.9400 LEL 2.10
EXPOSURE LIMIT:
OSHA PEL/TWA: 100 ppm (410mg/M3) 8 hour TWA
OSHA STEL: None
ACGIH TLV/TWA: None
IARC: n/a

2 STYRENE
CAS# 100425
PCT BY WT: 32.4910 LEL 1.10
EXPOSURE LIMIT:
OSHA PEL/TWA: 50 ppm (215mg/M3) 8-hour TWA
OSHA STEL: 100 ppm (425mg/M3)
ACGIH TLV/TWA: 20 ppm (86mg/M3)
IARC: 2B ("possible")

\*\*\*\*\*
This product contains one or more reported carcinogens or suspected carcinogens which are noted NTP, IARC, or OSHA-Z in the other limits recommended column.

\*\*\*\*\*
This substance is classified as a hazardous air pollutant.

\*\*\*\*\*
This product contains pigments which may become a dust nuisance when removed by abrasive blasting, sanding, or grinding.

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WE-0317

## SECTION 3 - HAZARDS IDENTIFICATION

## POTENTIAL HEALTH EFFECTS:

## EYE:

Exposure can cause eye irritation. Symptoms may include stinging, tearing, redness, and swelling.

## SKIN:

Exposure can cause skin irritation. Prolonged or repeated exposure may dry the skin. Symptoms may include redness, burning, drying and cracking skin burns and skin damage. Skin absorption is possible, but harmful effects are not expected from this route of exposure under normal conditions of handling and use.

Exposure can cause skin irritation. Prolonged or repeated exposure may dry the skin. Symptoms may include redness, burning, drying and cracking skin burns and skin damage. Skin absorption is possible, but harmful effects are not expected from this route of exposure under normal conditions of handling and use. Prolonged or repeated exposure to methyl methacrylate can cause skin sensitization.

## INHALATION:

Inhalation of excessive amounts can cause drowsiness, memory loss, dizziness, and loss of coordination.

## INGESTION:

Single dose oral toxicity is low. Swallowing small amounts during normal handling is not likely to cause harmful effects; swallowing large amounts may be harmful. This material can enter the lungs during swallowing or vomiting and cause lung inflammation and/or damage.

## CHRONIC EFFECTS:

Repeated or prolonged exposure to styrene may cause nausea, loss of appetite, CNS depression, and general weakness.

## CARCINOGENICITY:

The International Agency for Research on Cancer (IARC, 1987) states that styrene is "possibly carcinogenic to humans" (Group 2B) based on "inadequate evidence" in humans, "limited evidence" in animals, and "other relevant data." According to the IARC report, these "other relevant data" include studies demonstrating that styrene is metabolized in humans to styrene oxide, an agent which is known to induce cancers in two animal species. Additionally, styrene has been shown to be mutagenic in several "in vitro" assays. However, unlike some animal species, man apparently is able to readily detoxify the styrene oxide generated from styrene exposures. Moreover, studies in humans exposed for long periods of time to styrene have not demonstrated any carcinogenic effects.

## TARGET ORGANS:

Overexposure to styrene has been suggested as a cause of the following effects in laboratory animals, and may aggravate pre-existing disorders of these organs in humans: mild, reversible kidney effects, effects on hearing, respiratory tract damage, testis damage, liver damage. Overexposure has been suggested as a cause of the following effects in humans and may aggravate pre-existing disorders of these organs: central

ASHLAND SPECIALTY CHEMICAL CO.  
MATERIAL SAFETY DATA SHEET

WE-0317

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nervous system effects, mild effects on color vision, effects on hearing, respiratory tract damage.

## SECTION 4 - FIRST AID MEASURES

## EYE CONTACT:

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

## SKIN CONTACT:

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

## INHALATION:

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

## INGESTION:

Do not induce vomiting. This material is an aspiration hazard. If individual is drowsy or unconscious, place on left side with the head down. Seek medical attention. If possible, do not leave individual unattended.

## SECTION 5 - FIRE FIGHTING MEASURES

## FIRE AND EXPLOSIVE PROPERTIES OF THE CHEMICAL:

Flammability Classification . . . . .	: Class 1C Flammable Liquid (OSHA)
Flashpoint . . . . .	: 82.0 F
Explosion Level . . . . .	: Low - 1.1
	: High - 12.5

## EXTINGUISHING MEDIA:

Use CO2, Dry Chemical, Foam  
Use waterspray/waterfog for cooling

## FIRE-FIGHTING PROCEDURES AND EQUIPMENTS:

Fire fighters should use self-contained breathing apparatus with full facepiece.

Do not enter fire area without proper protection. Fight fire from a safe distance/protected location. Heat/impurities may increase temperature/build pressure/rupture closed containers, spreading fire, increasing risk of burns/injuries. Water may be ineffective in firefighting due to low solubility. Use water spray/fog for cooling. Pressure relief system may plug with solids, increasing risk of overpressure. Notify authorities immediately if liquid enters sewer/public waters.

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## SECTION 6 - ACCIDENTAL RELEASE MEASURES

## CLEAN-UP AND CONTAINMENT:

Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump, vacuum, or scoop spilled product to clean containers for disposal. Use non-sparking tools. Sand, vermiculite, or floor absorbent may be used to absorb material and help prevent spreading. In the case of a large spill, persons not wearing protective equipment should be excluded from the area until clean-up has been completed.

## SECTION 7 - HANDLING AND STORAGE

## HANDLING:

All five gallon pails and larger metal containers should be grounded and/or bonded when material is transferred.

## STORAGE:

Store away from heat and direct sunlight. Excessive temperatures may lead to premature gellation.

## SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

## EYE PROTECTION:

Chemical splash goggles in compliance with OSHA regulations are advised.

## RESPIRATORY PROTECTION:

NIOSH approved respiratory equipment. Half face-piece air purifying organic vapor cartridge respirator can be used up to 400 ppm exposure. A full face-piece air purifying organic vapor cartridge respirator can be used up to 1000 ppm for short-term periods depending on respirator cartridge use efficiency. Higher concentrations would require full face-piece, positive pressure, supplied air or self-contained breathing apparatus.

## SKIN PROTECTION:

Wear resistant gloves such as polyethylene, natural rubber, neoprene, buna N or nitrile.

## ENGINEERING CONTROLS:

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s)

ASHLAND SPECIALTY CHEMICAL CO.  
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## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical Appearance . . . . .	: WHITE
Odor . . . . .	: AROMATIC
Physical State . . . . .	: LIQUID
Vapor Pressure . . . . .	: 29.00
Vapor Density . . . . .	: 3.60
Boiling Range . . . . .	: Lower - 214.0 F °F Higher - 295.0 F °F
Water Solubility . . . . .	: INSOLUBLE
Specific Gravity . . . . .	: 1.338
Formula Weight per Volume . . . . .	: 11.1366 LB/GL
VOC . . . . .	: 4.061 pounds per gallon
Evaporation Rate . . . . .	: 3.000 (n-Butyl Acetate = 1)
Volatile by Weight . . . . .	: 36.4937
Volatile by Volume . . . . .	: 53.6884

## SECTION 10 - STABILITY AND REACTIVITY

## INCOMPATIBILITIES:

Incompatible with strong acids, peroxides, and other oxidizing agents, organic metal soaps.

## DECOMPOSITION:

Thermal decomposition may produce carbon monoxide, other toxic gases, acrid smoke, and fumes.

## CONDITIONS TO AVOID:

Heat, sparks, open flame, and other ignition sources

## POLYMERIZATION:

Hazardous polymerization not expected.

## STABILITY:

This product is stable under normal conditions.

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## SECTION 11 - TOXICOLOGICAL INFORMATION

## EYE EFFECTS:

No Data

## SKIN EFFECTS:

No Data

## ORAL EFFECTS:

No Data

## INHALATION EFFECTS:

No Data

## SECTION 12 - ECOLOGICAL INFORMATION

## ENVIRONMENTAL FATE:

STYRENE & METHYL METHACRYLATE ARE CLASSIFIED AS HAZARDOUS AIR POLLUTANTS, (HAP's). HOWEVER, BOTH REACT CHEMICALLY WHEN THE PRODUCT CURES AND ONLY A PORTION IS LOST AS VOLATILE ORGANIC COMPOUNDS, (VOC's). THE FOLLOWING METHOD IS RECOMMENDED FOR ESTIMATING VOC RELEASES FOR PERMITTING, OR TOXIC RELEASE INVENTORY, (TRI), REPORTING:

Use AP-42 factor, (.305), to determine loss. The calculation is:

Pounds of product used X styrene content X AP-42 factor      example:

You use 10000 pounds of a product containing 36.5% styrene

$10000 \times 0.365 \times .305 = 1113$  pounds      Note: styrene and/or methyl methacrylate contents are listed in section 2 of the MSDS.

Although no factor has been published for methyl methacrylate emission calculations, the above method could probably be used.

## SECTION 13 - DISPOSAL CONSIDERATIONS

## WASTE DISPOSAL:

This product, when destined for disposal, is classified in 40CFR part 261.21(a)(1) as a D001 Ignitable Liquid. As such it is considered a hazardous waste. Dispose of in accordance with local, state, and federal regulations.



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content in weight percent.

SECTION 16 - OTHER INFORMATION

Prepared by . . . . . :  
Date of issue . . . . . : 03/01/2002  
Last Revision Date . . . . . : NONE

MSDS Prepared for . . . . . :

MSDS Last Prepared . . . . . : NONE

HMIS Information: Health- 2            Flammability- 3  
                  Reactivity- 1        Personal Protective Equipment- I

The information contained herein is information received from our raw material suppliers and other sources and is believed to be reliable. This data is not to be taken as a warranty or representation for which ASHLAND SPECIALTY CHEMICAL CO. assumes legal responsibility.

Aropol™ Q 6490 RESIN 120737

**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**

Ashland	Regulatory Information Number	1-800-325-3751
P.O. Box 2219	Telephone	614-790-3333
Columbus, OH 43216	Emergency telephone	1-800-ASHLAND (1-800-274-5263)

Product name	Aropol™ Q 6490 RESIN
Product code	120737
Product Use Description	No data

**2. HAZARDS IDENTIFICATION**

**Emergency Overview**

Appearance: liquid,

WARNING! FLAMMABLE LIQUID AND VAPOR. MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. MAY BE HARMFUL IF INHALED. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN, CAUSE IRRITATION AND BURNS.

**Potential Health Effects**

**Routes of exposure**

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

**Eye contact**

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

**Skin contact**

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

**Ingestion**

Aropol™ Q 6490 RESIN 120737

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

### **Inhalation**

Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

### **Aggravated Medical Condition**

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, male reproductive system, auditory system

### **Symptoms**

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: metallic taste, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, loss of coordination, confusion, liver damage

### **Target Organs**

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: mild, reversible kidney effects, effects on hearing, respiratory tract damage (nose, throat, and airways), testis damage, liver damage. Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects

### **Carcinogenicity**

There was no increase in cancer in rats exposed to styrene by inhalation. However, there was an increase in lung cancer in styrene-exposed mice. The relevance of the mouse lung cancer to humans is uncertain. Styrene did not cause cancer in mice in studies in which the chemical was placed in the stomachs through a feeding tube, or in a study in which styrene was given by injection. Epidemiological studies do not provide a basis for concluding that styrene causes cancer. Styrene is listed as a possible human carcinogen by the International Agency for Research on Cancer (IARC).

Aropol™ Q 6490 RESIN 120737

**Reproductive hazard**

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

**Other information**

Styrene readily reacts with low concentrations of halogens (for example, fluorine, chlorine, bromine, or iodine) to form a tear-producing substance.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

<b>Components</b>	<b>CAS-No.</b>	<b>Concentration</b>
STYRENE	100-42-5	>=30-<40%

**4. FIRST AID MEASURES**

**Eyes**

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

**Skin**

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

**Ingestion**

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

**Inhalation**

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

**Notes to physician**

Aropol™ Q 6490 RESIN 120737

**Hazards:** This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting.

**Treatment:** No information available.

## **5. FIRE-FIGHTING MEASURES**

### **Suitable extinguishing media**

Water, Foam, Carbon dioxide (CO<sub>2</sub>), Dry chemical

### **Hazardous combustion products**

May form:, carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons

### **Precautions for fire-fighting**

Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. During a fire, irritating or toxic decomposition products may be generated. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.

### **Flammability Class for Flammable Liquids**

Flammable Liquid Class IC

## **6. ACCIDENTAL RELEASE MEASURES**

### **Personal precautions**

For personal protection see section 8. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

### **Environmental precautions**

Aropol™ Q 6490 RESIN 120737

Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred.

**Methods for cleaning up**

Absorb liquid on vermiculite, floor absorbent or other absorbent material.

**7. HANDLING AND STORAGE**

**Handling**

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing impervious protective gloves. As with all products of this nature, good personal hygiene is essential. Hands and other exposed areas should be washed thoroughly with soap and water after contact, especially before eating and/or smoking. Regular laundering of contaminated clothing is essential to reduce indirect skin contact with this material. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77. Warning. Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

**Storage**

Store in closed containers in a dry, well-ventilated area. Do not store near extreme heat, open flame, or sources of ignition.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Exposure Guidelines**

<b>STYRENE</b>		<b>100-42-5</b>
CAD AB OEL	time weighted average	50 ppm
CAD AB OEL	time weighted average	213 mg/m3

Aropol™ Q 6490 RESIN 120737

CAD AB OEL	Short term exposure limit	100 ppm
CAD AB OEL	Short term exposure limit	426 mg/m <sup>3</sup>
CAD BC OEL	time weighted average	50 ppm
CAD BC OEL	Short term exposure limit	75 ppm
CAD ON OEL	time weighted average	50 ppm
CAD ON OEL	Short term exposure limit	100 ppm
OEL (QUE)	time weighted average	50 ppm
OEL (QUE)	time weighted average	213 mg/m <sup>3</sup>
OEL (QUE)	Short term exposure limit	100 ppm
OEL (QUE)	Short term exposure limit	426 mg/m <sup>3</sup>

### General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

### Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s). OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm workplace limit on styrene. Members of the Styrene Information and Research Council (SIRC), Composites Institute (CI), Composite Fabricators Association (CFA), International Cast Polymers Association (ICPA) and National Marine Manufacturers Association (NMMA) have agreed to use either engineering controls, work practices or respiratory protection to achieve this voluntary limit for styrene.

### Eye protection

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

### Skin and body protection

Wear resistant gloves (consult your safety equipment supplier).  
To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

### Respiratory protection

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH-approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

Aropol™ Q 6490 RESIN 120737

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state</b>	liquid
<b>Form</b>	No data
<b>Colour</b>	No data
<b>Odour</b>	pungent
<b>Boiling point/boiling range</b>	145.00 °C / 293 °F
<b>pH</b>	No data
<b>Flash point</b>	84 °F / 29 °C, Seta closed cup
<b>Evaporation rate</b>	No data
<b>Explosion limits</b>	1.1 %(V) 6.1 %(V)
<b>Vapour pressure</b>	8.53 hPa @ 77 °F / 25 °C
<b>Vapour density</b>	(>) 1 (AIR=1)
<b>Density</b>	1.078 g/cm <sup>3</sup> @ 77 °F / 25 °C 9 lb/gal @ 77.00 °F / 25.00 °C
<b>Solubility</b>	insoluble in water
<b>Partition coefficient: n-octanol/water</b>	No data
<b>log Pow</b>	no data available
<b>Autoignition temperature</b>	No data

## 10. STABILITY AND REACTIVITY

**Stability**  
Stable.

**Conditions to avoid**  
Avoid heat, open flame, and prolonged storage at elevated temperatures., Avoid contact with:, excessive heat

**Incompatible products**  
Avoid contact with:, acids, aluminum chloride, halogens, iron chloride, metal salts, peroxides, strong alkalis, strong oxidizing agents

**Hazardous decomposition products**  
May form:, carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons

**Hazardous reactions**

Aropol™ Q 6490 RESIN 120737

Product can undergo hazardous polymerization., Avoid exposure to excessive heat, peroxides and polymerization catalysts.

**Thermal decomposition**

No data

**11. TOXICOLOGICAL INFORMATION**

**Acute oral toxicity**

STYRENE	LD 50 Rat: 2,650 mg/kg
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**Acute inhalation toxicity**

STYRENE	LC 50 Rat: 2800 ppm, 4 h
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**Acute dermal toxicity**

STYRENE	no data available
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**12. ECOLOGICAL INFORMATION**

**Aquatic toxicity**

**Acute and Prolonged Toxicity to Fish**

No data

**Acute Toxicity to Aquatic Invertebrates**

No data

**Environmental fate and pathways**

No data

**13. DISPOSAL CONSIDERATIONS**

**Waste disposal methods**

Dispose of in accordance with all applicable local, state and federal regulations. Do not discharge effluent containing this product into lakes, streams, ponds or estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

Aropol™ Q 6490 RESIN 120737

For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution's Environmental Services Group at 800-637-7922.

**14. TRANSPORT INFORMATION**

**TDG\_ ROAD:**

UN1866, RESIN SOLUTION 3, III

**TDG\_ RAIL:**

UN1866, RESIN SOLUTION 3, III

**TDG\_ INWTR:**

UN1866, RESIN SOLUTION 3, III

**IMDG:**

UN1866, RESIN SOLUTION 3, III

**IATA\_ P:**

UN1866, Resin solution 3, III

**IATA\_ C:**

UN1866, Resin solution 3, III

**IMDG\_ ROAD:**

UN1866, RESIN SOLUTION 3, III

**IMDG\_ RAIL:**

UN1866, RESIN SOLUTION 3, III

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

**15. REGULATORY INFORMATION**

<b>WHMIS Classification</b>	B2	Flammable Liquid
	D2A	Very Toxic Material Causing Other Toxic Effects
	D2B	Toxic Material Causing Other Toxic Effects
	F	Dangerously Reactive Material

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Aropol™ Q 6490 RESIN 120737

	<b>Health</b>	<b>Flammability</b>	<b>Reactivity</b>	<b>Other</b>
<b>HMIS</b>	2*	3	2	
<b>NFPA</b>	2	3	2	

**16. OTHER INFORMATION**

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

MATERIAL SAFETY DATA SHEET

Ashland

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Date Printed: 08/24/02  
MSDS No: 304.0027074-010.001

HETRON 92

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Material Identity**

Product Name: HETRON 92  
Product Code: 563101  
General or Generic ID: UNSATURATED POLYESTER RESIN

**Company**

Ashland  
Ashland Distribution Co. &  
Ashland Specialty Chemical Co.  
P. O. Box 2219  
Columbus, OH 43216  
614-790-3333

**Emergency Telephone Number:**

1-800-ASHLAND (1-800-274-5263)  
24 hours everyday

**Regulatory Information Number:**  
1-800-325-3751

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
POLYMER (S)	Trade Secret	70.0- 74.0
STYRENE	100-42-5	27.9

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3. HAZARDS IDENTIFICATION

**Potential Health Effects**

**Eye**

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

**Skin**

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

**Swallowing**

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

**Inhalation**

Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms usually occur at air concentrations higher than the recommended exposure limits (See Section 8).

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HETRON 92

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## Symptoms of Exposure

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: metallic taste, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, loss of coordination, confusion, liver damage.

## Target Organ Effects

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: mild, reversible kidney effects, effects on hearing, respiratory tract damage (nose, throat, and airways), testis damage, liver damage. Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects.

## Developmental Information

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

## Cancer Information

In 1993, the International Agency for Research on Cancer (IARC) classified styrene in group 2B (possibly carcinogenic to humans). IARC concluded that there was no convincing evidence for carcinogenic action of styrene in animals based on the animal studies which existed at that time. Rather, the IARC 2B listing was based on data for styrene oxide, a metabolite of styrene. Two recent lifetime studies with styrene, one in rats and one in mice, have been completed since the 1993 review. There was no increase in cancer in styrene-exposed rats. However, there was an increase in lung cancer in styrene-exposed mice. The relevance of the mouse lung cancer to humans is uncertain. Styrene exposure has not been associated with an increased incidence of cancer in workers including those in the reinforced plastics and composites plastics industries.

## Other Health Effects

Styrene readily reacts with low concentrations of halogens (for example, fluorine, chlorine, bromine, or iodine) to form a tear-producing substance.

## Primary Route(s) of Entry

Inhalation, Skin absorption, Skin contact, Eye contact, Ingestion.

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## 4. FIRST AID MEASURES

### Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

### Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

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**Swallowing**

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

**Inhalation**

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

**Note to Physicians**

This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 3 - Swallowing) when deciding whether to induce vomiting. Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, male reproductive system, auditory system.

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**5. FIRE FIGHTING MEASURES**

**Flash Point**

80.0 - 90.0 F (26.6 - 32.2 C)

**Explosive Limit**

(for component) Lower 1.1 Upper 6.1 %

**Autoignition Temperature**

No data

**Hazardous Products of Combustion**

May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons.

**Fire and Explosion Hazards**

Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors, static discharge, or other ignition sources at locations distant from material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. During a fire, irritating or toxic decomposition products may be generated.

**Extinguishing Media**

regular foam, water fog, carbon dioxide, dry chemical.

**Fire Fighting Instructions**

Wear a self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this MSDS. Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.

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HETRON 92

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**NFPA Rating**

Health - 2, Flammability - 3, Reactivity - 2

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**6. ACCIDENTAL RELEASE MEASURES**

**Small Spill**

Eliminate all sources of ignition such as flares, flames (including pilot lights), and electrical sparks. Absorb liquid on vermiculite, floor absorbent or other absorbent material. Persons not wearing proper personal protective equipment should be excluded from area of spill.

**Large Spill**

Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks).

---

**7. HANDLING AND STORAGE**

**Handling**

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. All five-gallon pails and larger metal containers, including tank cars and tank trucks, should be grounded and/or bonded when material is transferred. Precautions during use: avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing impervious protective gloves. As with all products of this nature, good personal hygiene is essential. Hands and other exposed areas should be washed thoroughly with soap and water after contact, especially before eating and/or smoking. Regular laundering of contaminated clothing is essential to reduce indirect skin contact with this material. **Warning.** Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

**Storage**

Store in closed containers in a dry, well-ventilated area. Do not store near extreme heat, open flame, or sources of ignition.

---

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Eye Protection**

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

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HETRON 92

**Skin Protection**

Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

**Respiratory Protections**

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

**Engineering Controls**

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

**Exposure Guidelines**

Component

POLYMER (S)  
No exposure limits established

STYRENE (100-42-5)  
OSHA PEL 100.000 ppm - TWA  
OSHA PEL 200.000 ppm - Ceiling  
OSHA VPEL 50.000 ppm - TWA  
OSHA VPEL 100.000 ppm - STEL  
ACGIH TLV 20.000 ppm - TWA (Skin)  
ACGIH TLV 40.000 ppm - STEL (Skin)

OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm workplace limit on styrene. Members of the Styrene Information and Research Council (SIRC), Composites Institute (CI), Composite Fabricators Association (CFA), International Cast Polymers Association (ICPA) and National Marine Manufacturers Association (NMMA) have agreed to use either engineering controls, work practices or respiratory protection to achieve this voluntary limit for styrene.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Boiling Point**  
(for component) 293.4 F (145.2 C)

**Vapor Pressure**  
(for component) 4.500 mmHg

**Specific Vapor Density**  
3.600 @ AIR=1

**Specific Gravity**  
1.310 - 1.346 @ 77.00 F

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**Liquid Density**

10.900 - 11.200 lbs/gal @ 77.00 F  
1.310 - 1.340 kg/l @ 25.00 C

**Percent Volatiles**

No data

**Evaporation Rate**

SLOWER THAN ETHYL ETHER

**Appearance**

CLEAR

**State**

LIQUID

**Physical Form**

HOMOGENEOUS SOLUTION

**Color**

AMBER

**Odor**

PUNGENT

**pH**

Not applicable

**Viscosity**

1900.0 - 2500.0 cps @ spindle #3 @ 30 rpm

**Solubility in Water**

NEGLIGIBLE

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**10. STABILITY AND REACTIVITY**

**Hazardous Polymerization**

Product can undergo hazardous polymerization. Avoid exposure to excessive heat, peroxides and polymerization catalysts.

**Hazardous Decomposition**

May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons.

**Chemical Stability**

Stable. Avoid heat, open flame, and prolonged storage at elevated temperatures. This material is unstable at elevated temperatures and pressures.

**Incompatibility**

Avoid contact with: acids, aluminum chloride, excessive heat, halogens, iron chloride, metal salts, peroxides, strong alkalis, strong oxidizing agents.

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11. TOXICOLOGICAL INFORMATION

No data

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12. ECOLOGICAL INFORMATION

No data

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13. DISPOSAL CONSIDERATION

**Waste Management Information**

Dispose of in accordance with all applicable local, state and federal regulations. Do not discharge effluent containing this product into lakes, streams, ponds or estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution Company, IC&S Environmental Services Group at 800-637-7922.

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14. TRANSPORT INFORMATION

DOT Information - 49 CFR 172.101

DOT Description:  
RESIN SOLUTION, 3, UN1866, III

Container/Mode:  
55 GAL DRUM/TRUCK PACKAGE

NOS Component:  
None

RQ (Reportable Quantity) - 49 CFR 172.101

Product Quantity (lbs) Component

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3579	STYRENE MONOMER
------	-----------------

**Other Transportation Information**

The DOT Transport Information may vary with the container and mode of shipment.

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15. REGULATORY INFORMATION

**US Federal Regulations**

**TSCA (Toxic Substances Control Act) Status**

TSCA (UNITED STATES) The intentional ingredients of this product are listed.

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Styrene, in the presence of air and high temperature or prolonged exposure to styrene/air mixture to sunlight, can react to form styrene oxide. Styrene oxide is a chemical known to the state of California to cause cancer.

**New Jersey RTK Label Information**  
STYRENE MONOMER

100-42-5

**Pennsylvania RTK Label Information**  
BENZENE, ETHENYL-

100-42-5

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**16. OTHER INFORMATION**

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

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**CERCLA RQ - 40 CFR 302.4(a)**

Component	RQ (lbs)
STYRENE	1000

**SARA 302 Components - 40 CFR 355 Appendix A**  
 None

**Section 311/312 Hazard Class - 40 CFR 370.2**  
 Immediate(X) Delayed(X) Fire(X) Reactive(X) Sudden Release of Pressure( )

**SARA 313 Components - 40 CFR 372.65**

Section 313 Component(s)	CAS Number	%
STYRENE	100-42-5	27.94

**OSHA Process Safety Management 29 CFR 1910**  
 None listed

**EPA Accidental Release Prevention 40 CFR 68**  
 None listed

**EPA Hazardous Air Pollutants (HAPS) 40 CFR 63**

HAP Component(s)	CAS Number	% (by weight)
STYRENE, MONOMER	100-42-5	27.94
Total		27.94

**EPA VOC (Volatile Organic Compounds)**  
 30.4 %

**International Regulations**  
**Inventory Status**

AICS (AUSTRALIA) The intentional ingredients of this product are NOT listed.  
 DSL (CANADA) The intentional ingredients of this product are listed.  
 ECL (SOUTH KOREA) The intentional ingredients of this product are NOT listed.  
 EINECS (EUROPE) The intentional ingredients of this product are listed.  
 ENCS (JAPAN) The intentional ingredients of this product are NOT listed.

**State and Local Regulations**  
**California Proposition 65**

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause cancer.  
 BENZENE

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause reproductive harm.  
 BENZENE

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MATERIAL SAFETY DATA SHEET

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Date Prepared: 04/06/05  
Date Printed: 05/05/06  
MSDS No: 304.0112139-013.006

HETRON 99 P RESIN

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Identity

Product Name: HETRON 99 P RESIN  
Product Code: 563115  
General or Generic ID: UNSATURATED POLYESTER RESIN

Company

Ashland  
Ashland Distribution Co. &  
Ashland Specialty Chemical Co.  
P. O. Box 2219  
Columbus, OH 43216  
614-790-3333

Emergency Telephone Number:

1-800-ASHLAND (1-800-274-5253)  
24 hours everyday

Regulatory Information Number:  
1-800-325-3751

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
POLYMER (S)	Trade Secret	60.0- 64.0
STYRENE	100-42-5	35.7
DIMETHYL METHYLPHOSPHONATE	756-79-6	0.9
COBALT COMPOUND "C"		0.3- 0.4

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3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Swallowing

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms usually occur at air concentrations higher than the recommended exposure limits (See Section 8).

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## MATERIAL SAFETY DATA SHEET

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### HETRON 99 P RESIN

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#### Symptoms of Exposure

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: metallic taste, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, loss of coordination, confusion, liver damage.

#### Target Organ Effects

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: mild, reversible kidney effects, effects on hearing, respiratory tract damage (nose, throat, and airways), testis damage, liver damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects.

#### Developmental Information

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

#### Cancer Information

Cobalt and certain cobalt compounds have been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. Cobalt and certain cobalt compounds are listed as carcinogenic by the International Agency for Research on Cancer (IARC). Dimethyl methylphosphonate caused an increased incidence of kidney tumors in male rats, but not in female rats or in mice of either sex. The relevance of this finding to humans is uncertain. There was no increase in cancer in rats exposed to styrene by inhalation. However, there was an increase in lung cancer in styrene-exposed mice. The relevance of the mouse lung cancer to humans is uncertain. Styrene did not cause cancer in mice in studies in which the chemical was placed in the stomachs through a feeding tube, or in a study in which styrene was given by injection. Epidemiological studies do not provide a basis for concluding that styrene causes cancer. Styrene is listed as a carcinogen by the International Agency for Research on Cancer (IARC).

#### Other Health Effects

Styrene readily reacts with low concentrations of halogens (for example, fluorine, chlorine, bromine, or iodine) to form a tear-producing substance.

#### Primary Route(s) of Entry

Inhalation, Skin absorption, Skin contact, Eye contact, Ingestion.

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## 4. FIRST AID MEASURES

#### Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Continued on next page

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HETRON 99 P RESIN

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**Skin**

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

**Swallowing**

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

**Inhalation**

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

**Note to Physicians**

This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 3 - Swallowing) when deciding whether to induce vomiting. Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, male reproductive system, auditory system.

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**5. FIRE FIGHTING MEASURES**

**Flash Point**

80.0 - 90.0 F (26.6 - 32.2 C) ESTIMATED

**Explosive Limit**

(for component) Lower 1.1 Upper 6.1 %

**Autoignition Temperature**

No data

**Hazardous Products of Combustion**

May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons.

**Fire and Explosion Hazards**

Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. During a fire, irritating or toxic decomposition products may be generated.

**Extinguishing Media**

regular foam (such as AFFF), water fog, carbon dioxide, dry chemical.

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### Fire Fighting Instructions

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.

### NFPA Rating

Health - 2, Flammability - 3, Reactivity - 2

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## 6. ACCIDENTAL RELEASE MEASURES

### Small Spill

Eliminate all sources of ignition such as flares, flames (including pilot lights), and electrical sparks. Absorb liquid on vermiculite, floor absorbent or other absorbent material. Persons not wearing proper personal protective equipment should be excluded from area of spill.

### Large Spill

Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks).

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## 7. HANDLING AND STORAGE

### Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77. Precautions during use: avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing impervious protective gloves. As with all products of this nature, good personal hygiene is essential. Hands and other exposed areas should be washed thoroughly with soap and water after contact, especially before eating and/or smoking. Regular laundering of contaminated clothing is essential to reduce indirect skin contact with this material. Warning. Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

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**Storage**

Store in closed containers in a dry, well-ventilated area. Do not store near extreme heat, open flame, or sources of ignition.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Eye Protection**

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

**Skin Protection**

Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

**Respiratory Protections**

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

**Engineering Controls**

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

**Exposure Guidelines**

**Component**  
-----

**POLYMER (S)**

No exposure limits established

**STYRENE (100-42-5)**

OSHA PEL 100.000 ppm - TWA  
OSHA PEL 200.000 ppm - Ceiling  
OSHA VPEL 50.000 ppm - TWA  
OSHA VPEL 100.000 ppm - STEL  
ACGIH TLV 20.000 ppm - TWA (Skin)  
ACGIH TLV 40.000 ppm - STEL (Skin)

**DIMETHYL METHYLPHOSPHONATE (756-79-6)**

No exposure limits established

**COBALT COMPOUND "C"**

No exposure limits established

OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm workplace limit on styrene. Members of the Styrene Information and Research Council (SIRC), Composites Institute (CI), Composite Fabricators Association (CFA), International Cast Polymers Association (ICPA) and National Marine Manufacturers Association (NMMA) have agreed to use either engineering controls, work practices or respiratory protection to achieve this voluntary limit for styrene.

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HETRON 99 P RESIN

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Boiling Point**

(for component) 293.4 F (145.2 C) @ 760 mmHg

**Vapor Pressure**

(for component) 4.500 mmHg

**Specific Vapor Density**

> 1.000 @ AIR=1

**Specific Gravity**

1.202 - 1.262 @ 77.00 F

**Liquid Density**

10.000 - 10.500 lbs/gal @ 77.00 F  
1.202 - 1.262 kg/l @ 25.00 C

**Percent Volatiles**

No data

**Evaporation Rate**

SLOWER THAN ETHYL ETHER

**Appearance**

VISCOUS

**State**

LIQUID

**Physical Form**

HOMOGENEOUS SOLUTION

**Color**

No data

**Odor**

PUNGENT

**pH**

Not applicable

**Solubility in Water**

NEGLIGIBLE

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**10. STABILITY AND REACTIVITY**

**Hazardous Polymerization**

Product can undergo hazardous polymerization. Avoid exposure to excessive heat, peroxides and polymerization catalysts.

**Hazardous Decomposition**

May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons.

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**Chemical Stability**

Stable. Avoid heat, open flame, and prolonged storage at elevated temperatures. This material is unstable at elevated temperatures and pressures.

**Incompatibility**

Avoid contact with: acids, aluminum chloride, excessive heat, halogens, iron chloride, metal salts, peroxides, strong alkalis, strong oxidizing agents.

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**11. TOXICOLOGICAL INFORMATION**

No data

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**12. ECOLOGICAL INFORMATION**

No data

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**13. DISPOSAL CONSIDERATION**

**Waste Management Information**

Dispose of in accordance with all applicable local, state and federal regulations. Do not discharge effluent containing this product into lakes, streams, ponds or estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution Company, IC&S Environmental Services Group at 800-531-7106.

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**14. TRANSPORT INFORMATION**

**DOT Information - 49 CFR 172.101**

**DOT Description:**  
RESIN SOLUTION,3,UN1866,III

**Container/Mode:**  
55 GAL DRUM/TRUCK PACKAGE

**NOS Component:**  
None

**RQ (Reportable Quantity) - 49 CFR 172.101**

Product Quantity (lbs) Component

-----  
2795 STYRENE

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**Other Transportation Information**

The Transport Information may vary with the container and mode of shipment.

**15. REGULATORY INFORMATION**

**US Federal Regulations**

**TSCA (Toxic Substances Control Act) Status**

TSCA (UNITED STATES) The intentional ingredients of this product are listed.

**CERCLA RQ - 40 CFR 302.4(a)**

Component	RQ (lbs)
STYRENE	1000

**SARA 302 Components - 40 CFR 355 Appendix A**

None

**Section 311/312 Hazard Class - 40 CFR 370.2**

Immediate(X)    Delayed(X)    Fire(X)    Reactive(X)    Sudden Release of Pressure( )

**SARA 313 Components - 40 CFR 372.65**

Section 313 Component(s)	CAS Number	%
STYRENE	100-42-5	35.77

This product contains cobalt compounds subject to section 313 TRI reporting requirements under the toxic chemical category: Cobalt Compounds. Please refer to section two (2) of this MSDS to identify actual content in this product.

**OSHA Process Safety Management 29 CFR 1910**

None listed

**EPA Accidental Release Prevention 40 CFR 68**

None listed

**Organic Hazardous Air Pollutants (HAPs)**

40 CFR Part 63 Subpart WWWW and VVVV

HAP Component(s)	CAS Number	% (by weight)
STYRENE, MONOMER	100-42-5	35.77
Total		35.77

**Volatile Organic Compound (VOC) Content**

40.0 %

**International Regulations**

**Inventory Status**

DSL (CANADA) The intentional ingredients of this product are listed.  
 IECSC (CHINA) This product complies with the Chemical Substance Inventory requirements.

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**State and Local Regulations**  
**California Proposition 65**

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause cancer.

TRIMETHYLPHOSPHATE  
BENZENE  
ANILINE  
1,4-DIOXANE  
ETHYLENE OXIDE

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause reproductive harm.

TOLUENE  
BENZENE  
ETHYLENE OXIDE

Styrene, in the presence of air and high temperature or prolonged exposure to styrene/air mixture to sunlight, can react to form styrene oxide. Styrene oxide is a chemical known to the state of California to cause cancer.

<b>New Jersey RTK Label Information</b>	
STYRENE MONOMER	100-42-5
<b>Pennsylvania RTK Label Information</b>	
BENZENE, ETHENYL-	100-42-5

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**16. OTHER INFORMATION**

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

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HETRON FR 992 SB RESIN

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Identity

Product Name: HETRON FR 992 SB RESIN  
Product Code: 566087  
General or Generic ID: EPOXY VINYL ESTER RESIN

Company

Ashland  
Ashland Distribution Co. &  
Ashland Specialty Chemical Co.  
P. O. Box 2219  
Columbus, OH 43216  
614-790-3333

Emergency Telephone Number:

1-800-ASHLAND (1-800-274-5263)  
24 hours everyday

Regulatory Information Number:

1-800-325-3751

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by Weight)
POLYMER (S)	Trade Secret	57.0- 61.0
STYRENE	100-42-5	39.1
DIMETHYL METHYLPHOSPHONATE	756-79-6	0.1- 0.5

---

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Swallowing

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms usually occur at air concentrations higher than the recommended exposure limits (See Section 8).

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### HETRON FR 992 SB RESIN

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#### Symptoms of Exposure

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: metallic taste, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, loss of coordination, confusion, liver damage.

#### Target Organ Effects

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: mild, reversible kidney effects, effects on hearing, respiratory tract damage (nose, throat, and airways), testis damage, liver damage. Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects.

#### Developmental Information

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

#### Cancer Information

Dimethyl methylphosphonate caused an increased incidence of kidney tumors in male rats, but not in female rats or in mice of either sex. The relevance of this finding to humans is uncertain. There was no increase in cancer in rats exposed to styrene by inhalation. However, there was an increase in lung cancer in styrene-exposed mice. The relevance of the mouse lung cancer to humans is uncertain. Styrene did not cause cancer in mice in studies in which the chemical was placed in the stomachs through a feeding tube, or in a study in which styrene was given by injection. Epidemiological studies do not provide a basis for concluding that styrene causes cancer. Styrene is listed as a carcinogen by the International Agency for Research on Cancer (IARC).

#### Other Health Effects

Styrene readily reacts with low concentrations of halogens (for example, fluorine, chlorine, bromine, or iodine) to form a tear-producing substance.

#### Primary Route(s) of Entry

Inhalation, Skin absorption, Skin contact, Eye contact, Ingestion.

---

### 4. FIRST AID MEASURES

#### Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

#### Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

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HETRON FR 992 SB RESIN

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**Swallowing**

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

**Inhalation**

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

**Note to Physicians**

This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 3 - Swallowing) when deciding whether to induce vomiting. Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, male reproductive system, auditory system.

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**5. FIRE FIGHTING MEASURES**

**Flash Point**

80.0 - 90.0 F (26.6 - 32.2 C) SETA

**Explosive Limit**

(for component) Lower 1.1 Upper 6.1 %

**Autoignition Temperature**

No data

**Hazardous Products of Combustion**

May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons.

**Fire and Explosion Hazards**

Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. During a fire, irritating or toxic decomposition products may be generated.

**Extinguishing Media**

regular foam (such as AFFF), water fog, carbon dioxide, dry chemical.

**Fire Fighting Instructions**

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.

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### NFPA Rating

Health - 2, Flammability - 3, Reactivity - 2

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## 6. ACCIDENTAL RELEASE MEASURES

### Small Spill

Eliminate all sources of ignition such as flares, flames (including pilot lights), and electrical sparks. Absorb liquid on vermiculite, floor absorbent or other absorbent material. Persons not wearing proper personal protective equipment should be excluded from area of spill.

### Large Spill

Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks).

---

## 7. HANDLING AND STORAGE

### Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77. Precautions during use: avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing impervious protective gloves. As with all products of this nature, good personal hygiene is essential. Hands and other exposed areas should be washed thoroughly with soap and water after contact, especially before eating and/or smoking. Regular laundering of contaminated clothing is essential to reduce indirect skin contact with this material. Warning. Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

### Storage

Store in closed containers in a dry, well-ventilated area. Do not store near extreme heat, open flame, or sources of ignition.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Eye Protection

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

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**Skin Protection**

Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

**Respiratory Protections**

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

**Engineering Controls**

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

**Exposure Guidelines**

Component

-----  
POLYMER (S)

No exposure limits established

STYRENE (100-42-5)

OSHA PEL 100.000 ppm - TWA  
OSHA PEL 200.000 ppm - Ceiling  
OSHA VPEL 50.000 ppm - TWA  
OSHA VPEL 100.000 ppm - STEL  
ACGIH TLV 20.000 ppm - TWA (Skin)  
ACGIH TLV 40.000 ppm - STEL (Skin)

DIMETHYL METHYLPHOSPHONATE (756-79-6)

No exposure limits established

OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm workplace limit on styrene. Members of the Styrene Information and Research Council (SIRC), Composites Institute (CI), Composite Fabricators Association (CFA), International Cast Polymers Association (ICPA) and National Marine Manufacturers Association (NMMA) have agreed to use either engineering controls, work practices or respiratory protection to achieve this voluntary limit for styrene.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Boiling Point**

(for component) 293.4 F (145.2 C) @ 760 mmHg

**Vapor Pressure**

(for component) 4.500 mmHg

**Specific Vapor Density**

> 1.000 @ AIR=1

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**Specific Gravity**

No data

**Liquid Density**

> 8.300 lbs/gal @ 77.00 F  
> 8.300 lbs/gal @ 77.00 F

**Percent Volatiles**

No data

**Evaporation Rate**

SLOWER THAN ETHYL ETHER

**Appearance**

VISCOUS

**State**

LIQUID

**Physical Form**

HOMOGENEOUS

**Color**

No data

**Odor**

PUNGENT

**pH**

No data

**Solubility in Water**

INSOLUBLE

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**10. STABILITY AND REACTIVITY**

**Hazardous Polymerization**

Product can undergo hazardous polymerization. Avoid exposure to excessive heat, peroxides and polymerization catalysts.

**Hazardous Decomposition**

May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons.

**Chemical Stability**

Stable. Avoid heat, open flame, and prolonged storage at elevated temperatures. This material is unstable at elevated temperatures and pressures.

**Incompatibility**

Avoid contact with: acids, aluminum chloride, excessive heat, halogens, iron chloride, metal salts, peroxides, strong alkalis, strong oxidizing agents.

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11. TOXICOLOGICAL INFORMATION

No data

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12. ECOLOGICAL INFORMATION

No data

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13. DISPOSAL CONSIDERATION

**Waste Management Information**

Dispose of in accordance with all applicable local, state and federal regulations. Do not discharge effluent containing this product into lakes, streams, ponds or estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution Company, IC&S Environmental Services Group at 800-531-7106.

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14. TRANSPORT INFORMATION

DOT Information - 49 CFR 172.101

DOT Description:  
RESIN SOLUTION,3,UN1866,III

Container/Mode:  
55 GAL DRUM/TRUCK PACKAGE

NOS Component:  
None

RQ (Reportable Quantity) - 49 CFR 172.101

Product Quantity (lbs) Component

-----  
2555 STYRENE  
-----

**Other Transportation Information**

The Transport Information may vary with the container and mode of shipment.

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15. REGULATORY INFORMATION

**US Federal Regulations**

TSCA (Toxic Substances Control Act) Status  
TSCA (UNITED STATES) This product complies with the Chemical Substance Inventory requirements.

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HETRON FR 992 SB RESIN

**CERCLA RQ - 40 CFR 302.4(a)**

Component	RQ (lbs)
STYRENE	1000

**SARA 302 Components - 40 CFR 355 Appendix A**

None

**Section 311/312 Hazard Class - 40 CFR 370.2**

Immediate(X) Delayed(X) Fire(X) Reactive(X) Sudden Release of Pressure( )

**SARA 313 Components - 40 CFR 372.65**

Section 313 Component(s)	CAS Number	%
STYRENE	100-42-5	39.13

**OSHA Process Safety Management 29 CFR 1910**

None listed

**EPA Accidental Release Prevention 40 CFR 68**

None listed

**Organic Hazardous Air Pollutants (HAPs)  
 40 CFR Part 63 Subpart WWW and VVVV**

HAP Component(s)	CAS Number	% (by weight)
STYRENE, MONOMER	100-42-5	39.13
Total		39.13

**Volatile Organic Compound (VOC) Content**

Not determined

**International Regulations**

**Inventory Status**

DSL (CANADA) This product complies with the Chemical Substance Inventory requirements.  
 EINECS (EUROPE) This product complies with the Chemical Substance Inventory requirements.

**State and Local Regulations**

**California Proposition 65**

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause cancer.

- ANTIMONY OXIDE (ANTIMONY TRIOXIDE)
- TRIMETHYLPHOSPHATE
- LEAD
- 1,4-DIOXANE
- BENZENE
- ACETALDEHYDE

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause reproductive harm.

- LEAD
- BENZENE

Continued on next page

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Date Prepared: 07/26/05  
Date Printed: 02/06/06  
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HETRON FR 992 SB RESIN

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Styrene, in the presence of air and high temperature or prolonged exposure to styrene/air mixture to sunlight, can react to form styrene oxide. Styrene oxide is a chemical known to the state of California to cause cancer.

**New Jersey RTK Label Information**  
STYRENE MONOMER

100-42-5

**Pennsylvania RTK Label Information**  
BENZENE, ETHENYL-

100-42-5

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**16. OTHER INFORMATION**

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

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MATERIAL SAFETY DATA SHEET

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Date Prepared: 07/10/03  
Date Printed: 01/17/04  
MSDS No: 304.0027083-011.011

HETRON 197 P

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Identity

Product Name: HETRON 197 P

Product Code: 566105

General or Generic ID: UNSATURATED POLYESTER RESIN

Company

Ashland  
Ashland Distribution Co. &  
Ashland Specialty Chemical Co.  
P. O. Box 2219  
Columbus, OH 43216  
614-790-3333

Emergency Telephone Number:  
1-800-ASHLAND (1-800-274-5263)  
24 hours everyday

Regulatory Information Number:  
1-800-325-3751

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
POLYMER (S)	Trade Secret	55.0- 59.0
STYRENE	100-42-5	42.0- 42.0
COBALT COMPOUNDS		0.1- 0.1

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Swallowing

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms usually occur at air concentrations higher than the recommended exposure limits (See Section 8).

Continued on next page

Central nervous system depression (dizziness, drowsiness, nausea, headache, unconsciousness) and other central nervous system effects. Loss of coordination, confusion, liver damage.

**ts**  
This material (or its components) has been suggested to cause the following effects in laboratory animals: mild, reversible kidney damage, effects on hearing, respiratory tract damage (nose, throat, and lungs), liver damage. Overexposure to this material has been suggested as a cause of the following effects in humans: effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects.

**Information**  
This material (or a component) has been shown to cause harm to the fetus in animal studies. Harm to the fetus occurs only at exposure to a pregnant animal. The relevance of these findings to humans is uncertain.

Certain cobalt compounds have been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. There was an increase in cancer in rats exposed to styrene by inhalation. There was an increase in lung cancer in styrene-exposed mice. The relevance of mouse lung cancer to humans is uncertain. Styrene has been shown to cause cancer in mice in studies in which the chemical was placed in a feeding tube, or in a study in which styrene was inhaled. Epidemiological studies do not provide a basis for concluding that styrene causes cancer. Styrene is listed as a carcinogen by the International Agency for Research on Cancer (IARC).

**ts**  
Styrene reacts with low concentrations of halogens (for example, chlorine, bromine, or iodine) to form a tear-producing substance.

**First Aid**  
Inhalation: Move individual away from exposure. If breathing is difficult, give oxygen. If necessary, seek medical attention.  
Skin contact: Wash with soap and water.  
Eye contact: Wash eyes gently with water for at least 15 minutes while seeking immediate medical attention.  
Ingestion: Do not induce vomiting. Seek medical attention.

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## MEASURES

Develop a spill response plan. Immediately move individual away from exposure. Wash eyes gently with water for at least 15 minutes while seeking immediate medical attention.

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HETRON 197 P

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**Swallowing**

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

**Inhalation**

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

**Note to Physicians**

This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 3 - Swallowing) when deciding whether to induce vomiting. Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, male reproductive system, auditory system.

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**5. FIRE FIGHTING MEASURES**

**Flash Point**

80.0 - 90.0 F (26.6 - 32.2 C) SETA

**Explosive Limit**

(for component) Lower 1.1 Upper 6.1 %

**Autoignition Temperature**

No data

**Hazardous Products of Combustion**

May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons.

**Fire and Explosion Hazards**

Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors, static discharge, or other ignition sources at locations distant from material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. During a fire, irritating or toxic decomposition products may be generated.

**Extinguishing Media**

regular foam, water fog, carbon dioxide, dry chemical.

**Fire Fighting Instructions**

Wear a self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this MSDS. Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.

Continued on next page

# RELEASE MEASURES

sources of ignition such as flares, flames (including electrical sparks). Absorb liquid on vermiculite, floor or inert material. Persons not wearing proper personal protection should be excluded from area of spill.

Prevent runoff to sewers, streams or other bodies of water. If runoff occurs, notify appropriate authorities as required, that a spill has occurred. Prohibit smoking and open flames. Flammable equipment should be excluded from area of spill until cleanup is completed. Eliminate all ignition sources (flares, open flames, lights, electrical sparks).

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## D STORAGE

This material may be hazardous when emptied. Since certain product residues (vapor, liquid, and/or solid), all applicable safety data sheet information must be observed. All five-gallon containers, including tank cars and tank trucks, should be bonded when material is transferred. Precautions should be taken to avoid or frequently repeated skin contact with this material. Skin contact should be minimized by wearing impervious protective gloves. As a general rule, good personal hygiene is essential. Hands should be washed thoroughly with soap and water after eating and/or smoking. Regular laundering of clothing is essential to reduce indirect skin contact with this material. Avoid release of hot organic chemical vapors or mists from equipment, may result in ignitions without the presence of ignition sources. Published "autoignition" or "ignition" temperatures should be treated as safe operating temperatures in chemical processes. Any use of this material in chemical processes should be thoroughly evaluated to establish safe operating conditions.

Store containers in a dry, well-ventilated area. Do not use near open flame, or sources of ignition.

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HETRON 197 P

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**Skin Protection**

Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

**Respiratory Protections**

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

**Engineering Controls**

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

**Exposure Guidelines**

Component

-----  
POLYMER (S)

No exposure limits established

STYRENE (100-42-5)

OSHA PEL 100.000 ppm - TWA

OSHA PEL 200.000 ppm - Ceiling

OSHA VPEL 50.000 ppm - TWA

OSHA VPEL 100.000 ppm - STEL

ACGIH TLV 20.000 ppm - TWA (Skin)

ACGIH TLV 40.000 ppm - STEL (Skin)

COBALT COMPOUNDS

OSHA PEL 0.100 mg/m3 - TWA

OSHA VPEL 0.050 mg/m3 - TWA as Co

ACGIH TLV 0.020 mg/m3 - TWA elemental and inorganic compounds, as Co

ACGIH TLV 0.050 mg/m3 - TWA metal dust & fume, as Co

OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm workplace limit on styrene. Members of the Styrene Information and Research Council (SIRC), Composites Institute (CI), Composite Fabricators Association (CFA), International Cast Polymers Association (ICPA) and National Marine Manufacturers Association (NMMA) have agreed to use either engineering controls, work practices or respiratory protection to achieve this voluntary limit for styrene.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Boiling Point**

(for component) 293.4 F (145.2 C) @ 760 mmHg

**Vapor Pressure**

(for component) 4.500 mmHg @ 68.00 F

Continued on next page

@ 77.00 F  
5.00 C

HYL ETHER

LUTION

OR

0.0 cps @ #3spd1 @60rpm  
00.0 cps @ #3spd1 @6rpm

---

## ND REACTIVITY

### .zation

dergo hazardous polymerization. Avoid exposure to exc  
s and polymerization catalysts.

### sition

bon dioxide and carbon monoxide, toxic fumes, various

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HETRON 197 P

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**Incompatibility**

Avoid contact with: acids, aluminum chloride, excessive heat, halogens, iron chloride, metal salts, peroxides, strong alkalies, strong oxidizing agents.

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**11. TOXICOLOGICAL INFORMATION**

No data

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**12. ECOLOGICAL INFORMATION**

No data

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**13. DISPOSAL CONSIDERATION**

**Waste Management Information**

Dispose of in accordance with all applicable local, state and federal regulations. Do not discharge effluent containing this product into lakes, streams, ponds or estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution Company, IC&S Environmental Services Group at 800-637-7922.

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**14. TRANSPORT INFORMATION**

DOT Information - 49 CFR 172.101

DOT Description:  
RESIN SOLUTION,3,UN1866,III

Container/Mode:  
55 GAL DRUM/TRUCK PACKAGE

NOS Component:  
None

RQ (Reportable Quantity) - 49 CFR 172.101

Product Quantity (lbs) Component

---

2406	STYRENE
------	---------

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**Other Transportation Information**

The DOT Transport Information may vary with the container and mode of shipment.

Continued on next page

40 CFR 302.4(a)

RQ (lbs)

1000

Components - 40 CFR 355 Appendix A

12 Hazard Class - 40 CFR 370.2

(X) Delayed(X) Fire(X) Reactive(X) Sudden Release

Components - 40 CFR 372.65

13 Component(s)

CAS Number

%

100-42-5 41.56

7440-48-4 .10

Safety Management 29 CFR 1910

ed

1 Release Prevention 40 CFR 68

ed

Hazardous Air Pollutants (HAPs)

Part 63 Subpart WWW and VVVV

determined

Organic Compound (VOC) Content

%

Regulations

Status

DA) The intentional ingredients of this product are listed

Regulations

Proposition 65

The following statement is made in order to comply with the California  
Water and Toxic Enforcement Act of 1986: This product contains  
substance(s) known to the state of California to cause

NE

OXIDE

TAL POWDER

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HETRON 197 P

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Styrene, in the presence of air and high temperature or prolonged exposure to styrene/air mixture to sunlight, can react to form styrene oxide. Styrene oxide is a chemical known to the state of California to cause cancer.

**New Jersey RTK Label Information**  
STYRENE MONOMER

100-42-5

**Pennsylvania RTK Label Information**  
BENZENE, ETHENYL-

100-42-5

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**16. OTHER INFORMATION**

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

MATERIAL SAFETY DATA SHEET

Ashland

Page 001  
Date Prepared: 03/03/05  
Date Printed: 05/27/05  
MSDS No: 304.0027090-011.006

HETRON 922 RESIN

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Identity

Product Name: HETRON 922 RESIN  
Product Code: 566604  
General or Generic ID: EPOXY VINYL ESTER RESIN

Company

Ashland  
Ashland Distribution Co. &  
Ashland Specialty Chemical Co.  
P. O. Box 2219  
Columbus, OH 43216  
614-790-3333

Emergency Telephone Number:  
1-800-ASHLAND (1-800-274-5263)  
24 hours everyday

Regulatory Information Number:  
1-800-325-3751

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
POLYMER (S)	Trade Secret	54.0- 58.0
STYRENE	100-42-5	43.4

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Swallowing

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms usually occur at air concentrations higher than the recommended exposure limits (See Section 8).

Continued on next page

# MATERIAL SAFETY DATA SHEET

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Date Prepared: 03/03/05  
Date Printed: 05/27/05  
MSDS No: 304.0027090-011.006

## HETRON 922 RESIN

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### Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

### Note to Physicians

This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 3 - Swallowing) when deciding whether to induce vomiting. Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, male reproductive system, auditory system.

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## 5. FIRE FIGHTING MEASURES

### Flash Point

80.0 - 90.0 F (26.6 - 32.2 C) SETA

### Explosive Limit

(for component) Lower 1.1 Upper 6.1 %

### Autoignition Temperature

No data

### Hazardous Products of Combustion

May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons.

### Fire and Explosion Hazards

Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. During a fire, irritating or toxic decomposition products may be generated.

### Extinguishing Media

regular foam (such as AFFF), water fog, carbon dioxide, dry chemical.

### Fire Fighting Instructions

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.

### NFPA Rating

Health - 2, Flammability - 3, Reactivity - 2

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## 6. ACCIDENTAL RELEASE MEASURES

### Small Spill

Eliminate all sources of ignition such as flares, flames (including pilot lights), and electrical sparks. Absorb liquid on vermiculite, floor absorbent or other absorbent material. Persons not wearing proper personal protective equipment should be excluded from area of spill.

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HETRON 922 RESIN

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**Engineering Controls**

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

**Exposure Guidelines**

**Component**

**POLYMER (s)**

No exposure limits established

**STYRENE (100-42-5)**

OSHA PEL 100.000 ppm - TWA  
OSHA PEL 200.000 ppm - Ceiling  
OSHA VPEL 50.000 ppm - TWA  
OSHA VPEL 100.000 ppm - STEL  
ACGIH TLV 20.000 ppm - TWA (Skin)  
ACGIH TLV 40.000 ppm - STEL (Skin)

OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm workplace limit on styrene. Members of the Styrene Information and Research Council (SIRC), Composites Institute (CI), Composite Fabricators Association (CFA), International Cast Polymers Association (ICPA) and National Marine Manufacturers Association (NMMA) have agreed to use either engineering controls, work practices or respiratory protection to achieve this voluntary limit for styrene.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Boiling Point**

(for component) 293.4 F (145.2 C)

**Vapor Pressure**

(for component) 4.500 mmHg

**Specific Vapor Density**

> 1.000 @ AIR=1

**Specific Gravity**

No data

**Liquid Density**

> 8.300 lbs/gal @ 77.00 F  
> 8.300 lbs/gal @ 77.00 F

**Percent Volatiles**

No data

**Evaporation Rate**

SLOWER THAN ETHYL ETHER

**Appearance**

VISCOUS

Continued on next page

MATERIAL SAFETY DATA SHEET

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HETRON 922 RESIN

without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution Company, IC&S Environmental Services Group at 800-637-7922.

14. TRANSPORT INFORMATION

DOT Information - 49 CFR 172.101

DOT Description:  
RESIN SOLUTION, 3, UN1866, III

Container/Mode:  
55 GAL DRUM/TRUCK PACKAGE

NOS Component:  
None

RQ (Reportable Quantity) - 49 CFR 172.101

Product Quantity (lbs)	Component
2302	STYRENE

Other Transportation Information

The Transport Information may vary with the container and mode of shipment.

15. REGULATORY INFORMATION

US Federal Regulations

TSCA (Toxic Substances Control Act) Status  
TSCA (UNITED STATES) The intentional ingredients of this product are listed.

CERCLA RQ - 40 CFR 302.4(a)

Component	RQ (lbs)
STYRENE	1000

SARA 302 Components - 40 CFR 355 Appendix A  
None

Section 311/312 Hazard Class - 40 CFR 370.2  
Immediate(X) Delayed(X) Fire(X) Reactive(X) Sudden Release of Pressure( )

SARA 313 Components - 40 CFR 372.65

Section 313 Component(s)	CAS Number	%
STYRENE	100-42-5	43.44

OSHA Process Safety Management: 29 CFR 1910  
None listed

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HETRON 922 RESIN

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16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

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MATERIAL SAFETY DATA SHEET

Ashland

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Date Prepared: 07/21/05  
Date Printed: 09/09/05  
MSDS No: 304.0391323-001.001

HETRON FR 992 RESIN

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Identity

Product Name: HETRON FR 992 RESIN  
Product Code: 566621  
General or Generic ID: UNSATURATED POLYESTER RESIN

Company

Ashland  
Ashland Distribution Co. &  
Ashland Specialty Chemical Co.  
P. O. Box 2219  
Columbus, OH 43216  
614-790-3333

Emergency Telephone Number:  
1-800-ASHLAND (1-800-274-5263)  
24 hours everyday  
Regulatory Information Number:  
1-800-325-3751

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS-Number	% (by weight)
POLYMER (S)	Trade Secret	58.0- 62.0
STYRENE	100-42-5	39.5
DIMETHYL METHYLPHOSPHONATE	756-79-6	0.1- 0.5

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Swallowing

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms usually occur at air concentrations higher than the recommended exposure limits (See Section 8).

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## MATERIAL SAFETY DATA SHEET

Ashland

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Date Prepared: 07/21/05

Date Printed: 09/09/05

MSDS No: 304.0391323-001.007

### HETRON FR 992 RESIN

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#### Symptoms of Exposure

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: metallic taste, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, loss of coordination, confusion, liver damage.

#### Target Organ Effects

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: mild, reversible kidney effects, effects on hearing, respiratory tract damage (nose, throat, and airways), testis damage, liver damage. Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects.

#### Developmental Information

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

#### Cancer Information

Dimethyl methylphosphonate caused an increased incidence of kidney tumors in male rats, but not in female rats or in mice of either sex. The relevance of this finding to humans is uncertain. There was no increase in cancer in rats exposed to styrene by inhalation. However, there was an increase in lung cancer in styrene-exposed mice. The relevance of the mouse lung cancer to humans is uncertain. Styrene did not cause cancer in mice in studies in which the chemical was placed in the stomachs through a feeding tube, or in a study in which styrene was given by injection. Epidemiological studies do not provide a basis for concluding that styrene causes cancer. Styrene is listed as a carcinogen by the International Agency for Research on Cancer (IARC).

#### Other Health Effects

Styrene readily reacts with low concentrations of halogens (for example, fluorine, chlorine, bromine, or iodine) to form a tear-producing substance.

#### Primary Route(s) of Entry

Inhalation, Skin absorption, Skin contact, Eye contact, Ingestion.

---

## 4. FIRST AID MEASURES

#### Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

#### Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Continued on next page

MATERIAL SAFETY DATA SHEET

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HETRON FR 992 RESIN

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**Swallowing**

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

**Inhalation**

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

**Note to Physicians**

This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 3 - Swallowing) when deciding whether to induce vomiting. Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, male reproductive system, auditory system.

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**5. FIRE FIGHTING MEASURES**

**Flash Point**

80.0 - 90.0 F (26.6 - 32.2 C) SETA

**Explosive Limit**

(for component) Lower 1.1 Upper 6.1 %

**Autoignition Temperature**

No data

**Hazardous Products of Combustion**

May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons.

**Fire and Explosion Hazards**

Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. During a fire, irritating or toxic decomposition products may be generated.

**Extinguishing Media**

regular foam (such as AFFF), water fog, carbon dioxide, dry chemical.

**Fire Fighting Instructions**

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.

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**NFPA Rating**

Health - 2, Flammability - 3, Reactivity - 2

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**6. ACCIDENTAL RELEASE MEASURES**

**Small Spill**

Eliminate all sources of ignition such as flares, flames (including pilot lights), and electrical sparks. Absorb liquid on vermiculite, floor absorbent or other absorbent material. Persons not wearing proper personal protective equipment should be excluded from area of spill.

**Large Spill**

Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks).

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**7. HANDLING AND STORAGE**

**Handling**

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77. Precautions during use: avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing impervious protective gloves. As with all products of this nature, good personal hygiene is essential. Hands and other exposed areas should be washed thoroughly with soap and water after contact, especially before eating and/or smoking. Regular laundering of contaminated clothing is essential to reduce indirect skin contact with this material. Warning. Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

**Storage**

Store in closed containers in a dry, well-ventilated area. Do not store near extreme heat, open flame, or sources of ignition.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Eye Protection**

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

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**Skin Protection**

Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

**Respiratory Protections**

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

**Engineering Controls**

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

**Exposure Guidelines**

**Component**

**POLYMER (S)**

No exposure limits established

**STYRENE (100-42-5)**

OSHA PEL 100.000 ppm - TWA  
OSHA PEL 200.000 ppm - Ceiling  
OSHA VPEL 50.000 ppm - TWA  
OSHA VPEL 100.000 ppm - STEL  
ACGIH TLV 20.000 ppm - TWA (Skin)  
ACGIH TLV 40.000 ppm - STEL (Skin)

**DIMETHYL METHYLPHOSPHONATE (756-79-6)**

No exposure limits established

OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm workplace limit on styrene. Members of the Styrene Information and Research Council (SIRC), Composites Institute (CI), Composite Fabricators Association (CFA), International Cast Polymers Association (ICPA) and National Marine Manufacturers Association (NMMA) have agreed to use either engineering controls, work practices or respiratory protection to achieve this voluntary limit for styrene.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Boiling Point**

(for component) 293.4 F (145.2 C) @ 760 mmHg

**Vapor Pressure**

(for component) 4.500 mmHg

**Specific Vapor Density**

> 1.000 @ AIR=1

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**Specific Gravity**  
> 1.000 @ 77.00 F

**Liquid Density**  
9.600 - 9.800 lbs/gal @ 77.00 F  
9.600 - 9.800 lbs/gal @ 77.00 F

**Percent Volatiles**  
No data

**Evaporation Rate**  
SLOWER THAN ETHYL ETHER

**Appearance**  
VISCIOUS

**State**  
LIQUID

**Physical Form**  
HOMOGENEOUS

**Color**  
No data

**Odor**  
PUNGENT

**pH**  
No data

**Solubility in Water**  
INSOLUBLE

---

**10. STABILITY AND REACTIVITY**

**Hazardous Polymerization**  
Product can undergo hazardous polymerization. Avoid exposure to excessive heat, peroxides and polymerization catalysts.

**Hazardous Decomposition**  
May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons.

**Chemical Stability**  
Stable. Avoid heat, open flame, and prolonged storage at elevated temperatures. This material is unstable at elevated temperatures and pressures.

**Incompatibility**  
Avoid contact with: acids, aluminum chloride, excessive heat, halogens, iron chloride, metal salts, peroxides, strong alkalis, strong oxidizing agents.

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11. TOXICOLOGICAL INFORMATION

No data

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12. ECOLOGICAL INFORMATION

No data

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13. DISPOSAL CONSIDERATION

**Waste Management Information**

Dispose of in accordance with all applicable local, state and federal regulations. Do not discharge effluent containing this product into lakes, streams, ponds or estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution Company, IC&S Environmental Services Group at 800-637-7922.

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14. TRANSPORT INFORMATION

DOT Information - 49 CFR 172.101

DOT Description:  
RESIN SOLUTION,3,UN1866,III

Container/Mode:  
55 GAL DRUM/TRUCK PACKAGE

NOS Component:  
None

RQ (Reportable Quantity) - 49 CFR 172.101

Product Quantity (lbs) Component

---

2530	STYRENE
------	---------

**Other Transportation Information**

The Transport Information may vary with the container and mode of shipment.

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15. REGULATORY INFORMATION

**US Federal Regulations**

TSCA (Toxic Substances Control Act) Status  
TSCA (UNITED STATES) This product complies with the Chemical Substance Inventory requirements.

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**CERCLA RQ - 40 CFR 302.4(a)**

Component	RQ (lbs)
STYRENE	1000

**SARA 302 Components - 40 CFR 355 Appendix A**  
 None

**Section 311/312 Hazard Class - 40 CFR 370.2**  
 Immediate(X) Delayed(X) Fire(X) Reactive(X) Sudden Release of Pressure( )

**SARA 313 Components - 40 CFR 372.65**

Section 313 Component(s)	CAS Number	%
STYRENE	100-42-5	39.53

**OSHA Process Safety Management 29 CFR 1910**  
 None listed

**EPA Accidental Release Prevention 40 CFR 68**  
 None listed

**Organic Hazardous Air Pollutants (HAPs)**  
 40 CFR Part 63 Subpart WWWW and VVVV

HAP Component(s)	CAS Number	% (by weight)
STYRENE, MONOMER	100-42-5	39.53
Total		39.53

**Volatile Organic Compound (VOC) Content**  
 41.0 %

**International Regulations**  
**Inventory Status**

DSL (CANADA) This product complies with the Chemical Substance Inventory requirements.  
 EINECS (EUROPE) This product complies with the Chemical Substance Inventory requirements.  
 IECSC (CHINA) This product complies with the Chemical Substance Inventory requirements.

**State and Local Regulations**  
**California Proposition 65**

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause cancer.  
 TRIMETHYLPHOSPHATE  
 1,4-DIOXANE  
 BENZENE  
 ACETALDEHYDE

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause reproductive harm.  
 BENZENE

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Styrene, in the presence of air and high temperature or prolonged exposure to styrene/air mixture to sunlight, can react to form styrene oxide. Styrene oxide is a chemical known to the state of California to cause cancer.

**New Jersey RTK Label Information**

STYRENE MONOMER

100-42-5

**Pennsylvania RTK Label Information**

BENZENE, ETHENYL-

100-42-5

---

**16. OTHER INFORMATION**

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

Last page

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DERAKANE MOMENTUM® 470-300 EPOXY  
VINYL ESTER RESIN  
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and other countries 40212

**1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

Ashland P.O. Box 2219 Columbus, OH 43216	Regulatory Information Number Telephone Emergency telephone	1-800-325-3751 614-790-3333 1-800-ASHLAND (1-800-274-5263)
Product name	DERAKANE MOMENTUM® 470-300 EPOXY VINYL ESTER RESIN ® Registered Trademark, Ashland, in the U.S. and other countries	
Product code	40212	
Product Use Description	No data	

**2. HAZARDS IDENTIFICATION**

**Emergency Overview**

Appearance: liquid,

**WARNING! FLAMMABLE LIQUID AND VAPOR. MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. MAY BE HARMFUL IF INHALED. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN, CAUSE IRRITATION AND BURNS.**

**Potential Health Effects**

**Exposure routes**

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

**Eye contact**

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

**Skin contact**

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Passage of this

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material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

**Ingestion**

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

**Inhalation**

Breathing of vapor or mist is possible. Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

**Aggravated Medical Condition**

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, male reproductive system, auditory system

**Symptoms**

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: metallic taste, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, Lack of coordination, confusion, liver damage

**Target Organs**

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: mild, reversible kidney effects, effects on hearing, respiratory tract damage (nose, throat, and airways), testis damage, liver damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects

**Carcinogenicity**

There was no increase in cancer in rats exposed to styrene by inhalation. However, there was an increase in lung cancer in styrene-exposed mice. The relevance of the mouse lung cancer to humans is uncertain. Styrene did not cause cancer in mice in studies in which the chemical was placed in the

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stomachs through a feeding tube, or in a study in which styrene was given by injection. Epidemiological studies do not provide a basis for concluding that styrene causes cancer. Styrene is listed as a possible human carcinogen by the International Agency for Research on Cancer (IARC).

**Reproductive hazard**

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

**Other information**

Styrene readily reacts with low concentrations of halogens (for example, fluorine, chlorine, bromine, or iodine) to form a tear-producing substance.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Hazardous Components	CAS-No.	Concentration
STYRENE	100-42-5	>=30-<40%

**4. FIRST AID MEASURES**

**Eyes**

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

**Skin**

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

**Ingestion**

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

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### **Inhalation**

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

### **Notes to physician**

**Hazards:** This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting.

**Treatment:** No information available.

## **5. FIRE-FIGHTING MEASURES**

### **Suitable extinguishing media**

Foam, Alcohol-resistant foam, Water spray, Carbon dioxide (CO<sub>2</sub>), Dry chemical

### **Hazardous combustion products**

carbon dioxide and carbon monoxide, phenols, toxic fumes, various hydrocarbons

### **Precautions for fire-fighting**

Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. During a fire, irritating or toxic decomposition products may be generated. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.

### **NFPA Flammable and Combustible Liquids Classification**

Flammable Liquid Class IC

## **6. ACCIDENTAL RELEASE MEASURES**

### **Personal precautions**

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For personal protection see section 8. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

**Environmental precautions**

Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred.

**Methods for cleaning up**

Absorb liquid on vermiculite, floor absorbent or other absorbent material.

**7. HANDLING AND STORAGE**

**Handling**

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing impervious protective gloves. As with all products of this nature, good personal hygiene is essential. Hands and other exposed areas should be washed thoroughly with soap and water after contact, especially before eating and/or smoking. Regular laundering of contaminated clothing is essential to reduce indirect skin contact with this material. Do not use pressure to empty container. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77. Warning. Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

**Storage**

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Store in a cool, dry place at 75 degrees F or lower. Do not store near extreme heat, open flame, or sources of ignition. Maintain inhibitor and dissolved oxygen level. Do not blanket or purge with an inert gas to avoid depleting the oxygen concentration. Store out of direct sunlight.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines

STYRENE		100-42-5
ACGIH	time weighted average	20 ppm
ACGIH	Short term exposure limit	40 ppm
NIOSH	Recommended exposure limit (REL):	50 ppm
NIOSH	Recommended exposure limit (REL):	215 mg/m3
NIOSH	Short term exposure limit	100 ppm
NIOSH	Short term exposure limit	425 mg/m3
OSHA Z2	time weighted average	100 ppm
OSHA Z2	Ceiling Limit Value:	200 ppm
OSHA Z2	Maximum concentration:	600 ppm

### General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

### Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s). OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm workplace limit on styrene. Members of the Styrene Information and Research Council (SIRC), Composites Institute (CI), Composite Fabricators Association (CFA), International Cast Polymers Association (ICPA) and National Marine Manufacturers Association (NMMA) have agreed to use either engineering controls, work practices or respiratory protection to achieve this voluntary limit for styrene.

### Eye protection

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

### Skin and body protection

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Wear resistant gloves (consult your safety equipment supplier).  
To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

**Respiratory protection**

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH-approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical state</b>	liquid
<b>Form</b>	liquid
<b>Colour</b>	No data
<b>Odour</b>	pungent
<b>Boiling point/boiling range</b>	145.00 °C Calculated Phase Transition Liquid/Gas
<b>pH</b>	No data
<b>Flash point</b>	29.40 °C Seta closed cup
<b>Evaporation rate</b>	No data
<b>Lower explosion limit/Upper explosion limit</b>	0.9 %(V) / 6.8 %(V)
<b>Vapour pressure</b>	8.532 hPa @ 25 °C Calculated Vapor Pressure
<b>Vapour density</b>	(>) 1 (AIR=1)
<b>Density</b>	1.078 g/cm3 @ 68 °F / 20 °C 9 lb/gal @ 77.00 °F / 25.00 °C
<b>Solubility</b>	insoluble in water
<b>Partition coefficient: n-octanol/water</b>	No data
<b>log Pow</b>	no data available
<b>Autoignition temperature</b>	914 °F / 490 °C

**10. STABILITY AND REACTIVITY**

**Stability**

Stable.

**Conditions to avoid**

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Heat, flames and sparks., Exposure to sunlight., Exposure to air.

**Incompatible products**

Avoid contact with:, acids, aluminum chloride, halogens, iron chloride, metal salts, peroxides, strong alkalis, strong oxidizing agents, UV light.

**Hazardous decomposition products**

carbon dioxide and carbon monoxide, Hydrocarbons

**Hazardous reactions**

Product can undergo hazardous polymerization., Avoid exposure to excessive heat, peroxides and polymerization catalysts.

**Thermal decomposition**

No data

**11. TOXICOLOGICAL INFORMATION**

**Acute oral toxicity**

STYRENE : LD 50 Rat: 2,650 mg/kg

**Acute inhalation toxicity**

STYRENE : LC 50 Rat: 2800 ppm, 4 h

**Acute dermal toxicity**

STYRENE : no data available

**12. ECOLOGICAL INFORMATION**

**Biodegradability**

STYRENE : no data available

**Bioaccumulation**

STYRENE : no data available

**Ecotoxicity effects**

**Toxicity to fish**

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STYRENE : no data available

**Toxicity to daphnia and other aquatic invertebrates.**

STYRENE : no data available

**Toxicity to algae**

STYRENE : no data available

**Toxicity to bacteria**

STYRENE : no data available

**Biochemical Oxygen Demand (BOD)**

STYRENE : no data available

**Chemical Oxygen Demand (COD)**

STYRENE : no data available

**Additional ecological information**

STYRENE : no data available

**13. DISPOSAL CONSIDERATIONS**

**Waste disposal methods**

Dispose of in accordance with all applicable local, state and federal regulations. Do not discharge effluent containing this product into lakes, streams, ponds or estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution's Environmental Services Group at 800-637-7922.

**14. TRANSPORT INFORMATION**

**REGULATION**

**ASHLAND**  
SAFETY DATA SHEET

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Revision Date: 01/15/2010  
Print Date: 1/17/2010  
MSDS Number: R0402387  
Version 1.15

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ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
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**MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES**

UN 1866	RESINA, SOLUCIONES DE	3		III	
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**INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER**

UN 1866	Resin solution	3		III	
---------	----------------	---	--	-----	--

**INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO**

UN 1866	Resin solution	3		III	
---------	----------------	---	--	-----	--

**INTERNATIONAL MARITIME DANGEROUS GOODS**

UN 1866	RESIN SOLUTION	3		III	
---------	----------------	---	--	-----	--

**TRANSPORT CANADA - INLAND WATERWAYS**

UN 1866	RESIN SOLUTION	3		III	
---------	----------------	---	--	-----	--

**TRANSPORT CANADA - RAIL**

UN 1866	RESIN SOLUTION	3		III	
---------	----------------	---	--	-----	--

**TRANSPORT CANADA - ROAD**

UN 1866	RESIN SOLUTION	3		III	
---------	----------------	---	--	-----	--

**U.S. DOT - INLAND WATERWAYS**

UN 1866	Resin solution	3		III	
---------	----------------	---	--	-----	--

**U.S. DOT - RAIL**

UN 1866	Resin solution	3		III	
---------	----------------	---	--	-----	--

**U.S. DOT - ROAD**

UN 1866	Resin solution	3		III	
---------	----------------	---	--	-----	--

\*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

DERAKANE MOMENTUM® 470-300 EPOXY  
VINYL ESTER RESIN  
® Registered Trademark, Ashland, in the U.S.  
and other countries 40212

**15. REGULATORY INFORMATION**

**California Prop. 65**

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

BENZENE  
CATECHOL

WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

BENZENE  
TOLUENE

**SARA Hazard Classification**  
Reactivity Hazard

Fire Hazard  
Acute Health Hazard  
Chronic Health Hazard

**SARA 313 Component(s)**  
STYRENE

33.04 %

**New Jersey RTK Label Information**

POLYMER  
STYRENE  
POLYMER

800986-5548P  
100-42-5  
254504001-5747

**Pennsylvania RTK Label Information**

POLYMER  
STYRENE  
POLYMER

800986-5548P  
100-42-5  
254504001-5747

**Notification status**

US. Toxic Substances Control Act  
Canada. Canadian Environmental Protection Act (CEPA).  
Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)  
Australia. Industrial Chemical (Notification and Assessment)  
Act  
New Zealand. Inventory of Chemicals (NZIoC), as published  
by ERMA New Zealand

y (positive listing)  
q (quantity restricted)  
q (quantity restricted)  
n (Negative listing)

# ASHLAND

## SAFETY DATA SHEET

Page: 12  
Revision Date: 01/15/2010  
Print Date: 1/17/2010  
MSDS Number: R0402387  
Version 1.15

DERAKANE MOMENTUM® 470-300 EPOXY  
VINYL ESTER RESIN

® Registered Trademark, Ashland, in the U.S.  
and other countries 40212

Japan. Kashin-Hou Law List

Korea. Toxic Chemical Control Law (TCCL) List

Philippines. The Toxic Substances and Hazardous and Nuclear  
Waste Control Act

China. Inventory of Existing Chemical Substances

q (quantity restricted)

y (positive listing)

n (Negative listing)

y (positive listing)

### Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302)

3026 lbs

### Reportable quantity-Components

STYRENE

100-42-5

1000 lbs

	HMIS	NFPA
Health	2*	2
Flammability	3	3
Physical hazards	2	
Instability		2
Specific Hazard	--	--

## 16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

MATERIAL SAFETY DATA SHEET

Ashland

Page 001  
Date Prepared: 03/03/05  
Date Printed: 04/21/06  
MSDS No: 304.0399375-001.003

HETRON FR 620T-20M RESIN

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Identity

Product Name: HETRON FR 620T-20M RESIN

General or Generic ID: UNSATURATED POLYESTER RESIN

Company

Ashland  
Ashland Distribution Co. &  
Ashland Specialty Chemical Co.  
P. O. Box 2219  
Columbus, OH 43216  
614-790-3333

Emergency Telephone Number:

1-800-ASHLAND (1-800-274-5263)  
24 hours everyday

Regulatory Information Number:  
1-800-325-3751

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
POLYMER (S)	Trade Secret	65.0- 69.0
STYRENE	100-42-5	31.0
DIMETHYL METHYLPHOSPHONATE	756-79-6	0.8
COBALT COMPOUNDS		0.2- 0.2

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Continued on next page

**MATERIAL SAFETY DATA SHEET**

Ashland

Page 002

Date Prepared: 03/03/05

Date Printed: 04/21/06

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**RETRON FR 620T-20M RESIN**

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**Swallowing**

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

**Inhalation**

Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms usually occur at air concentrations higher than the recommended exposure limits (See Section 8).

**Symptoms of Exposure**

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: metallic taste, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, loss of coordination, confusion, liver damage.

**Target Organ Effects**

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: mild, reversible kidney effects, effects on hearing, respiratory tract damage (nose, throat, and airways), testis damage, liver damage. Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects.

**Developmental Information**

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland

Page 003

Date Prepared: 03/03/85

Date Printed: 04/21/86

MSDS No: 304.0399375-001.003

NEETRON FR 620T-20M RESIN

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**Cancer Information**

Cobalt and certain cobalt compounds have been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. Cobalt and certain cobalt compounds are listed as carcinogenic by the International Agency for Research on Cancer (IARC). Dimethyl methylphosphonate caused an increased incidence of kidney tumors in male rats, but not in female rats or in mice of either sex. The relevance of this finding to humans is uncertain. There was no increase in cancer in rats exposed to styrene by inhalation. However, there was an increase in lung cancer in styrene-exposed mice. The relevance of the mouse lung cancer to humans is uncertain. Styrene did not cause cancer in mice in studies in which the chemical was placed in the stomach through a feeding tube, or in a study in which styrene was given by injection. Epidemiological studies do not provide a basis for concluding that styrene causes cancer. Styrene is listed as a carcinogen by the International Agency for Research on Cancer (IARC).

**Other Health Effects**

Styrene readily reacts with low concentrations of halogens (for example, fluorine, chlorine, bromine, or iodine) to form a tear-producing substance.

**Primary Route(s) of Entry**

Inhalation, skin absorption, skin contact, eye contact, ingestion.

---

**4. FIRST AID MEASURES**

**Eyes**

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

**Skin**

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland

Page 004

Date Prepared: 03/03/05

Date Printed: 04/21/06

MSDS No: 304.0399375-001.003

RETRON FR 620T-20M RESIN

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Swallowing

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Note to Physicians

This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 3 - Swallowing) when deciding whether to induce vomiting. Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, male reproductive system, auditory system.

---

5. FIRE FIGHTING MEASURES

Flash Point

80.0 - 90.0 F (26.6 - 32.2 C) SBTA

Explosive Limit

(for component) Lower 1.1 Upper 6.1 %

Autoignition Temperature

No data

Hazardous Products of Combustion

May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons.

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland

Page 005

Date Prepared: 03/03/05

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HETRON FR 620T-20M RESIN

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**Fire and Explosion Hazards**

Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. During a fire, irritating or toxic decomposition products may be generated.

**Extinguishing Media**

regular foam (such as AFFF), water fog, carbon dioxide, dry chemical.

**Fire Fighting Instructions**

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.

**NFPA Rating**

Health - 2, Flammability - 3, Reactivity - 2

---

**6. ACCIDENTAL RELEASE MEASURES**

**Small Spill**

Eliminate all sources of ignition such as flares, flames (including pilot lights), and electrical sparks. Absorb liquid on vermiculite, floor absorbent or other absorbent material. Persons not wearing proper personal protective equipment should be excluded from area of spill.

**Large Spill**

Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks).

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MATERIAL SAFETY DATA SHEET

Ashland

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Date Prepared: 03/03/05  
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HETRON FR 620T-20M RESIN

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7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77. Precautions during use: avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing impervious protective gloves. As with all products of this nature, good personal hygiene is essential. Hands and other exposed areas should be washed thoroughly with soap and water after contact, especially before eating and/or smoking. Regular laundering of contaminated clothing is essential to reduce indirect skin contact with this material. Warning. Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

Storage

Store in closed containers in a dry, well-ventilated area. Do not store near extreme heat, open flame, or sources of ignition.

---

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland

Page 007

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HETRON FR 620T-20M RESIN

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**Skin Protection**

Wear resistant gloves (consult your safety equipment supplier).  
To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

**Respiratory Protections**

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

**Engineering Controls**

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

**Exposure Guidelines**

Component

-----

**POLYMER (5)**

No exposure limits established

**STYRENE (100-42-5)**

OSHA PEL 100.000 ppm - TWA

OSHA PEL 200.000 ppm - Ceiling

OSHA VPEL 50.000 ppm - TWA

OSHA VPEL 100.000 ppm - STEL

ACGIH TLV 20.000 ppm - TWA (skin)

ACGIH TLV 40.000 ppm - STEL (skin)

**DIMETHYL METHYLPHOSPHONATE (756-79-6)**

No exposure limits established

**COBALT COMPOUNDS**

No exposure limits established

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland

Page 008

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RETROM FR 620T-20M RESIN

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OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm workplace limit on styrene. Members of the Styrene Information and Research Council (SIRC), Composites Institute (CI), Composite Fabricators Association (CFA), International Cast Polymers Association (ICPA) and National Marine Manufacturers Association (NMMA) have agreed to use either engineering controls, work practices or respiratory protection to achieve this voluntary limit for styrene.

---

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point

(for component) 293.4 F (145.2 C) @ 760 mmHg

Vapor Pressure

(for component) 4.500 mmHg

Specific Vapor Density

> 1.000 @ AIR=1

Specific Gravity

No data

Liquid Density

9.800 - 10.290 lbs/gal @ 77.00 F

9.800 - 10.290 lbs/gal @ 77.00 F

Percent Volatiles

No data

Evaporation Rate

SLOWER THAN ETHYL ETHER

Appearance

VISCOUS

State

LIQUID

Continued on next page

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**MATERIAL SAFETY DATA SHEET**

**Ashland**

**Page 009**

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**RETRON FR 620T-20M RESIN**

---

**Physical Form**  
**HOMOGENEOUS**

**Color**  
**No data**

**Odor**  
**PUNGENT**

**pH**  
**No data**

**Solubility in Water**  
**INSOLUBLE**

---

**10. STABILITY AND REACTIVITY**

**Hazardous Polymerization**

**Product can undergo hazardous polymerization. Avoid exposure to excessive heat, peroxides and polymerization catalysts.**

**Hazardous Decomposition**

**May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons.**

**Chemical Stability**

**Stable. Avoid heat, open flame, and prolonged storage at elevated temperatures. This material is unstable at elevated temperatures and pressures.**

**Incompatibility**

**Avoid contact with: acids, aluminum chloride, excessive heat, halogens, iron chloride, metal salts, peroxides, strong alkalis, strong oxidizing agents.**

**Continued on next page**

**MATERIAL SAFETY DATA SHEET**

Ashland

Page 010

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Date Printed: 04/21/06

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**NETRON FR 620T-20M RESIN**

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**11. TOXICOLOGICAL INFORMATION**

No data

---

**12. ECOLOGICAL INFORMATION**

No data

---

**13. DISPOSAL CONSIDERATION**

**Waste Management Information**

Dispose of in accordance with all applicable local, state and federal regulations. Do not discharge effluent containing this product into lakes, streams, ponds or estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution Company, IC&S Environmental Services Group at 800-531-7106.

---

**14. TRANSPORT INFORMATION**

**DOT Information - 49 CFR 172.101**

**DOT Description:**

**RESIN SOLUTION, 3, UN1866, III**

**Container/Mode:**

**55 GAL DRUM/TRUCK PACKAGE**

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland

Page 011  
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HETRON FR 620T-20M RESIN

NOS Component:  
None

RQ (Reportable Quantity) - 49 CFR 172.101  
Product Quantity (lbs) Component

3223 STYRENE

Other Transportation Information

The Transport Information may vary with the container and mode of shipment.

15. REGULATORY INFORMATION

US Federal Regulations

TSCA (Toxic Substances Control Act) Status  
TSCA (UNITED STATES) The intentional ingredients of this product are listed.

CERCLA RQ - 40 CFR 302.4(a)

Component	RQ (lbs)
STYRENE	1000

SARA 302 Components - 40 CFR 355 Appendix A  
None

Section 311/312 Hazard Class - 40 CFR 370.2

Immediate(X) Delayed(X) Fire(X) Reactive(X) Sudden  
Release of Pressure( )

SARA 313 Components - 40 CFR 372.65

Section 313 Component(s)	CAS Number	h
STYRENE	100-42-5	31.02

This product contains cobalt compounds subject to section 313 TRI reporting requirements under the toxic chemical category: Cobalt Compounds. Please refer to section two (2) of this MSDS to identify actual content in this product.

Continued on next page

MATERIAL SAFETY DATA SHEET

Ashland

Page 012  
Date Prepared: 03/03/05  
Date Printed: 04/21/06  
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BETRON FR 620T-20M RESIN

OSHA Process Safety Management 29 CFR 1910  
None listed

EPA Accidental Release Prevention 40 CFR 68  
None listed

Organic Hazardous Air Pollutants (HAPs)  
40 CFR Part 63 Subpart WWWW and VVVV

HAP Component(s)	CAS Number	% (by weight)
STYRENE, MONOMER	100-42-5	31.02
Total		31.0

Volatile Organic Compound (VOC) Content  
Not determined

International Regulations  
Inventory Status  
Not determined

State and Local Regulations

California Proposition 65

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause cancer.

TRIMETHYLPHOSPHATE  
BENZENE  
ANILINE

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause reproductive harm.

TOLUENE  
BENZENE

Styrene, in the presence of air and high temperature or prolonged exposure to styrene/air mixture to sunlight, can react to form styrene oxide. Styrene oxide is a chemical known to the state of California to cause cancer.

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MATERIAL SAFETY DATA SHEET

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Page 013

Date Prepared: 03/03/05

Date Printed: 04/21/05

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RETRON FR 620T-20M RESIN

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New Jersey RTK Label Information  
STYRENE MONOMER

100-42-5

Pennsylvania RTK Label Information  
BENZENE, ETHENYL-

100-42-5

---

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

Last page

SOURCE:ASHLAND INC WTR,

EASYWTR

---

MATERIAL SAFETY DATA SHEET

SECTION I - IDENTIFICATION

TRADE NAME: STYPOL 040-0004
DESCRIPTION: STYRENE MONOMER
PRODUCT CODE IDENTITY: 0400004R1
NPCA HMIS RATING: H 2\* F 3 R 2
REVISION: 01
LAST REVISED: 01/07/2004
DATE OF ISSUE: 02/05/2004
COMPANY NAME: COOK COMPOSITES AND POLYMERS CO.
ADDRESS: 820 E. 14th AVENUE
NORTH KANSAS CITY, MO 64116
PREPARED BY: HAZARD COMMUNICATION DEPT.
INFORMATION TELEPHONE:
COMPOSITES: 1-800-821-3590
POLYMERS: 1-800-488-5541
CUSTOMER:

ATTENTION:

24 HOUR RESPONSE NUMBER (CHEMTREC): 1-800-424-9300 (NORTH AMERICA)
703-527-3887 (INTERNATIONAL)

CCP certifies that its products comply with all the provisions of the Toxic Substances Control Act (TSCA), unless otherwise stated by ingredient in Section II.

The percent by weight composition data given in Sections II and X are NOT SPECIFICATIONS, but are based on 'target' formula values for each ingredient in the product. The data are presented as ranges for low hazard ingredients and single point values for ingredients of regulatory concern. Actual batch concentrations will vary within limits consistent with separately established product specifications.

SECTION II INGREDIENTS

1
CAS# 000100-42-5
STYRENE MONOMER
PCT BY WT: 100.0000 VAPOR PRESSURE: 4.500 MMHG @ 68F
EXPOSURE LIMIT:
ACGIH TLV/TWA: 20 PPM (85 MG/CU.M.)
ACGIH TLV/STEL: 40 PPM (170 MG/CU.M.)
OSHA PEL/TWA: 100 PPM (8 HR TWA)
OSHA PEL/CEILING: ACCEPTABLE MAX. PEAK: 600 PPM (5 MIN IN ANY 3 HRS)
OSHA PEL/STEL: ACCEPTABLE CONCENTRATION: 200 PPM (15 MIN TWA)
LD50, Oral: 4.37 G/KG (RAT)
LD50, Dermal: >5 G/KG (RABBIT)
OTHER: LCLO: 5000 PPM/8H (RAT)
OTHER (cont.): NIOSH TWA: 50 PPM (215 MG/M3)
OTHER LIMITS:
IARC - Group 2B See Section V

This product contains one or more reported carcinogens or suspected carcinogens which are noted by NTP, IARC, or OSHA-Z in the appropriate subsection above under OTHER LIMITS.
This substance is classified as a hazardous air pollutant.

SECTION III PHYSICAL DATA

Boiling Range: High- -N/A F Low- 293.0 F

\*\*\*\*\*  
\* STYPOL 040-0004 \*  
\* MATERIAL SAFETY DATA SHEET \*  
\* 0400004R1 \*  
\*\*\*\*\*

Vapor Pressure: See Section II  
Theoretical Weight per Gallon, Calculated: 7.5300 LB/GL  
Theoretical Specific Gravity, Calculated: .905  
Theoretical VOC, Calculated: 7.530 LB/GL  
--If applicable, see Section X for further VOC information--  
Physical State: LIQUID  
Appearance: CLEAR, COLORLESS  
Odor: CHARACTERISTIC STYRENE  
Odor Threshold: -N/A  
pH: -N/A  
Freezing Point: -N/A  
Water Solubility: INSOLUBLE  
Coefficient of Water/Oil Distribution: -N/A  
Mechanical Impact Explosion: NO KNOWN HAZARD  
Static Electricity Explosion: AVOID STATIC CHARGE

-----  
SECTION IV FIRE AND EXPLOSION HAZARD DATA  
-----

FLAMMABILITY CHARACTERISTICS:

Lowest Closed Cup Flashpoint: 88.0 degrees F  
For Flash Points 73 to 100 deg. F.  
OSHA Flammability Classification: Class IC  
DOT Flammability Classification: Flammable Liquid  
Lower Flammable Limit in Air: Lower- 1.1 % by volume  
DOT Shipping Name:  
STYRENE MONOMER, STABILIZED, 3, UN2055, PG III  
EXTINGUISHING MEDIA:

Foam, carbon dioxide, dry chemical, water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

If polymerization takes place in a container, there is possibility of violent rupture of the container. Vapors are uninhibited and may form polymers in vents or flame arrestors of storage tanks resulting in stoppage of vents. Vapors may cause flash fire. Keep containers tightly closed and isolate from heat, electrical equipment, sparks and flame. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.

SPECIAL FIRE FIGHTING PROCEDURES:

Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible auto-ignition or explosion when exposed to extreme heat.

ADDITIONAL TRANSPORTATION INFORMATION:

Freight Classification:  
NMFC: 46750 STYRENE LTL CLASS 70

-----  
SECTION V HEALTH HAZARD DATA  
-----

EFFECTS OF EXCESSIVE OVEREXPOSURE. PRIMARY ROUTES OF ENTRY ARE:

\*\*\*\*\*  
\* STYPOL 040-0004 \*  
\* MATERIAL SAFETY DATA SHEET \*  
\* 0400004R1 \*  
\*\*\*\*\*

EYE CONTACT:

Irritation. Symptoms are tearing, redness and discomfort.

SKIN CONTACT:

Irritation. Can cause defatting of skin which may lead to dermatitis.

INHALATION:

Irritation to nose and throat. Extended or repeated exposure to concentrations above the recommended exposure limits may cause brain or nervous system depression, with symptoms such as dizziness, headache or nausea and if continued indefinitely, loss of consciousness, liver and kidney damage.

Reports have associated repeated and prolonged occupational over-exposure to solvents with permanent brain and nervous system damage.

INGESTION:

May cause mouth, throat, esophagus and stomach irritation, nausea, vomiting and diarrhea. Aspiration into lungs can cause pneumonitis which can be fatal.

MEDICAL CONDITIONS THAT MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

Preexisting eye, skin, liver, kidney and respiratory disorders.

EMERGENCY AND FIRST AID PROCEDURES:

In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If affected by inhalation of vapors or spray mist, remove to fresh air. If swallowed, get medical attention immediately.

Aspiration into lungs can cause pneumonitis which can be fatal.

CALIFORNIA PROPOSITION 65 INFORMATION:

WARNING - This product contains a chemical(s) known to the State of California to cause cancer.

OTHER HEALTH HAZARDS:

STYRENE MONOMER

The International Agency for Research on Cancer (IARC) has reclassified styrene as Group 2B "possibly carcinogenic to humans". This new classification is not based on new health data relating to either humans or animals, but on a change in the IARC classification system. The Styrene Information and Research Center does not agree with the reclassification and has published the following statement. "Recently published studies tracing 50,000 workers exposed to high occupational levels of styrene over a period of 45 years showed no association between styrene and cancer, no increase in cancer among styrene workers (as opposed to the average among all workers), and no increase in mortality related to styrene."

An increased incidence of lung tumors was observed in mice from a recent inhalation study. The relevance of this finding is uncertain. Data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic.

Lung effects have been observed in the mouse following repeated exposure to styrene.

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SECTION VI REACTIVITY DATA  
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STABILITY: Stable HAZARDOUS POLYMERIZATION: May occur.

CONDITIONS TO AVOID:

Elevated temperatures.

INCOMPATIBILITY (MATERIALS TO AVOID):

Oxidizers, peroxides, strong acids, aluminum chloride and vinyl polymers

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition or combustion can produce fumes containing organic

\*\*\*\*\*  
\* STYPOL 040-0004 \*  
\* MATERIAL SAFETY DATA SHEET \*  
\* 0400004R1 \*  
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acids, carbon dioxide and carbon monoxide.

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SECTION VII SPILL OR LEAK PROCEDURES  
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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Remove all sources of ignition (flames, hot surfaces, and electrical, static, or frictional sparks). Avoid breathing vapors. Ventilate area. Contain and remove with inert absorbent and non-sparking tools.

WASTE DISPOSAL METHOD:

Dispose of in accordance with local, state and federal regulations. Do not incinerate closed containers. Incinerate in approved facility.

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SECTION VIII SPECIAL PROTECTION INFORMATION  
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RESPIRATORY PROTECTION:

Do not breathe vapors or spray mist. Wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during application and other use of this product until vapors and mists are exhausted, unless air monitoring demonstrates vapor and mist levels are below applicable limits. Follow respirator manufacturer's directions for respirator use. Observe OSHA Standard 29CFR 1910.134.

VENTILATION:

Provide general clean air dilution or local exhaust ventilation in volume and pattern to keep the air contaminant concentration below the lower explosion limit and below current applicable exposure limits. Refer to OSHA Standard 1910.94.

NOTE: Heavy solvent vapors should be removed from lower levels of the work area and all ignition sources (nonexplosion-proof motors, etc.) should be eliminated.

PROTECTIVE GLOVES:

Use solvent impermeable gloves to avoid contact with product.

EYE PROTECTION:

Do not get in eyes. Use safety eyewear with splash guards or side shields, chemical goggles, face shields.

OTHER PROTECTIVE EQUIPMENT:

Avoid contact with skin. Use protective clothing. Prevent contact with contaminated clothing. Wash contaminated clothing, including shoes, before reuse.

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SECTION IX SPECIAL PRECAUTIONS  
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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

Do not store above 100 deg. F. Store large quantities in buildings designed to comply with OSHA 1910.106. Keep away from heat, sparks and flame. Keep containers closed when not in use and upright to prevent leakage.

OTHER PRECAUTIONS:

Containers should be grounded when pouring. Do not take internally. Wash hands after using and before smoking or eating. Emptied containers may retain hazardous residue and explosive vapors. Keep away from heat, sparks and flames. Do not cut, puncture or weld on or near emptied containers. Follow all hazard precautions given in this data sheet until container is thoroughly cleaned or destroyed. If this product is blended with other components such as thinners, converter, colorants and catalysts prior to use, read all warning labels. Any mixture of components will have hazards of all components. Follow all precautions. If spraying this material, keep spray booths clean. Avoid buildup of spray dust or overspray in booths or ducts.

KEEP OUT OF REACH OF CHILDREN

FOR INDUSTRIAL USE ONLY

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SECTION X Sara Title III Information  
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SARA 313 INFORMATION:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

STYRENE MONOMER

CAS# 000100-42-5 PCT BY WT: 100.0000  
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DISCLAIMER AND LIMITATION OF LIABILITY  
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The products sold hereunder shall meet Seller's applicable specifications at the time of shipment. Seller's specifications may be subject to change at any time without notice to Buyer. Buyer must give Seller notice in writing of any alleged defect covered by this warranty (together with all identifying details, including the Product Code(s), description and date of purchase) within thirty (30) days of the date of shipment of the product or prior to the expiration of the shipment's quality life, whichever occurs first. THE WARRANTY DESCRIBED HEREIN SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. The Buyer's sole and exclusive remedy against Seller shall be for the replacement of the product or refund of the purchase price in the event that a defective condition of the product should be found to exist by Seller. NO OTHER REMEDY (INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO THE BUYER.

The sole purpose of this exclusive remedy shall be to provide Buyer with replacement of the product or refund of the purchase price of the product if any defect in material or workmanship is found to exist. This exclusive remedy shall not be deemed to have failed its essential purpose so long as Seller is willing and able to replace the defective products or refund the purchase price.

MATERIAL SAFETY DATA SHEET

SECTION I - IDENTIFICATION

TRADE NAME: POLYCOR  
 DESCRIPTION: HAP33 ARCTIC WHITE ENAMEL  
 PRODUCT CODE IDENTITY: 998WK581  
 NPCA HMIS RATING: H 2\* F 3 R 2  
 REVISION: 02  
 LAST REVISED : 02/22/2008  
 DATE OF ISSUE: 03/27/2008

COMPANY NAME: COOK COMPOSITES AND POLYMERS CO.  
 ADDRESS: 820 E. 14th AVENUE  
 NORTH KANSAS CITY, MO 64116  
 PREPARED BY:  
 CCP PRODUCT STEWARDSHIP  
 INFORMATION TELEPHONE:  
 COMPOSITES: 1-800-821-3590  
 POLYMERS: 1-800-488-5541

CUSTOMER:

ATTENTION:

24 HOUR RESPONSE NUMBER (CHEMTREC): 1-800-424-9300 (NORTH AMERICA)  
 703-527-3887 (INTERNATIONAL)  
 FOR MEDICAL EMERGENCIES (PROSAR): 1-800-269-9906

CCP certifies that its products comply with all the provisions of the Toxic Substances Control Act (TSCA), unless otherwise stated by ingredient in Section II.

\*\*\* The percent by weight composition data given in Sections II and X are NOT SPECIFICATIONS, but are based on 'target' formula values for each ingredient in the product. The data are presented as ranges for low hazard ingredients and single point values for ingredients of regulatory concern. Actual batch concentrations will vary within limits consistent with separately established product specifications. \*\*\*

SECTION II INGREDIENTS

1  
 CAS# 027253-31-2  
 COBALT NEODECANOATE, 26% COBALT  
 PCT BY WT: .0520  
 EXPOSURE LIMIT:  
 ACGIH TLV/TWA: .05 MG/CU.M. AS COBALT METAL, DUST & FUME  
 OSHA PEL/TWA: .05 MG/CU.M. AS COBALT METAL, DUST & FUME

2  
 CAS# 000136-52-7  
 COBALT 2-ETHYLHEXANOATE, 12% COBALT  
 PCT BY WT: .1170  
 EXPOSURE LIMIT:  
 ACGIH TLV/TWA: .05 MG/CU.M. AS COBALT METAL, DUST & FUME  
 OSHA PEL/TWA: .05 MG/CU.M. AS COBALT METAL, DUST & FUME

3  
 CAS# 000100-42-5  
 STYRENE MONOMER  
 PCT BY WT: 32.6290 VAPOR PRESSURE: 4.500 MMHG @ 68F  
 EXPOSURE LIMIT:  
 ACGIH TLV/TWA: 20 PPM (85 MG/CU.M.)  
 ACGIH TLV/STEL: 40 PPM (170 MG/CU.M.)  
 OSHA PEL/TWA: 100 PPM (8 HR TWA)  
 OSHA PEL/CEILING: ACCEPTABLE MAX. PEAK: 600 PPM (5 MIN IN ANY 3 HRS)

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IARC - Group 2B See Section V

4  
CAS# 013463-67-7  
TITANIUM DIOXIDE  
PCT BY WT: 11.4410  
EXPOSURE LIMIT:  
ACGIH TLV/TWA: 10 MG/CU.M. (TOTAL DUST)  
OSHA PEL/TWA: 15 MG/CU.M. (TOTAL DUST)  
LD50, Oral: >7500 MG/KG (RAT)  
LD50, Dermal: NOT AVAILABLE  
LC50, Inhalation: NOT AVAILABLE

5  
CAS# 014807-96-6  
TALC (HYDROUS MAGNESIUM SILICATE)  
PCT BY WT: 10 - 20  
EXPOSURE LIMIT:  
ACGIH TLV/TWA: 2 MG/CU.M., RESPIRABLE DUST  
OSHA PEL/TWA: 2 MG/CU.M., RESPIRABLE DUST  
LD50, Oral: NOT AVAILABLE  
LD50, Dermal: NOT AVAILABLE  
LC50, Inhalation: NOT AVAILABLE

6  
UNSATURATED POLYESTER RESIN  
ON TSCA INVENTORY/ON CANADIAN DSL CAS# PROPRIETARY  
PCT BY WT: 20 - 30  
EXPOSURE LIMIT:  
ACGIH TLV/TWA: NONE ESTABLISHED  
OSHA PEL/TWA: NONE ESTABLISHED

7  
UNSATURATED POLYESTER RESIN  
TSCA EXEMPT POLYMER CAS# PROPRIETARY  
PCT BY WT: 10 - 20  
EXPOSURE LIMIT:  
ACGIH TLV/TWA: NONE ESTABLISHED  
OSHA PEL/TWA: NONE ESTABLISHED

\*\*\*\*\*  
This product contains one or more reported carcinogens or suspected  
carcinogens which are noted by NTP, IARC, or OSHA-2 in the appropriate  
subsection above under OTHER LIMITS.  
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\*\*\*\*\*  
This substance is classified as a hazardous air pollutant.  
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SECTION III PHYSICAL DATA

Boiling Range: High- N/A F Low- 293.0 F  
Vapor Pressure: See Section II  
Theoretical Weight per Gallon, Calculated: 10.8832 LB/GL  
Theoretical Specific Gravity, Calculated: 1.308  
Theoretical VOC, Calculated: 3.660 LB/GL  
--If applicable, see Section X for further VOC information--  
Physical State: LIQUID

Appearance: WHITE  
Odor: MODERATE AROMATIC  
Odor Threshold: -N/A

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pH: -N/A  
 Freezing Point: -N/A  
 Water Solubility: INSOLUBLE  
 Coefficient of Water/Oil Distribution: -N/A  
 Mechanical Impact Explosion: NO KNOWN HAZARD  
 Static Electricity Explosion: AVOID STATIC CHARGE  
 % HAP BY WEIGHT 32.776  
 % MONOMER BY WEIGHT 32.615

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 SECTION IV FIRE AND EXPLOSION HAZARD DATA  
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FLAMMABILITY CHARACTERISTICS:  
 Lowest Closed Cup Flashpoint: 88.0 degrees F  
 For Flash Points 73 to 100 deg. F.  
 OSHA Flammability Classification: Class IC  
 DOT Flammability Classification: Flammable Liquid  
 Lower Flammable Limit in Air: Lower- 1.1 % by volume  
 DOT Shipping Name:  
 Flash Points 73 to 100 deg. F. = RESIN SOLUTION, 3, UN1866, PG III

EXTINGUISHING MEDIA:  
 Foam, carbon dioxide, dry chemical, water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS:  
 If polymerization takes place in a container, there is possibility of violent rupture of the container. Vapors are uninhibited and may form polymers in vents or flame arrestors of storage tanks resulting in stoppage of vents. Vapors may cause flash fire. Keep containers tightly closed and isolate from heat, electrical equipment, sparks and flame. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.

SPECIAL FIRE FIGHTING PROCEDURES:  
 Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible auto-ignition or explosion when exposed to extreme heat.

ADDITIONAL TRANSPORTATION INFORMATION:  
 Freight Classification:  
 NMFC: 46030 RESIN COMPOUNDS, LIQUID LTL CLASS 55

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 SECTION V HEALTH HAZARD DATA  
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EFFECTS OF EXCESSIVE OVEREXPOSURE. PRIMARY ROUTES OF ENTRY ARE:  
 EYE CONTACT:  
 Irritation. Symptoms are tearing, redness and discomfort.  
 SKIN CONTACT:  
 Irritation. Can cause defatting of skin which may lead to dermatitis.  
 INHALATION:  
 Irritation to nose and throat. Extended or repeated exposure to concentrations above the recommended exposure limits may cause brain or nervous system depression, with symptoms such as dizziness, headache

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\* 998WK581 \*  
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or nausea and if continued indefinitely, loss of consciousness, liver and kidney damage.

Reports have associated repeated and prolonged occupational over-exposure to solvents with permanent brain and nervous system damage.

**INGESTION:**

May cause mouth, throat, esophagus and stomach irritation, nausea, vomiting and diarrhea.

**MEDICAL CONDITIONS THAT MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.**

Preexisting eye, skin, liver, kidney and respiratory disorders.

**EMERGENCY AND FIRST AID PROCEDURES:**

In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If affected by inhalation of vapors or spray mist, remove to fresh air. If swallowed, get medical attention immediately.

**CALIFORNIA PROPOSITION 65 INFORMATION:**

WARNING - This product contains a chemical(s) known to the State of California to cause cancer.

**OTHER HEALTH HAZARDS:**

**DIETHYLENE GLYCOL**

Excessive exposure to diethylene glycol may cause severe kidney, liver, gastrointestinal and central nervous system effects.

**STYRENE MONOMER**

The International Agency for Research on Cancer (IARC) has reclassified styrene as Group 2B "possibly carcinogenic to humans". This new classification is not based on new health data relating to either humans or animals, but on a change in the IARC classification system. The Styrene Information and Research Center does not agree with the reclassification and has published the following statement. "Recently published studies tracing 50,000 workers exposed to high occupational levels of styrene over a period of 45 years showed no association between styrene and cancer, no increase in cancer among styrene workers (as opposed to the average among all workers), and no increase in mortality related to styrene."

An increased incidence of lung tumors was observed in mice from a recent inhalation study. The relevance of this finding is uncertain. Data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic.

Lung effects have been observed in the mouse following repeated exposure to styrene.

**TALC**

Talc, Hydrous Magnesium Silicate, contains crystalline silica at levels greater than 0.1% but less than 1.0%. "IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Supplement 7, 1987", concludes there is limited evidence for the carcinogenicity of crystalline silica to humans, Class 2A. This classification was based on exposure to free silica dust and is not expected to be relevant to trace amounts of crystalline silica dispersed in paints and plastics.

**CARBON BLACK**

The IARC evaluation in Monograph 65 concluded that "there is sufficient evidence in experimental animals for the carcinogenicity of Carbon Black". Based on this evaluation, along with their evaluation of inadequate evidence of carcinogenicity in humans, IARC's overall evaluation is that "carbon black is possibly carcinogenic to humans (Group 2B)". Many inhalation toxicologists believe that the tumor response observed in the referenced rat studies is species specific and does not correlate to human exposure.

Carbon black has not been listed as a carcinogen by the National Toxi-

cology Program (NTP) or the Occupational Safety and Health Administration (OSHA). The National Institute of Occupational Safety and Health (NIOSH) criteria document on carbon black recommends that only carbon blacks with PAH levels greater than 0.1% be considered suspect carcinogens.

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METHANOL

If taken internally, Methyl Alcohol may cause methanol poisoning. Symptoms include severe headache, vomiting, unconsciousness and blurring or loss of vision. Methyl Alcohol exposure can cause damage to liver, heart and kidneys.

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 SECTION VI REACTIVITY DATA  
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STABILITY: Stable HAZARDOUS POLYMERIZATION: May occur.  
 CONDITIONS TO AVOID:

Elevated temperatures. Improper addition of promoter and/or catalyst. Avoid direct contact of MEKP catalyst with accelerator. If an accelerator such as cobalt drier is to be added, mix this accelerator with base material before adding catalyst.

INCOMPATIBILITY (MATERIALS TO AVOID):

Oxidizers, reducing agents, peroxides, strong acids, bases, UV light, or any source of free radicals and mild steel.

HAZARDOUS DECOMPOSITION PRODUCTS:

~~Thermal decomposition or combustion can produce fumes containing organic acids, carbon dioxide and carbon monoxide.~~

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 SECTION VII SPILL OR LEAK PROCEDURES  
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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Remove all sources of ignition (flames, hot surfaces, and electrical, static, or frictional sparks). Avoid breathing vapors. Ventilate area. Contain and remove with inert absorbent and non-sparking tools.

WASTE DISPOSAL METHOD:

Dispose of in accordance with local, state and federal regulations. Do not incinerate closed containers. Incinerate in approved facility.

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 SECTION VIII SPECIAL PROTECTION INFORMATION  
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RESPIRATORY PROTECTION:

Do not breathe or ingest vapors, spray mist or dust while applying, sanding, grinding, or sawing cured product. Wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during application and other use of this product until vapors, mists and dusts are exhausted, unless air monitoring demonstrates vapor, mist and dust levels are below applicable limits. Follow respirator manufacturer's directions for respirator use. Observe OSHA Standard 29CFR 1910.134.

VENTILATION:

Provide general clean air dilution or local exhaust ventilation in volume and pattern to keep the air contaminant concentration below the lower explosion limit and below current applicable exposure limits in the mixing, application and curing areas; and to remove decomposition product during welding and flame cutting on surfaces coated with this product. In confined areas, use only with forced ventilation adequate to keep vapor concentration below 20% of lower explosion limits. Refer to OSHA Standards 29CFR 1910.94, 1910.107, 1910.108.

NOTE: Heavy solvent vapors should be removed from lower levels of the work area and all ignition sources (nonexplosion-proof motors, etc.) should be eliminated.

PROTECTIVE GLOVES:

Use solvent impermeable gloves to avoid contact with product.

EYE PROTECTION:

Do not get in eyes. Use safety eyewear with splash guards or side

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\* POLYCOR  
\* MATERIAL SAFETY DATA SHEET  
\* 998WK581  
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shields, chemical goggles, face shields.  
OTHER PROTECTIVE EQUIPMENT:  
Avoid contact with skin. Use protective clothing. Prevent contact with contaminated clothing. Wash contaminated clothing, including shoes, before reuse.

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SECTION IX SPECIAL PRECAUTIONS  
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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:  
Do not store above 100 deg. F. Store large quantities in buildings designed to comply with OSHA 1910.106. Keep away from heat, sparks and flame. Keep containers closed when not in use and upright to prevent leakage.

OTHER PRECAUTIONS:  
Containers should be grounded when pouring. Do not take internally. Wash hands after using and before smoking or eating. Emptied containers may retain hazardous residue and explosive vapors. Keep away from heat, sparks and flames. Do not cut, puncture or weld on or near emptied containers. Follow all hazard precautions given in this data sheet until container is thoroughly cleaned or destroyed. If this product is blended with other components such as thinners, converter, colorants and catalysts prior to use, read all warning labels. Any mixture of components will have hazards of all components. Follow all precautions. If spraying this material, keep spray booths clean. Avoid buildup of spray dust or overspray in booths or ducts.  
KEEP OUT OF REACH OF CHILDREN FOR INDUSTRIAL USE ONLY

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ADDITIONAL ENVIRONMENTAL INFORMATION:  
The VOC quantity listed in Section III is a total theoretical loss value. Under typical conditions only half this amount might be lost to the atmosphere. Loss will vary due to temperature, humidity, film thickness, air movement, spray equipment/techniques, catalyzation, gel and cure rates, etc. If precise values are needed, it is suggested that onsite testing be conducted.

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SECTION X Sara Title III Information  
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SARA 313 INFORMATION:  
This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:  
COBALT NEODECANOATE, 26% COBALT  
CAS# 027253-31-2 PCT BY WT: .0520  
-----  
COBALT 2-ETHYLHEXANOATE, 12% COBALT  
CAS# 000136-52-7 PCT BY WT: .1170  
-----  
STYRENE MONOMER  
CAS# 000100-42-5 PCT BY WT: 32.6290  
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DISCLAIMER AND LIMITATION OF LIABILITY  
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The products sold hereunder shall meet Seller's applicable specifications at the time of shipment. Seller's specifications may be subject to change at any time without notice to Buyer. Buyer must give Seller notice in writing of any alleged defect covered by this warranty (together with all identifying details, including the Product Code(s), description and date

of purchase) within thirty (30) days of the date of shipment of the product

\*\*\*\*\*  
 \* POLYCOR \*  
 \* MATERIAL SAFETY DATA SHEET \*  
 \* 998WK581 \*  
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or prior to the expiration of the shipment's quality life, whichever occurs first. THE WARRANTY DESCRIBED HEREIN SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. The Buyer's sole and exclusive remedy against Seller shall be for the replacement of the product or refund of the purchase price in the event that a defective condition of the product should be found to exist by Seller. NO OTHER REMEDY (INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO THE BUYER.

The sole purpose of this exclusive remedy shall be to provide Buyer with replacement of the product or refund of the purchase price of the product if any defect in material or workmanship is found to exist. This exclusive remedy shall not be deemed to have failed its essential purpose so long as Seller is willing and able to replace the defective products or refund the purchase price.

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# MATERIAL SAFETY DATA SHEET

## SECTION 1 - PRODUCT AND SUPPLIER IDENTIFICATION

PRODUCT: ROBE RTS GRAY GELCOAT

MSDS PREPARATION DATE: January 30, 2010 0578396F

SUPPLIER: FIBERLAY, Inc.  
ADDRESS: 24 S. Idaho St.  
Seattle, WA 98134-1119

TELEPHONE: (206) 782-0660  
EMERGENCY TELEPHONE NUMBER: (800) 424-9300 (CHEMTREC)

## SECTION 2 - INGREDIENTS

Component	% (w/w)	CAS Number	Exposure Limits
Unsaturated Polyester Resin	20-40	Proprietary	None Established
Styrene Monomer	33-37	100-42-5	OSHA PEL/TWA: 50 PPM (8 Hr TWA) OSHA PEL/Ceiling: Acceptable Max. Peak: 600 PPM (5 Min in any 3 Hrs) OSHA PEL/STEL: Acceptable Concentration: 200 PPM (15 Min TWA) ACGIH TLV/TWA: 20 PPM (85 Mg/Cu.M.) ACGIH TLV/STEL: 40 PPM (170 Mg/Cu.M.) LD50, Oral: 4.37 gm/Kg (Rat) LD50, Dermal: >5 gm/Kg (Rabbit) IARC - Group 2B (Possible)
Talc (Hydrous Magnesium Silicate)	0-20	014807-96-6	ACGIH TLV/TWA: 2 Mg/Cu.M. Respirable Dust OSHA PEL/TWA: 2 Mg/Cu.M. Respirable Dust LD50, Oral: NOT AVAILABLE LD50, Dermal: NOT AVAILABLE LC50, Inhalation: NOT AVAILABLE

Component	% (w/w)	CAS Number	Exposure Limits
Calcium Carbonate	0-20	1317-65-3	OSHA PEL/TWA: 5.000 Mg/Cu.M. Respirable Dust OSHA PEL/TWA: 15.000 Mg/Cu.M. Total Dust OSHA VPEL/TWA: 5.000 Mg/Cu.M. Respirable Dust OSHA VPEL/TWA: 15.000 Mg/Cu.M. Total Dust ACGIH TLV/TWA: 10.000 Mg/Cu.M.
Quartz	0-1	14808-60-7	OSHA PEL/TWA: 10.000 Mg/Cu.M. Respirable Dust OSHA PEL/TWA: 30.000 Mg/Cu.M. Total Dust OSHA VPEL/TWA: 0.100 Mg/Cu.M. Respirable Dust ACGIH TLV/TWA: 0.050 Mg/Cu.M
Crystalline Free Silica	0-20	112945-52-5	None Established
Precipitated Silica Gel – Crystalline Free	0-20	112926-00-8	OSHA PEL/TWA: 0.000 Mg/Cu.M. OSHA VPEL/TWA: 6.000 Mg/Cu.M. ACGIH TLV/TWA: 10.000 Mg/Cu.M.
Methyl Methacrylate	4	80-62-6	ACGIH TLV/TWA: 100 PPM (410 Mg/Cu.M.) OSHA PEL/TWA: 100 PPM (410 Mg/Cu.M.) LD50, Oral: 7.9 gm/Kg (Rat) LD50, Dermal: 35.5 gm/Kg (Rabbit) LC50, Inhalation: >12,500 PPM/0.5 Hr (Rat)
Red Iron Oxide Pigment	0	001332-37-2	OSHA PEL/TWA: 10 Mg/Cu. M. ACGIH TLV/TWA: 5 Mg/Cu.M.
C.I. Pigment Yellow 42 (Iron Oxide)	0	051274-00-1	OSHA PEL/TWA: 10 Mg/Cu. M. ACGIH TLV/TWA: 5 Mg/Cu.M.
Light Chrome Yellow Pigment (C.I. Pigment Yellow 34 – Lead sulfochromate)	0	001344-37-2	OSHA PEL/TWA: 0.05 Mg/Cu.M. (Pb) ACGIH TLV/TWA: 0.012 Mg/Cu.M. (Cr)
Medium Chrome Yellow Pigment (C.I. Pigment Yellow 34 – Lead sulfochromate)	0	001344-37-2	OSHA PEL/TWA: 0.05 Mg/Cu.M. (Pb) ACGIH TLV/TWA: 0.012 Mg/Cu.M. (Cr)
Quinacridone Red Pigment (C.I. Pigment Red 122)	0	980-26-7	OSHA PEL/TWA: None Established ACGIH TLV/TWA: None Established
Quinacridone Violet Pigment (C.I. Pigment Violet 19)	0	1047-16-1	OSHA PEL/TWA: None Established ACGIH TLV/TWA: None Established
Moly Orange Pigment (C.I. Pigment Red 104 – Lead molybdates/Lead chromate/Lead sulfate co- precipitates)	0	012656-85-8	OSHA PEL/TWA: 0.05 Mg/Cu.M. (Pb) ACGIH TLV/TWA: 0.012 Mg/Cu.M. (Cr)

Phthalo Blue Pigment GS (C.I. Pigment Blue 15)	0	00147-14-8	OSHA PEL/TWA: 1 Mg/Cu.M. (Cu) ACGIH TLV/TWA: 1 Mg/Cu.M. (Cu)
Phthalo Blue Pigment RS (C.I. Pigment Blue 15)	0	00147-14-8	OSHA PEL/TWA: 1 Mg/Cu.M. (Cu) ACGIH TLV/TWA: 1 Mg/Cu.M. (Cu)
Phthalo Green Pigment RS (C.I. Pigment Green 7)	0	1328-53-6	OSHA PEL/TWA: 1 Mg/Cu.M. (Cu) ACGIH TLV/TWA: 1 Mg/Cu.M. (Cu)
Carbon Black	0-3	001333-86-4	OSHA PEL/TWA: 3.5 Mg/Cu. M.
Titanium Dioxide	0-12	013463-67-7	ACGIH TLV/TWA: 10 Mg/Cu.M. (Total Dust) OSHA PEL/TWA: 15 Mg/Cu.M. (Total Dust) LD50, Oral: >7500 Mg/Kg (Rat) LD50, Dermal: NOT AVAILABLE LC50, Inhalation: NOT AVAILABLE
Aluminum Oxide	0 - 1		OSHA PEL/TWA: 15.000 Mg/Cu.M. ACGIH TLV/TWA: 10.000 Mg/Cu.M.
Cobalt Compounds	0.1- 0.5	N/A	None Established

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### SECTION 3 - HAZARDS IDENTIFICATION

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#### EFFECTS OF EXCESSIVE OVEREXPOSURE.

#### PRIMARY ROUTES OF ENTRY ARE:

##### EYE: CONTACT:

Irritation. Symptoms may include stinging, tearing, redness and discomfort.

##### SKIN

##### CONTACT:

Irritation. Prolonged or repeated exposure may dry the skin. Symptoms may include redness, burning, drying and cracking, skin burns and skin damage. Skin absorption is possible but harmful effects are not expected from this route of exposure under normal conditions of handling and use. Prolonged or repeated exposure to methyl methacrylate can cause skin sensitization.

##### INHALATION:

Irritation to nose and throat. Extended or repeated exposure to concentrations above the recommended exposure limits may cause brain or nervous system depression, with symptoms such as dizziness, headache or nausea and if continued indefinitely, loss of consciousness, liver and kidney damage. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage.

##### INGESTION:

Single dose oral toxicity is low. Swallowing small amounts during normal handling is not likely to cause harmful effects; swallowing large amounts may be harmful. This material can enter the lungs during swallowing or vomiting and cause lung inflammation and/or damage. May cause mouth, throat, esophagus and stomach irritation, nausea, vomiting and diarrhea.

##### GENE

##### RAL:

Lead and Lead compounds are cumulative poisons; blood levels can increase with repeated exposure causing blood, kidney, liver, reproductive, developmental and nervous system effects. Symptoms may include abdominal discomfort or pain, nausea, diarrhea, loss of appetite, dizziness, lassitude, lack of coordination and insomnia.

Lead chromate is listed as a suspect human carcinogen by IARC (Group 2B). However,

recent toxicity data indicate that Lead chromate pigments are non-carcinogenic or at least show extremely low carcinogenic potential based on lung implantation studies on rats. Furthermore, Lead chromate pigments do not show an increase in lung cancer rates according to epidemiological studies of workers in factories that produce only Lead chromate pigments.

**CHRONIC EFFECTS:**

Repeated or prolonged exposure to styrene may cause nausea, loss of appetite, CNS depression and general weakness.

**MEDICAL CONDITIONS THAT MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT:**

Preexisting eye, skin, liver, kidney and respiratory disorders.

**TARGET ORGANS:**

Overexposure to styrene has been suggested as a cause of the following effects in laboratory animals, and may aggravate pre-existing disorders of these organs in humans: mild, reversible kidney effects, effects on hearing, respiratory tract damage, testis damage, central nervous system effects, mild effects on color vision or liver damage.

**OTHER HEALTH HAZARDS: STYRENE MONOMER**

The International Agency for Research on Cancer (IARC) has reclassified styrene as Group 2B "possibly carcinogenic to humans". This new classification is not based on new health data relating to either humans or animals, but on a change in the IARC classification system. The Styrene Information and Research Center does not agree with the reclassification and has published the following statement. "Recently published studies tracing 50,000 workers exposed to high occupational levels of styrene over a period of 45 years showed no association between styrene and cancer, no increase in cancer among styrene workers (as opposed to the average among all workers), and no increase in mortality related to styrene." An increased incidence of lung tumors was observed in mice from a recent inhalation study. The relevance of this finding is uncertain. Data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic. Lung effects have been observed in the mouse following repeated exposure to styrene.

**OTHER HEALTH HAZARDS: METHYL METHACRYLATE**

Skin exposure to methyl methacrylate may cause irritation and/or a rash; it is also a potential skin sensitizer. Prolonged or repeated overexposure at near lethal concentrations can cause liver and kidney damage.

**OTHER HEALTH HAZARDS: TALC**

Talc, Hydrous Magnesium Silicate, contains crystalline silica at levels greater than 0.1% but less than 1.0%. "IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Supplement 7, 1987", concludes evidence for the carcinogenicity of crystalline silica to humans, Class 2A. This classification was based on exposure to free silica dust and is not expected to be relevant to trace amounts of crystalline silica dispersed in paints and plastics.

**OTHER HEALTH HAZARDS: COBALT COMPOUNDS**

The International Agency for Research on Cancer (IARC) has classified cobalt and cobalt compounds as Group 2B carcinogens. Group 2B carcinogens are possibly carcinogenic to humans. See IARC Monograph, Volume 52 for additional information.

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**SECTION 4 – FIRST AID MEASURES**

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**EYE CONTACT:**

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush

eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

**SKIN CONTACT:**

Remove contaminated clothing. Flush exposed area with large amounts of water and then wash thoroughly with soap and water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

**INHALATION:**

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

**INGESTION:**

Do not induce vomiting. This material is an aspiration hazard. If individual is drowsy or unconscious, place on left side with the head down. Seek medical attention. If possible, do not leave individual unattended.

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**SECTION 5 – FIRE AND EXPLOSION HAZARD DATA**

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**FLAMMABILITY CHARACTERISTICS:**

Lowest Closed Cup Flashpoint: 82.0 degrees F

For Flash Points 73 to 100 deg. F.

OSHA Flammability Classification: Class IC

DOT Flammability Classification: Flammable Liquid

Lower Flammable Limit in Air: 1.1 % by volume

Upper Flammable Limit in Air: 12.5 % by volume

**EXTINGUISHING MEDIA:**

Use Foam, carbon dioxide, dry chemical. Use water spray/water fog for cooling.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:**

If polymerization takes place in a container, there is possibility of violent rupture of the container. Vapors are uninhibited and may form polymers in vents or flame arrestors of storage tanks resulting in stoppage of vents. Vapors may cause flash fire. Keep containers tightly closed and isolate from heat, electrical equipment, sparks and flame. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.

**SPECIAL FIRE FIGHTING PROCEDURES:**

Full protective equipment including self-contained breathing apparatus should be used. Do not enter fire area without proper protection. Fight fire from a safe distance/protected location. Heat/impurities may increase temperature, build pressure and rupture closed containers spreading fire, increasing risk of burns and injuries. Water spray may be ineffective due to low solubility. Pressure relief system may plug with solids, increasing the risk of overpressure. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible auto-ignition or explosion when exposed to extreme heat. Notify authorities immediately if liquid enters sewer or public waters.

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**SECTION 6 – ACCIDENTAL RELEASE MEASURES**

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**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:**

Eliminate all ignition sources such as flares, flames (including pilot lights), hot surfaces and any electrical sparks. Avoid breathing vapors. Ventilate area. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump, vacuum or scoop spilled product into clean containers for

disposal. Use non-sparking tools. Sand, floor absorbent or other inert absorbent may be used to absorb material and aid in preventing the spread of the material. In case of a large spill, persons not wearing protective equipment should be excluded from the area until cleanup has been completed.

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## SECTION 7 – HANDLING AND STORAGE

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### PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

Do not store above 100 deg. F. Store large quantities in buildings designed to comply with OSHA 1910.106. Keep away from heat, sparks and flame. Store containers closed and upright to prevent leaks.

### OTHER PRECAUTIONS:

Containers should be grounded and/or bonded when pouring. Emptied containers may retain hazardous residue and explosive vapors. Keep away from heat, sparks and flames and direct sunlight. Do not cut, puncture or weld on or near emptied containers. Follow all hazard precautions given in this data sheet until container is thoroughly cleaned or destroyed. If this product is blended with other components such as thinners, converter, colorants and catalysts prior to use, read all warning labels. Any mixture of components will have hazards of all components. Follow all precautions. If spraying this material, keep spray booths clean. Avoid buildup of spray dust or overspray in booths or ducts. Do not take internally. Wash hands after using material and before smoking or eating.

**KEEP OUT OF REACH OF CHILDREN - FOR INDUSTRIAL USE ONLY!**

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## SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

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### RESPIRATORY PROTECTION:

Do not breathe or ingest vapors, spray mist or dust while applying, sanding, grinding, or sawing cured product. Wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during application and other use of this product until vapors, mists and dusts are exhausted, unless air monitoring demonstrates vapor, mist and dust levels are below applicable limits. Half-face, air purifying, organic vapor cartridge respirator can be used up to 400 PPM exposure. A full-face, air purifying, organic vapor cartridge respirator can be used up to 1000 PPM for short-term periods depending on respirator cartridge use efficiency. Higher concentrations would require full-face, positive pressure, supplied air or self-contained breathing apparatus. Follow respirator manufacturer's directions for respirator use. Observe OSHA Standard 29 CFR 1910.134.

### VENTILATION:

Provide general clean air dilution or local exhaust ventilation in volume and pattern to keep the air contaminant concentration below the lower explosion limit and below current applicable exposure limits in the mixing, application and curing areas; and to remove decomposition product during welding and flame cutting on surfaces coated with this product. In confined areas, use only with forced ventilation adequate to keep vapor concentration below 20% of lower explosion limits. Refer to OSHA Standards 29 CFR 1910.94, 1910.107, 1910.108.

**NOTE:** Heavy solvent vapors should be removed from lower levels of the work area and all ignition sources (non-explosion-proof motors, etc.) should be eliminated.

### PROTECTIVE GLOVES:

Use solvent impermeable gloves such as polyethylene, natural rubber, neoprene, buna-N or nitrile to avoid contact with product.

**EYE PROTECTION:**

Do not get in eyes. Use safety eyewear with splash guards or side shields, chemical goggles or face shields that meet OSHA regulations.

**OTHER PROTECTIVE EQUIPMENT:**

Avoid contact with skin. Use protective clothing. Prevent contact with contaminated clothing. Wash contaminated clothing, including shoes, before reuse.

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**SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES**

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Boiling Range: Low = 214.0 °F High = 295.0 °F  
Freezing Point: N/A  
Vapor Pressure: 29.000 mm/Hg @ 68 °F  
Vapor Density: 3.60  
Specific Gravity: 1.22-1.29 (10.2 to 10.8 LB/GL – Calculated)  
Evaporation Rate: 3.000 (n-Butyl Acetate = 1)  
%Volatile by Weight: 33-37  
%Volatile by Volume: 48-55  
Physical State: LIQUID  
Appearance: GRAY  
Odor: MODER ATE AROMATIC  
pH: N/A  
Water Solubility: INSOLUBLE

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**SECTION 10 – STABILITY AND REACTIVITY**

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**STABILITY:**

This product is stable under normal conditions

**HAZARDOUS POLYMERIZATION:**

Is not expected but may occur.

**CONDITIONS TO AVOID:**

Elevated temperatures, heat, sparks, open flame and other ignition sources. Improper addition of promoter and/or catalyst. Avoid direct contact of MEKP catalyst with accelerator. If an accelerator such as cobalt drier is to be added, mix this accelerator with base material before adding catalyst.

**INCOMPATIBILITY (MATERIALS TO AVOID):**

Oxidizers, peroxides, strong acids, other oxidizing agents, organic metal soaps, aluminum chloride and vinyl polymers.

**HAZARDOUS DECOMPOSITION PRODUCTS:**

Thermal decomposition or combustion can produce fumes containing organic acids, carbon dioxide, carbon monoxide, other toxic gases and acrid smoke.

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**SECTION 11 – TOXICOLOGICAL INFORMATION**

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**GELCOAT PRODUCT TOXICOLOGICAL INFORMATION:**

**EYE EFFECTS:**

No Data

**SKIN EFFECTS:**

No Data

**INHALATION EFFECTS:**

No Data

**ORAL (INGESTION) EFFECTS:**

No Data

**INDIVIDUAL INGREDIENT TOXICOLOGICAL INFORMATION: SEE SECTION 2**

**SECTION 12 – ECOLOGICAL INFORMATION**

**ENVIRONMENTAL FATE:**

Styrene and Methyl Methacrylate are classified as Hazardous Air Pollutants (HAP). Both react when the product cures and only a portion is lost as Volatile Organic Compounds (VOC). The VOC quantity listed in SECTION 9 is a total theoretical loss value. Under typical conditions, only half this amount might be lost to the atmosphere. The loss will vary due to temperature, humidity, film thickness, air movement, spray equipment, techniques, catalyzation, gel and cure rates, etc. If precise values are needed, it is suggested that on-site testing be conducted.

**SECTION 13 – DISPOSAL CONSIDERATIONS**

**WASTE DISPOSAL;**

Whatever cannot be saved for recovery or re-use should be handled as hazardous waste in accordance with 40 CFR Part 261.21(a)(1) and classified as a D001 Ignitable Waste. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of in accordance with local, state and federal regulations. Incinerate in an approved facility.

**SECTION 14 – TRANSPORT INFORMATION**

DOT Shipping Name:	Resin	Solution
DOT Hazard Class:	3	
DOT Identification Number	UN1866	
DOT Packaging Group:	III	
DOT Label	Flamm	able Liquid
DOT Placard:		UN1866 Placard is required if container volume exceeds 119 gallons.
RQ – Styrene	1000	LBS
RQ – Methyl Methacrylate	1000	LBS

**SECTION 15 – REGULATORY INFORMATION**

**FEDERAL REGULATIONS:**

TSCA (Toxic Substances Control Act) – United States – The intentional ingredients of this product are listed.

**CLEAN AIR ACT SECTION 112:**

This product contains the following components listed as Hazardous Air Pollutants:		
LEAD COMPOUNDS	CAS# N/A	Percent by Weight: 0.000
CHROMIUM COMPOUNDS	CAS# N/A	Percent by Weight: 0.000
METHYL METHACRYLATE	CAS# 000080-62-6	Percent by Weight: 4.0000
STYRENE MONOMER	CAS# 000100-42-5	Percent by Weight: 33-37

**SARA TITLE III:**

SARA 302 Components – 40 CFR 355 Appendix A - None  
SARA 311/312 Hazard Class – 40 CFR 370.2

Immediate (X)      Delayed (X)      Fire      (X)      Reactive      (X)

Sudden Release of Pressure ( )

**SARA 313 INFORMATION:**

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372:

METHYL METHACRYLATE	CAS# 000080-62-6	Percent by Weight: 4.0000
STYRENE MONOMER	CAS# 000100-42-5	Percent by Weight: 33-37
COPPER COMPOUNDS	CAS# N/A	Percent by Weight: 0.000
LEAD COMPOUNDS	CAS# N/A	Percent by Weight: 0.000
CHROMIUM COMPOUNDS	CAS# N/A	Percent by Weight: 0.000

**CERCLA RQ – 40 CFR 302.4(a)**

Styrene	1000	LBS
Methyl Methacrylate	1000	LBS

**STATE REGULATIONS:**

**CALIFORNIA PROPOSITION 65 INFORMATION:**

**WARNING** - This product contains a chemical(s) known to the State of California to cause cancer and/or birth defects.

Styrene may contain up to 2 PPM of benzene as a contaminant. Styrene can react in the presence of air to form styrene oxide. Benzene and styrene oxide are chemicals known to the state of California to cause cancer and/or birth defects.

This product contains the following substances known to the State of California to cause cancer:

C.I. Pigment Yellow 34 (Lead sulfochromate)

This product contains the following substances known to the State of California to cause adverse reproductive effects:

C.I. Pigment Yellow 34 (Lead sulfochromate)

**CANADIAN WHMIS CLASSIFICATION:**      B2/D1A/F

**HAP CONTENT:**

The HAP content and VOC content of this product are not necessarily the same. The HAP content can be determined by adding together any styrene, methyl methacrylate, Lead and Chromium compounds (listed in this section under Clean Air Act Section 112). The result is the HAP content in weight percent.

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**SECTION 16 – OTHER INFORMATION**

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**NFPA RATINGS:**

Health: 2      Flammability: 3      Reactivity: 1

**NPCA HMIS INFORMATION:**

Health: 2      Flammability: 3      Reactivity: 1      Personal Protective Equipment: I

**PREPARATION DATE:**      January 30, 2010

**PREPARED BY:**      David L. Ellsworth

**REVISIONS:**      None

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The information contained herein is information received from our raw material suppliers and other sources and is believed to be reliable and accurate. This data or information is not to be taken as a warranty for which FIBERLAY, INC. assumes legal responsibility.

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# MATERIAL SAFETY DATA SHEET

**Chemtrec 24-Hour Emergency Telephone**  
**Domestic North America (800)424-9300**  
**International (703)527-3887**

*This MSDS complies with 29 CFR 1910.1200 (Hazard Communication)*

## 1. Product and Supplier Identification

**Product:** Guard Gel Coat - 0583076

**Product Use:** Used in the manufacture of thermoset plastic parts.

**Supplier:** Fiberlay, Inc.  
 24 S. Idaho St  
 Seattle, Wa 98134  
 (206)782-0660

## 2. Composition

Name	CAS #	% by weight
1) Styrene	100-42-5	36.7
2) Methyl Methacrylate	80-62-6	7.1
3) Talc	14807-96-6	1 - 5
4) Silica, Gel	112926-00-8	1 - 5
5) Silica, Amorphous	7631-86-9	1 - 5
6) Pigment	Proprietary	0.1 - 1
7) Cobalt Compounds	Mixture	0.1 - 1

## 3. Hazards Identification

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

**Routes of Entry:**  
 Eye contact, Skin contact, Inhalation, Ingestion

**Potential Acute Health Effects:**  
**Eyes:** Severe eye irritant which may result in redness, burning, tearing and blurred vision.  
**Skin:** Skin irritant which may result in burning sensation. Repeated or prolonged skin contact may cause dermatitis.  
**Ingestion:** Ingestion may result in mouth, throat and gastrointestinal irritation, nausea, vomiting and diarrhea.

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**Inhalation:** Inhalation of spray mist or liquid vapors may cause upper respiratory irritation and possible central nervous system effects including headaches, nausea, vomiting, dizziness, drowsiness, loss of coordination, impaired judgement and general weakness.

### **Potential Chronic Health Effects:**

#### **CARCINOGENIC EFFECTS:**

**Styrene:** Classified A4 (not classifiable for human or animal) by ACGIH. Classified 2B (possible for human) by IARC. An increased incidence of lung tumors was observed in mice from a recent inhalation study. The relevance of this finding is uncertain since data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic to humans. Lung effects have been observed in mouse studies following repeated exposure.

**Methyl Methacrylate:** Classified A4 (not classifiable for human or animal) by ACGIH. Classified 3 (not classifiable for human) by IARC.

**Talc:** Classified A2 (suspected for human) by ACGIH. Classified 1 (proven for human) by IARC. Classified 1 (known) by NTP.

**Silica, Gel:** Classified 3 (not classifiable for human) by IARC.

**Silica, Amorphous:** Classified 3 (not classifiable for human) by IARC.

**Carbon Black:** Classified A4 (not classifiable for human or animal) by ACGIH. Classified 2B (possible for human) by IARC.

**Cobalt Compounds:** Classified A3 (proven for animal) by ACGIH. Classified 2B (possible for human) by IARC.

**MUTAGENIC or TERATOGENIC EFFECTS:** No known effect according to our database.

**Other:** Prolonged exposure may cause dermatitis. Repeated or prolonged overexposure to near lethal concentrations can produce liver and kidney damage.

## 4. First Aid Measures

**INHALATION:** Move the victim to a safe area as soon as possible. Allow the victim to rest in a well-ventilated area.

**Hazardous Inhalation:** Move the victim to a safe area as soon as possible. If breathing is difficult, give oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**SKIN CONTACT:** Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. If irritation persists, seek medical attention.

**EYE CONTACT:** Flush with a continuous flow of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Use of buffered baby shampoo will aid in removal. Seek medical attention.

**INGESTION:** Do not induce vomiting. Seek immediate medical attention.

## 5. Fire Fighting Measures

<b>Class:</b>	Flammable Liquid, Class IC
<b>Flash point:</b>	75-89°F (24.8-32°C)
<b>Autoignition Temperature:</b>	790°F (421°C) Methyl Methacrylate
<b>Lower Explosive Limit:</b>	0.09 % by volume
<b>Upper Explosive Limit:</b>	12.5% by volume

**Hazardous Combustion Products:** May produce carbon monoxide, carbon dioxide, and irritating or toxic vapors, gases or particulate.

**Fire Hazard:** Flammable in the presence of open flames, sparks, or heat.

**Explosion Hazard:** Can react with oxidizing materials. Explosive in the form of vapor when exposed to heat or flame. Material may polymerize when container is exposed to heat (fire) and polymerization will increase pressure in a closed container which may cause the container to rupture violently.

**Extinguishing Media:** **SMALL FIRE:** Use carbon dioxide, foam, dry chemical or water fog to

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extinguish. **LARGE FIRE:** Evacuate surrounding areas. Use carbon dioxide, foam, dry chemical or water fog to extinguish. Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. Prevent run off to sewers or other water ways

### 6. Accidental Release Measures

**Small Spill:** Absorb with an inert material and place in an appropriate waste disposal container.  
**Large Spill:** Stop leak if without risk. Eliminate all ignition sources. Contain with an inert material, recover as much as possible and place the remainder in an appropriate waste disposal container. Warn unauthorized personnel to move away. Prevent entry into sewers or confined areas.

### 7. Handling and Storage

**Handling Procedures:** WARNING! Use only in well-ventilated areas. Store away from direct sunlight. Avoid inhalation and contact with eyes, skin, and clothing. Wear appropriate personal protective equipment for your task. Ground and bond all containers when transferring the material. Empty containers may retain product and product vapor. Do not expose to heat, flame, sparks or other ignition sources such as cutting, welding, drilling, grinding or static electricity. Do not pressurize. Provide adequate safety showers and eyewashes in the area of use.  
**Note:** If product contains metal compounds (Section II), avoid dust from dried product or grinding of articles made from this material.  
**Storage:** Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well ventilated place. Containers should be grounded.

### 8. Exposure Controls, Personal Protection

#### Exposure Limits:

Styrene	ACGIH TLV (United States, 1/2009). Skin TWA: 20 ppm 8 hour(s). TWA: 85 mg/m <sup>3</sup> 8 hour(s). STEL: 40 ppm 15 minute(s). STEL: 170 mg/m <sup>3</sup> 15 minute(s). OSHA PEL Z2 (United States, 11/2006). TWA: 100 ppm 8 hour(s). CEIL: 200 ppm AMP: 600 ppm 5 minute(s). NIOSH REL (United States, 6/2009). TWA: 50 ppm 10 hour(s). TWA: 215 mg/m <sup>3</sup> 10 hour(s). STEL: 100 ppm 15 minute(s). STEL: 425 mg/m <sup>3</sup> 15 minute(s).
Methyl Methacrylate	ACGIH TLV (United States).TWA: 410 mg/m <sup>3</sup> TWA: 50 ppm 8 hour(s). STEL: 100 ppm 8 hour(s). NIOSH REL (United States, 6/2008). TWA: 100 ppm 10 hour(s). TWA: 410 mg/m <sup>3</sup> 10 hour(s). OSHA PEL (United States, 11/2006). TWA: 100 ppm 8 hour(s). TWA: 410 mg/m <sup>3</sup> 8 hour(s).
Talc	ACGIH TLV (United States, 1/2008). TWA: 0.1 f/cc 8 hour(s). NIOSH REL (United States, 6/2008). TWA: 2 mg/m <sup>3</sup> 10 hour(s). Form: Respirable fraction OSHA PEL 1989 (United States). TWA: 2 mg/m <sup>3</sup> 8 hour(s). Form: Respirable dust OSHA PEL Z3 (United States, 9/2005) STEL: 1 f/cc 30 minute(s). Form: not containing asbestos TWA: 20 mppcf 8 hour(s). Form: not containing asbestos

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Silica, Gel	OSHA PEL 1989 (United States, 3/1989). TWA: 6 mg/m <sup>3</sup> 8 hour(s).
Silica, Amorphous	NIOSH REL (United States, 6/2009). TWA: 6 mg/m <sup>3</sup> 10 hour(s).
Carbon Black	ACGIH TLV (United States, 1/2008). TWA: 3.5 mg/m <sup>3</sup> 8 hour(s). NIOSH REL (United States, 6/2008). TWA: 3.5 mg/m <sup>3</sup> 10 hour(s). TWA: 0.1 mg of PAHs/cm <sup>3</sup> 10 hour(s). OSHA PEL (United States, 11/2006). TWA: 3.5 mg/m <sup>3</sup> 8 hour(s).
Cobalt Compounds	OSHA PEL (United States). TWA: 0.1 mg/m <sup>3</sup> ACGIH TLV (United States). TWA: 0.02 mg/m <sup>3</sup>

While the federal workplace exposure limit for styrene is 100 ppm, OSHA accepted the styrene industry's proposal to voluntarily meet a PEL of 50 ppm on an 8 hours TWA.

**Engineering Controls:** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Provide adequate safety showers and eyewashes in the area of use.

**Personal Protection:** Personal protective equipment may vary depending on the job being performed.

**Eye/Face:** Wear eye protection such as safety glasses with side shields, splash goggles or face shield with safety glasses.

**Skin:** Avoid skin contact. Impervious gloves should be worn. Other items may include long sleeves, lab coats, or impervious jackets.

**Respiratory:** Determine if airborne concentrations are below the recommended exposure limits in accordance your company's PPE program and regulatory requirements. If they are not, select a NIOSH-approved respirator that provides adequate protection from the concentration levels encountered. Air-purifying respirators are generally adequate for organic vapors. Use positive pressure, supplied-air respirators if there is potential for an uncontrolled release, if exposure levels are unknown, or under circumstances where air-purifying respirators may not provide adequate protection. Reference OSHA 29 CFR 1910.134

**Personal Protection in Case of Large Spill:** Chemical resistant gloves, full protective suit, and boots. Respiratory protection in accordance with OSHA regulation 29 CFR 1910.134. A self-contained breathing apparatus should be used to avoid inhalation of the product vapors.

## 9. Physical and Chemical Properties

**Appearance:** Black Liquid  
**Odour:** Aromatic  
**pH:** Not applicable.  
**Vapour Pressure:** 40 mm Hg @ 77°F (25°C)  
Methyl Methacrylate  
**Molecular Weight (g/mol):** Not Available  
**Vapour Density:** 3.5-3.6 (Air = 1)  
**Vapor Gravity:** 1.1 to 1.4 (Water = 1)  
**Melting Point:** Not available.  
**Boiling Point:** 214°F (101°C) Methyl Methacrylate

**Freezing Point:** Not available.  
**Relative Density:** 1.05-1.30 (water = 1)  
**Partition Coefficient:** No data  
**Evaporation Rate:** Not available.  
**Water/Oil Dist. Coeff:** Not available  
**Odor Threshold:** <1.0 ppm  
**Solubility In Water:** Slight  
**Dispersibility Properties:**  
Slight dispersion in water

## 10. Stability and Reactivity

**Chemical Stability:** Normally stable, but can become unstable at elevated temperatures.  
**Instability Temperature:** >120°F (48.9°C)  
**Condition of Instability:** Heat.

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**Incompatibility:** Polymerizes in the presence of organic peroxides, oxidizing materials, or heat.

**Corrosivity:** No specific information is available in our database regarding the corrosivity of this product in presence of various materials.

### 11. Toxicological Information

Toxicity to Animals:	Name	Result	Species	Dose	Exposure
	Styrene	LD50 Oral	Rat	2650 mg/kg	-
		LC50 Inhalation Vapor	Rat	5634.2 ppm	4 hours
	Methyl Methacrylate	LD50 Oral	Rat	7872 mg/kg	-
		LC50 Inhalation Gas.	Rat	7094 ppm	4 hours
	Cobalt Compounds	LD50 Oral	Rat	6171 mg/kg	-
	Carbon Black	LD50 Dermal	Rabbit	>3000 mg/kg	-
		LD50 Oral	Rat	>15400 mg/kg	-
		LC50 Inhalation Dusts and mists	Rat	6750 mg/m <sup>3</sup>	4 hours
	Silica, Gel	LD50 Oral	Rat	>10000 mg/kg	-

**Special remarks on toxicity to animals:** Lung effects have been observed in mouse studies following repeated exposure.

**Special remarks on chronic effects on humans:** Repeated or prolonged overexposure to near lethal concentrations can produce liver and kidney damage.

**Special remarks on other toxic effects on humans:**

**Methyl Methacrylate:** MMA has both acute and chronic effects. Inhalation overexposure may result in irritation of nose and throat, headache, nausea, vomiting, dizziness, irritation of upper respiratory tract and unconsciousness. Overexposure will result in moderate irritation to the skin, eyes and mucous membranes. Prolonged skin contact may cause dermatitis. Chronic exposure can cause headache and nausea, central nervous system depression, and ultimately liver, lung or kidney damage. An allergic skin reaction may also be possible.

**Talc:** Exposure to dusts containing talc can be toxic and can produce acute and chronic effects. Contact with dusts may irritate the eyes. Breathing dust may irritate the nose and throat and cause coughing and chest discomfort. There are reports that relatively mild pneumoconiosis can develop after years of occupational exposure to mixed dusts containing talc. Prolonged inhalation may also produce a fibrotic response.

### 12. Ecological Information

Toxic to aquatic organisms. Should not be released to sewage system or other bodies of water at concentrations above limits established in regulations or permits.

### 13. Disposal Considerations

Recycle to process, if possible. Consult your local or regional authorities. Ignitable characteristic.

### 14. Transport Information

DOT	UN1866; Resin Solution; 3; III.
TDG	UN1866; Resin Solution; 3; III.
IATA/IMDG	IATA: UN1866; Resin Solution; 3; III; Pkg. Inst.: Passenger - 309; Cargo - 310 IMDG: UN1866; Resin Solution; 3; III; FP=24.8° - 32°C; EmS No.: F-E, S-E

**Additional Transportation Information:** US regulations require the reporting of spills when the amount exceeds the Reportable Quantity (RQ) for specific components of this material. See

## GUARD BLACK/GRAY GEL COAT MATCH 5 GAL

CERCLA in Section 15, Regulatory Information, for the Reportable Quantities.

### 15. Regulatory Information

This section does not reference all applicable regulatory compliance lists.

**TSCA:** All ingredients are listed or compliant with TSCA.

**DSL:** All ingredients are listed or compliant with the NSNR.

**Proposition 65 Warning:** This product contains a chemical(s) known to the State of California to cause cancer, birth defects and/or reproductive harm.

**SARA 302 component(s):** None.

**SARA 313 component(s):** Styrene, Methyl Methacrylate, Cobalt Compounds.

**CERCLA(RQ):** Styrene - 1000 lbs. (453.6 kg)  
Methyl Methacrylate - 1000 lbs. (453.6 kg)

### 16. Other Information

- Transportation of Dangerous Goods Act - "Regulations respecting the handling, offering for transport and transporting of dangerous goods." Extract from the Canada Gazette Part II
- Canada Gazette Part II, Hazardous Products Act "Ingredient Disclosure List".
- Manufacturer's Material Safety Data Sheet.
- 29 CFR 1910.1000, Z - Tables
- ACGIH 2000 TLVs for Chemical Substances and Physical Agents
- Registry of Toxic Effects of Chemical Substances (RTECS)
- California Code of Regulation Proposition 65

**Preparation Date:** 2/09/11

**Prepared by:** Orca Composites

**Comments:** This Material Safety Data Sheet was prepared using information provided by Fiberlay Inc. and AOC, LLC.

**Revisions:** None

MATERIAL SAFETY DATA SHEET

SECTION I - IDENTIFICATION

TRADE NAME: ARMORPRO  
DESCRIPTION: SPUNSTRAND SANDSTONE ENAMEL  
PRODUCT CODE IDENTITY: GCP 9037MC  
NPCA HMIS RATING: H 2\* F 3 R 2  
LAST REVISED: 01/09/1998  
PRINT DATE: 10/21/2009  
COMPANY NAME: GEL COAT PRODUCTS LLC  
ADDRESS: 958 N 127TH SEATTLE WA, 98133  
PREPARED BY: GCP STEWARDSHIP  
CUSTOMER: INFORMATION TELEPHONE: 1-800-825-0747  
ATTENTION:

24 HOUR RESPONSE NUMBER (CHEMTREC): 1-800-424-9300 (NORTH AMERICA)  
703-527-3887 (INTERNATIONAL)  
FOR MEDICAL EMERGENCIES (PROSAR): 1-800-269-9906

GCP certifies that its products comply with all the provisions of the Toxic Substances Control Act (TSCA), unless otherwise stated by ingredient in Section II.

\*\*\* The percent by weight composition data given in Sections II and X are NOT SPECIFICATIONS, but are based on 'target' formula values for each ingredient in the product. The data are presented as ranges for low hazard ingredients and single point values for ingredients of regulatory concern. Actual batch concentrations will vary within limits consistent with separately established product specifications. \*\*\*

SECTION II INGREDIENTS

1  
CAS# 000136-52-7  
COBALT 2-ETHYLHEXANOATE, 12% COBALT  
PCT BY WT: .1970  
EXPOSURE LIMIT:  
ACGIH TLV/TWA: .05 MG/CU.M. AS COBALT METAL, DUST & FUME  
OSHA PEL/TWA: .05 MG/CU.M. AS COBALT METAL, DUST & FUME

CAS# 000080-62-6  
METHYL METHACRYLATE  
PCT BY WT: 4.2820 VAPOR PRESSURE: 29.000 MMHG @ 68F  
EXPOSURE LIMIT:  
ACGIH TLV/TWA: 100 PPM (410 MG/CU.M.)  
OSHA PEL/TWA: 100 PPM (410 MG/CU.M.)  
LD50, Oral: 7.9 G/KG (RAT)  
LD50, Dermal: 35.5 G/KG (RABBIT)  
LC50, Inhalation: >12,500 PPM/0.5 Hr (RAT)

3

CAS# 000100-42-5  
STYRENE MONOMER  
PCT BY WT: 29.5130 VAPOR PRESSURE: 4.500 MMHG @ 68F  
EXPOSURE LIMIT:  
ACGIH TLV/TWA: 20 PPM (85 MG/CU.M.)  
ACGIH TLV/STEL: 40 PPM (170 MG/CU.M.)  
OSHA PEL/TWA: 100 PPM (8 HR TWA)  
OSHA PEL/CEILING: ACCEPTABLE MAX. PEAK: 600 PPM (5 MIN IN ANY 3 HRS)  
OSHA PEL/STEL: ACCEPTABLE CONCENTRATION: 200 PPM (15 MIN TWA)  
LD50, Oral: 4.37 G/KG (RAT)  
LD50, Dermal: >5 G/KG (RABBIT)

\*\*\*\*\*

\* ARMORPRO

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MATERIAL SAFETY DATA SHEET

\*

\* GCP 9037MC

\*\*\*\*\*

OTHER: LCLO: 5000 PPM/8H (RAT)

OTHER (cont.): NIOSH TWA: 50 PPM (215 MG/M3)

OTHER LIMITS:

IARC - Group 2B See Section V

4

CAS# 013463-67-7  
TITANIUM DIOXIDE  
PCT BY WT: 7.5900  
EXPOSURE LIMIT:  
ACGIH TLV/TWA: 10 MG/CU.M. (TOTAL DUST)  
OSHA PEL/TWA: 15 MG/CU.M. (TOTAL DUST)  
LD50, Oral: >7500 MG/KG (RAT)  
LD50, Dermal: NOT AVAILABLE  
LC50, Inhalation: NOT AVAILABLE

5

CAS# 014807-96-6

TALC (HYDROUS MAGNESIUM SILICATE)

PCT BY WT: 10 - 20

EXPOSURE LIMIT:

ACGIH TLV/TWA: 2 MG/CU.M., RESPIRABLE DUST  
OSHA PEL/TWA: 2 MG/CU.M., RESPIRABLE DUST  
LD50, Oral: NOT AVAILABLE  
LD50, Dermal: NOT AVAILABLE  
LC50, Inhalation: NOT AVAILABLE

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6

CAS# 001332-58-7

ALUMINUM SILICATE (KAOLIN)

PCT BY WT: 5 - 10

EXPOSURE LIMIT:

ACGIH TLV/TWA: 10 MG/CUBIC METER  
OSHA PEL/TWA: 10 MG/M3 (TOTAL DUST); 5 MG/M3 (RESPIRABLE DUST)

---

7

UNSATURATED POLYESTER RESIN

ON TSCA INVENTORY/ON CANADIAN DSL

CAS# PROPRIETARY

PCT BY WT: 10 - 20

EXPOSURE LIMIT:

ACGIH TLV/TWA: NONE ESTABLISHED  
OSHA PEL/TWA: NONE ESTABLISHED

---

8

UNSATURATED POLYESTER RESIN

ON TSCA INVENTORY AND CANADIAN DSL

CAS# PROPRIETARY

PCT BY WT: 10 - 20

EXPOSURE LIMIT:

ACGIH TLV/TWA: NONE ESTABLISHED  
OSHA PEL/TWA: NONE ESTABLISHED

---

9

UNSATURATED POLYESTER RESIN

ON TSCA INVENTORY

CAS# PROPRIETARY

PCT BY WT: 5 - 10

EXPOSURE LIMIT:

ACGIH TLV/TWA: NONE ESTABLISHED  
OSHA PEL/TWA: NONE ESTABLISHED

---

\*\*\*\*\*

This product contains one or more reported carcinogens or suspected carcinogens which are noted by NTP, IARC, or OSHA-Z in the appropriate subsection above under OTHER LIMITS.

\*\*\*\*\*

\*\*\*\*\*  
This substance is classified as a hazardous air pollutant.  
\*\*\*\*\*

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\* ARMORPRO  
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\* GCP 9037MC  
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-----  
SECTION III PHYSICAL DATA  
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Boiling Range: High- -N/A F Low- 212.0 F  
Vapor Pressure: See Section II  
Theoretical Weight per Gallon, Calculated: 10.8149 LB/GL  
Theoretical Specific Gravity, Calculated: 1.299  
Theoretical VOC, Calculated: 3.746 LB/GL  
--If applicable, see Section X for further VOC information--  
Physical State: LIQUID  
Appearance: IVORY  
Odor: MODERATE AROMATIC  
Odor Threshold: -N/A  
pH: -N/A  
Freezing Point: -N/A  
Water Solubility: INSOLUBLE  
Coefficient of Water/Oil Distribution: -N/A  
Mechanical Impact Explosion: NO KNOWN HAZARD  
Static Electricity Explosion: AVOID STATIC CHARGE  
% HAP BY WEIGHT 33.784  
% MONOMER BY WEIGHT 33.784

-----  
SECTION IV FIRE AND EXPLOSION HAZARD DATA  
-----

FLAMMABILITY CHARACTERISTICS:

Lowest Closed Cup Flashpoint: 82.0 degrees F  
For Flash Points 73 to 100 deg. F.  
OSHA Flammability Classification: Class IC  
DOT Flammability Classification: Flammable Liquid  
Lower Flammable Limit in Air: Lower- 1.1 % by volume

DOT Shipping Name:

Flash Points 73 to 100 deg. F. = UN1866, RESIN SOLUTION, 3, PG III

EXTINGUISHING MEDIA:

Foam, carbon dioxide, dry chemical, water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

If polymerization takes place in a container, there is possibility of violent rupture of the container. Vapors are uninhibited and may form

polymers in vents or flame arrestors of storage tanks resulting in stoppage of vents. Vapors may cause flash fire. Keep containers tightly closed and isolate from heat, electrical equipment, sparks and flame. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.

**SPECIAL FIRE FIGHTING PROCEDURES:**

Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible auto-ignition or explosion when

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\* ARMORPRO

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MATERIAL SAFETY DATA SHEET

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\* GCP 9037MC

\*\*\*\*\*

exposed to extreme heat.

**ADDITIONAL TRANSPORTATION INFORMATION:**

Freight Classification:

NMFC: 46030 RESIN COMPOUNDS, LIQUID LTL CLASS 55

-----  
**SECTION V HEALTH HAZARD DATA**  
-----

**EFFECTS OF EXCESSIVE OVEREXPOSURE. PRIMARY ROUTES OF ENTRY ARE:**

**EYE CONTACT:**

Irritation. Symptoms are tearing, redness and discomfort.

**SKIN CONTACT:**

Irritation. Can cause defatting of skin which may lead to dermatitis.

**INHALATION:**

Irritation to nose and throat. Extended or repeated exposure to concentrations above the recommended exposure limits may cause brain or nervous system depression, with symptoms such as dizziness, headache or nausea and if continued indefinitely, loss of consciousness, liver and kidney damage.

Reports have associated repeated and prolonged occupational over-exposure to solvents with permanent brain and nervous system damage.

**INGESTION:**

May cause mouth, throat, esophagus and stomach irritation, nausea, vomiting and diarrhea.

**MEDICAL CONDITIONS THAT MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.**

Preexisting eye, skin, liver, kidney and respiratory disorders.

**EMERGENCY AND FIRST AID PROCEDURES:**

In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If affected by inhalation of vapors or spray mist, remove to fresh air. If swallowed, get medical attention immediately.

Based on the presence of components (03)

CALIFORNIA PROPOSITION 65 INFORMATION:

WARNING - This product contains a chemical(s) known to the State of California to cause cancer.

OTHER HEALTH HAZARDS:

STYRENE MONOMER

The International Agency for Research on Cancer (IARC) has reclassified styrene as Group 2B "possibly carcinogenic to humans". This new classification is not based on new health data relating to either humans or animals, but on a change in the IARC classification system. The Styrene Information and Research Center does not agree with the reclassification and has published the following statement. "Recently published studies tracing 50,000 workers exposed to high occupational levels of styrene over a period of 45 years showed no association between styrene and cancer, no increase in cancer among styrene workers (as opposed to the average among all workers), and no increase in mortality related to styrene."

An increased incidence of lung tumors was observed in mice from a recent inhalation study. The relevance of this finding is uncertain. Data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic.

Lung effects have been observed in the mouse following repeated exposure to styrene.

TALC

Talc, Hydrous Magnesium Silicate, contains crystalline silica at levels greater than 0.1% but less than 1.0%. "IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Supplement 7, 1987", concludes

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\* GCP 9037MC

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there is limited evidence for the carcinogenicity of crystalline silica to humans, Class 2A. This classification was based on exposure to free silica dust and is not expected to be relevant to trace amounts of crystalline silica dispersed in paints and plastics.

METHANOL

If taken internally, Methyl Alcohol may cause methanol poisoning. Symptoms include severe headache, vomiting, unconsciousness and blurring or loss of vision. Methyl Alcohol exposure can cause damage to liver, heart and kidneys.

HYDROQUINONE

Chronic exposure to Hydroquinone at higher levels has caused brownish discoloration of the cornea and conjunctiva and distortion of the cornea,

in some cases leading to decreased visual acuity and blindness. Hydroquinone may cause allergic skin reaction and is moderately toxic if ingested or inhaled. Spills of liquids contain Hydroquinone should be cleaned up thoroughly and immediately to avoid creation of dust. Dust in the air may cause eye injury or form an explosive mixture in air

#### METHYL METHACRYLATE

Skin exposure to methyl methacrylate may cause irritation and/or a rash; it is also a potential skin sensitizer.

Prolonged or repeated overexposure at near lethal concentrations can cause liver and kidney damage.

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### SECTION VI REACTIVITY DATA

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STABILITY: Stable HAZARDOUS POLYMERIZATION: May occur.

#### CONDITIONS TO AVOID:

Elevated temperatures. Improper addition of promoter and/or catalyst. Avoid direct contact of MEKP catalyst with accelerator. If an accelerator such as cobalt drier is to be added, mix this accelerator with base material before adding catalyst.

#### INCOMPATIBILITY (MATERIALS TO AVOID):

Oxidizers, reducing agents, peroxides, strong acids, bases, UV light, or any source of free radicals and mild steel.

#### HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition or combustion can produce fumes containing organic acids, carbon dioxide and carbon monoxide.

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### SECTION VII SPILL OR LEAK PROCEDURES

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#### STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Remove all sources of ignition (flames, hot surfaces, and electrical, static, or frictional sparks). Avoid breathing vapors. Ventilate area. Contain and remove with inert absorbent and non-sparking tools.

#### WASTE DISPOSAL METHOD:

Dispose of in accordance with local, state and federal regulations. Do not incinerate closed containers. Incinerate in approved facility.

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### SECTION VIII SPECIAL PROTECTION INFORMATION

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#### RESPIRATORY PROTECTION:

Do not breathe or ingest vapors, spray mist or dust while applying, sanding, grinding, or sawing cured product. Wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during application and other use of this product until vapors, mists and dusts are exhausted, unless air monitoring demonstrates vapor, mist and dust levels are below applicable limits. Follow respirator manufacturer's directions for respirator use. Observe OSHA Standard 29CFR 1910.134.

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\* ARMORPRO

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MATERIAL SAFETY DATA SHEET

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\* GCP 9037MC

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VENTILATION:

Provide general clean air dilution or local exhaust ventilation in volume and pattern to keep the air contaminant concentration below the lower explosion limit and below current applicable exposure limits in the mixing, application and curing areas; and to remove decomposition product during welding and flame cutting on surfaces coated with this product. In confined areas, use only with forced ventilation adequate to keep vapor concentration below 20% of lower explosion limits. Refer to OSHA Standards 29CFR 1910.94, 1910.107, 1910.108.

NOTE: Heavy solvent vapors should be removed from lower levels of the work area and all ignition sources (nonexplosion-proof motors, etc.) should be eliminated.

PROTECTIVE GLOVES:

Use solvent impermeable gloves to avoid contact with product.

EYE PROTECTION:

Do not get in eyes. Use safety eyewear with splash guards or side shields, chemical goggles, face shields.

OTHER PROTECTIVE EQUIPMENT:

Avoid contact with skin. Use protective clothing. Prevent contact with contaminated clothing. Wash contaminated clothing, including shoes, before reuse.

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SECTION IX SPECIAL PRECAUTIONS  
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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

Do not store above 100 deg. F. Store large quantities in buildings designed to comply with OSHA 1910.106. Keep away from heat, sparks and flame. Keep containers closed when not in use and upright to prevent leakage.

OTHER PRECAUTIONS:

Containers should be grounded when pouring. Do not take internally. Wash hands after using and before smoking or eating. Emptied containers may retain hazardous residue and explosive vapors. Keep away from heat, sparks and flames. Do not cut, puncture or weld on or near emptied containers. Follow all hazard precautions given in this data sheet until container is thoroughly cleaned or destroyed. If this product is blended with other components such as thinners, converter, colorants and catalysts prior to use, read all warning labels. Any mixture of components will have hazards of all components. Follow all precautions. If spraying this material, keep spray booths clean. Avoid buildup of

spray dust or overspray in booths or ducts.

KEEP OUT OF REACH OF CHILDREN

FOR INDUSTRIAL USE ONLY

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ADDITIONAL ENVIRONMENTAL INFORMATION:

The VOC quantity listed in Section III is a total theoretical loss value. Under typical conditions only half this amount might be lost to the atmosphere. Loss will vary due to temperature, humidity, film thickness, air movement, spray equipment/techniques, catalyzation, gel and cure rates, etc. If precise values are needed, it is suggested that onsite testing be conducted.

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SECTION X Sara Title III Information  
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SARA 313 INFORMATION:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

COBALT 2-ETHYLHEXANOATE, 12% COBALT  
CAS# 000136-52-7 PCT BY WT: .1970

\*\*\*\*\*  
\* ARMORPRO  
\* MATERIAL SAFETY DATA SHEET \*  
\* GCP 9037MC  
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METHYL METHACRYLATE  
CAS# 000080-62-6 PCT BY WT: 4.2820  
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STYRENE MONOMER  
CAS# 000100-42-5 PCT BY WT: 29.5130  
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\*\*\*\*\*  
GEL COAT PRODUCTS LLC  
WARRANTIES, DISCLAIMERS AND LIMITATION OF LIABILITY (REV. 03/09)  
-----

Seller warrants that: (i) Buyer shall obtain good title to the product sold hereunder; (ii) at Shipment such product shall conform to Seller's specifications; and (iii) the sale or use of such product will not infringe the claims of any U.S. patent covering the product itself, but Seller does not warrant against infringement which might arise by the use of said product in any combination with other products or arising in the operation of any process. SELLER MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, EVER IF THAT PURPOSE IS KNOWN TO SELLER. ANY APPLICATION INFORMATION OR ASSISTANCE WHICH SELLER MAY FURNISH

TO BUYER IS GRATUITOUS AND SHALL IN NO WAY BE DEEMED PART OF THE SALE OF PRODUCT HEREUNDER OR A WARRANTY OF THE RESULTS OBTAINED THROUGH THE USE OF SUCH PRODUCT.

Without limiting the generality of the foregoing, if any product fails to meet warranties mentioned above, Seller shall at Seller's option either replace the nonconforming product at no cost to Buyer or refund Buyer the purchase price thereof. The foregoing is Buyer's sole and exclusive remedy for failure of Seller to deliver or supply product that meets the foregoing warranties. Seller's liability with respect to this contract and the product purchased under it shall not exceed the purchase price of the portion of such product as to which such liability arises. Seller shall not be liable for any injury, loss, or damage resulting from the handling or use of the product shipped hereunder whether in the manufacturing process or otherwise. In no event shall Seller be liable for special, incidental, or consequential damages including without limitations loss of profits, capital or business opportunity, downtime costs, or claims of customers or employees of Buyer. Failure to give Seller notice of any claim within thirty (30) days of shipment of the product concerned shall constitute a waiver of such claim by Buyer. Any product credit received by Buyer hereunder, if not used, shall automatically expire one (1) year from the date the credit was granted. Notwithstanding any applicable statute of limitations to the contrary, any action by Buyer in relation to a claim hereunder must be instituted no later than two (2) years after the occurrence of the event upon which the claim is based. All the foregoing limitations shall apply irrespective of whether Buyer's claim is based upon breach of contract, breach of warranty, negligence, strict liability, or any other legal theory.

MATERIAL SAFETY DATA SHEET

SECTION I - IDENTIFICATION

TRADE NAME: POLYCOR  
DESCRIPTION: PLATINUM  
PRODUCT CODE IDENTITY: GCP 9385  
NPCA HMIS RATING: H 2\* F 3 R 2

LAST REVISED: 06/25/1998  
PRINT DATE: 05/13/2010

COMPANY NAME: GEL COAT PRODUCTS LLC  
ADDRESS: 958 N 127TH  
SEATTLE WA, 98133

PREPARED BY:  
GCP STEWARDSHIP  
INFORMATION TELEPHONE:  
INQUIRIES: 1-800-825-0747

CUSTOMER:

ATTENTION:

24 HOUR RESPONSE NUMBER (CHEMTREC): 1-800-424-9300 (NORTH AMERICA)  
703-527-3887 (INTERNATIONAL)  
FOR MEDICAL EMERGENCIES (PROSAR): 1-800-269-9906

GCP certifies that its products comply with all the provisions of the Toxic Substances Control Act (TSCA), unless otherwise stated by ingredient in Section II.

\*\*\* The percent by weight composition data given in Sections II and X are NOT SPECIFICATIONS, but are based on 'target' formula values for each ingredient in the product. The data are presented as ranges for low hazard ingredients and single point values for ingredients of regulatory concern. Actual batch concentrations will vary within limits consistent with separately established product specifications. \*\*\*

SECTION II INGREDIENTS

1  
CAS# 000136-52-7  
COBALT 2-ETHYLHEXANOATE, 12% COBALT  
PCT BY WT: .2150  
EXPOSURE LIMIT:  
ACGIH TLV/TWA: .05 MG/CU.M. AS COBALT METAL, DUST & FUME  
OSHA PEL/TWA: .05 MG/CU.M. AS COBALT METAL, DUST & FUME

2

CAS# 000080-62-6  
METHYL METHACRYLATE  
PCT BY WT: 4.6630 VAPOR PRESSURE: 29.000 MMHG @ 68F  
EXPOSURE LIMIT:  
ACGIH TLV/TWA: 100 PPM (410 MG/CU.M.)  
OSHA PEL/TWA: 100 PPM (410 MG/CU.M.)  
LD50, Oral: 7.9 G/KG (RAT)  
LD50, Dermal: 35.5 G/KG (RABBIT)  
LC50, Inhalation: >12,500 PPM/0.5 Hr (RAT)

---

3  
CAS# 000100-42-5  
STYRENE MONOMER  
PCT BY WT: 30.8000 VAPOR PRESSURE: 4.500 MMHG @ 68F  
EXPOSURE LIMIT:  
ACGIH TLV/TWA: 20 PPM (85 MG/CU.M.)  
ACGIH TLV/STEL: 40 PPM (170 MG/CU.M.)  
OSHA PEL/TWA: 100 PPM (8 HR TWA)  
OSHA PEL/CEILING: ACCEPTABLE MAX. PEAK: 600 PPM (5 MIN IN ANY 3 HRS)  
OSHA PEL/STEL: ACCEPTABLE CONCENTRATION: 200 PPM (15 MIN TWA)  
LD50, Oral: 4.37 G/KG (RAT)  
LD50, Dermal: >5 G/KG (RABBIT)

\*\*\*\*\*  
\* POLYCOR \*  
\* MATERIAL SAFETY DATA SHEET \*  
\* GCP 9385 \*  
\*\*\*\*\*  
OTHER: LCLO: 5000 PPM/8H (RAT)  
OTHER (cont.): NIOSH TWA: 50 PPM (215 MG/M3)  
OTHER LIMITS:  
IARC - Group 2B See Section V

---

4  
CAS# 013463-67-7  
TITANIUM DIOXIDE  
PCT BY WT: 4.2070  
EXPOSURE LIMIT:  
ACGIH TLV/TWA: 10 MG/CU.M. (TOTAL DUST)  
OSHA PEL/TWA: 15 MG/CU.M. (TOTAL DUST)  
LD50, Oral: >7500 MG/KG (RAT)  
LD50, Dermal: NOT AVAILABLE  
LC50, Inhalation: NOT AVAILABLE

---

5  
CAS# 014807-96-6

TALC (HYDROUS MAGNESIUM SILICATE)

PCT BY WT: 10 - 20

EXPOSURE LIMIT:

ACGIH TLV/TWA: 2 MG/CU.M., RESPIRABLE DUST  
OSHA PEL/TWA: 2 MG/CU.M., RESPIRABLE DUST  
LD50, Oral: NOT AVAILABLE  
LD50, Dermal: NOT AVAILABLE  
LC50, Inhalation: NOT AVAILABLE

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6

CAS# 001332-58-7

ALUMINUM SILICATE (KAOLIN)

PCT BY WT: 5 - 10

EXPOSURE LIMIT:

ACGIH TLV/TWA: 10 MG/CUBIC METER  
OSHA PEL/TWA: 10 MG/M3 (TOTAL DUST); 5 MG/M3 (RESPIRABLE DUST)

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7

UNSATURATED POLYESTER RESIN

ON TSCA INVENTORY/ON CANADIAN DSL

CAS# PROPRIETARY

PCT BY WT: 10 - 20

EXPOSURE LIMIT:

ACGIH TLV/TWA: NONE ESTABLISHED  
OSHA PEL/TWA: NONE ESTABLISHED

---

8

UNSATURATED POLYESTER RESIN

ON TSCA INVENTORY AND CANADIAN DSL

CAS# PROPRIETARY

PCT BY WT: 10 - 20

EXPOSURE LIMIT:

ACGIH TLV/TWA: NONE ESTABLISHED  
OSHA PEL/TWA: NONE ESTABLISHED

---

9

UNSATURATED POLYESTER RESIN

ON TSCA INVENTORY

CAS# PROPRIETARY

PCT BY WT: 1 - 5

EXPOSURE LIMIT:

ACGIH TLV/TWA: NONE ESTABLISHED  
OSHA PEL/TWA: NONE ESTABLISHED

---

\*\*\*\*\*

This product contains one or more reported carcinogens or suspected carcinogens which are noted by NTP, IARC, or OSHA-Z in the appropriate subsection above under OTHER LIMITS.

\*\*\*\*\*

\*\*\*\*\*  
This substance is classified as a hazardous air pollutant.  
\*\*\*\*\*

\*\*\*\*\*  
\* POLYCOR \*  
\* MATERIAL SAFETY DATA SHEET \*  
\* GCP 9385 \*  
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SECTION III PHYSICAL DATA  
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Boiling Range: High- -N/A F Low- 212.0 F  
Vapor Pressure: See Section II  
Theoretical Weight per Gallon, Calculated: 10.5838 LB/GL  
Theoretical Specific Gravity, Calculated: 1.272  
Theoretical VOC, Calculated: 3.820 LB/GL  
--If applicable , see Section X for further VOC information--  
Physical State: LIQUID  
Appearance: GRAY  
Odor: MODERATE AROMATIC  
Odor Threshold: -N/A  
pH: -N/A  
Freezing Point: -N/A  
Water Solubility: INSOLUBLE  
Coefficient of Water/Oil Distribution: -N/A  
Mechanical Impact Explosion: NO KNOWN HAZARD  
Static Electricity Explosion: AVOID STATIC CHARGE  
% HAP BY WEIGHT 35.454  
% MONOMER BY WEIGHT 35.454

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SECTION IV FIRE AND EXPLOSION HAZARD DATA  
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FLAMMABILITY CHARACTERISTICS:

Lowest Closed Cup Flashpoint: 82.0 degrees F  
For Flash Points 73 to 100 deg. F.  
OSHA Flammability Classification: Class IC  
DOT Flammability Classification: Flammable Liquid  
Lower Flammable Limit in Air: Lower- 1.1 % by volume  
DOT Shipping Name:  
Flash Points 73 to 100 deg. F. = UN1866, RESIN SOLUTION, 3, PG III

EXTINGUISHING MEDIA:

Foam, carbon dioxide, dry chemical, water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

If polymerization takes place in a container, there is possibility of violent rupture of the container. Vapors are uninhibited and may form

polymers in vents or flame arrestors of storage tanks resulting in stoppage of vents. Vapors may cause flash fire. Keep containers tightly closed and isolate from heat, electrical equipment, sparks and flame. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.

**SPECIAL FIRE FIGHTING PROCEDURES:**

Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible auto-ignition or explosion when

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exposed to extreme heat.

**ADDITIONAL TRANSPORTATION INFORMATION:**

Freight Classification:

NMFC: 46030 RESIN COMPOUNDS, LIQUID LTL CLASS 55

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**SECTION V HEALTH HAZARD DATA**  
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**EFFECTS OF EXCESSIVE OVEREXPOSURE. PRIMARY ROUTES OF ENTRY ARE:**

**EYE CONTACT:**

Irritation. Symptoms are tearing, redness and discomfort.

**SKIN CONTACT:**

Irritation. Can cause defatting of skin which may lead to dermatitis.

**INHALATION:**

Irritation to nose and throat. Extended or repeated exposure to concentrations above the recommended exposure limits may cause brain or nervous system depression, with symptoms such as dizziness, headache or nausea and if continued indefinitely, loss of consciousness, liver and kidney damage.

Reports have associated repeated and prolonged occupational over-exposure to solvents with permanent brain and nervous system damage.

**INGESTION:**

May cause mouth, throat, esophagus and stomach irritation, nausea, vomiting and diarrhea.

**MEDICAL CONDITIONS THAT MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.**

Preexisting eye, skin, liver, kidney and respiratory disorders.

**EMERGENCY AND FIRST AID PROCEDURES:**

In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If affected by inhalation of vapors or spray mist, remove to fresh air. If swallowed, get medical attention immediately.

Based on the presence of components (03)

CALIFORNIA PROPOSITION 65 INFORMATION:

WARNING - This product contains a chemical(s) known to the State of California to cause cancer.

OTHER HEALTH HAZARDS:

STYRENE MONOMER

The International Agency for Research on Cancer (IARC) has reclassified styrene as Group 2B "possibly carcinogenic to humans". This new classification is not based on new health data relating to either humans or animals, but on a change in the IARC classification system. The Styrene Information and Research Center does not agree with the reclassification and has published the following statement. "Recently published studies tracing 50,000 workers exposed to high occupational levels of styrene over a period of 45 years showed no association between styrene and cancer, no increase in cancer among styrene workers (as opposed to the average among all workers), and no increase in mortality related to styrene."

An increased incidence of lung tumors was observed in mice from a recent inhalation study. The relevance of this finding is uncertain. Data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic.

Lung effects have been observed in the mouse following repeated exposure to styrene.

TALC

Talc, Hydrous Magnesium Silicate, contains crystalline silica at levels greater than 0.1% but less than 1.0%. "IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Supplement 7, 1987", concludes

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there is limited evidence for the carcinogenicity of crystalline silica to humans, Class 2A. This classification was based on exposure to free silica dust and is not expected to be relevant to trace amounts of crystalline silica dispersed in paints and plastics.

METHYL METHACRYLATE

Skin exposure to methyl methacrylate may cause irritation and/or a rash; it is also a potential skin sensitizer.

Prolonged or repeated overexposure at near lethal concentrations can cause liver and kidney damage.

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SECTION VI REACTIVITY DATA  
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STABILITY: Stable HAZARDOUS POLYMERIZATION: May occur.

CONDITIONS TO AVOID:

Elevated temperatures. Improper addition of promoter and/or catalyst. Avoid direct contact of MEKP catalyst with accelerator. If an accelerator such as cobalt drier is to be added, mix this accelerator with base material before adding catalyst.

INCOMPATIBILITY (MATERIALS TO AVOID):

Oxidizers, reducing agents, peroxides, strong acids, bases, UV light, or any source of free radicals and mild steel.

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition or combustion can produce fumes containing organic acids, carbon dioxide and carbon monoxide.

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SECTION VII SPILL OR LEAK PROCEDURES

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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Remove all sources of ignition (flames, hot surfaces, and electrical, static, or frictional sparks). Avoid breathing vapors. Ventilate area. Contain and remove with inert absorbent and non-sparking tools.

WASTE DISPOSAL METHOD:

Dispose of in accordance with local, state and federal regulations. Do not incinerate closed containers. Incinerate in approved facility.

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SECTION VIII SPECIAL PROTECTION INFORMATION

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RESPIRATORY PROTECTION:

Do not breathe or ingest vapors, spray mist or dust while applying, sanding, grinding, or sawing cured product. Wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) during application and other use of this product until vapors, mists and dusts are exhausted, unless air monitoring demonstrates vapor, mist and dust levels are below applicable limits. Follow respirator manufacturer's directions for respirator use. Observe OSHA Standard 29CFR 1910.134.

VENTILATION:

Provide general clean air dilution or local exhaust ventilation in volume and pattern to keep the air contaminant concentration below the lower explosion limit and below current applicable exposure limits in the mixing, application and curing areas; and to remove decomposition product during welding and flame cutting on surfaces coated with this product. In confined areas, use only with forced ventilation adequate to keep vapor concentration below 20% of lower explosion limits. Refer to OSHA Standards 29CFR 1910.94, 1910.107, 1910.108.

NOTE: Heavy solvent vapors should be removed from lower levels of the work area and all ignition sources (nonexplosion-proof motors, etc.) should be eliminated.

PROTECTIVE GLOVES:

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Use solvent impermeable gloves to avoid contact with product.

EYE PROTECTION:

Do not get in eyes. Use safety eyewear with splash guards or side shields, chemical goggles, face shields.

OTHER PROTECTIVE EQUIPMENT:

Avoid contact with skin. Use protective clothing. Prevent contact with contaminated clothing. Wash contaminated clothing, including shoes, before reuse.

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SECTION IX SPECIAL PRECAUTIONS

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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

Do not store above 100 deg. F. Store large quantities in buildings designed to comply with OSHA 1910.106. Keep away from heat, sparks and flame. Keep containers closed when not in use and upright to prevent leakage.

OTHER PRECAUTIONS:

Containers should be grounded when pouring. Do not take internally. Wash hands after using and before smoking or eating. Emptied containers may retain hazardous residue and explosive vapors. Keep away from heat, sparks and flames. Do not cut, puncture or weld on or near emptied containers. Follow all hazard precautions given in this data sheet until container is thoroughly cleaned or destroyed. If this product is blended with other components such as thinners, converter, colorants and catalysts prior to use, read all warning labels. Any mixture of components will have hazards of all components. Follow all precautions. If spraying this material, keep spray booths clean. Avoid buildup of spray dust or overspray in booths or ducts.

KEEP OUT OF REACH OF CHILDREN

FOR INDUSTRIAL USE ONLY

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ADDITIONAL ENVIRONMENTAL INFORMATION:

The VOC quantity listed in Section III is a total theoretical loss value. Under typical conditions only half this amount might be lost to the atmosphere. Loss will vary due to temperature, humidity, film thickness, air movement, spray equipment/techniques, catalyzation, gel and cure rates, etc. If precise values are needed, it is suggested that onsite testing be conducted.

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SECTION X Sara Title III Information

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SARA 313 INFORMATION:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

COBALT 2-ETHYLHEXANOATE, 12% COBALT  
CAS# 000136-52-7 PCT BY WT: .2150

METHYL METHACRYLATE  
CAS# 000080-62-6 PCT BY WT: 4.6630

STYRENE MONOMER  
CAS# 000100-42-5 PCT BY WT: 30.8000

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GEL COAT PRODUCTS LLC  
WARRANTIES, DISCLAIMERS AND LIMITATION OF LIABILITY (REV. 03/09)

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Seller warrants that: (i) Buyer shall obtain good title to the product sold hereunder; (ii) at Shipment such product shall conform to Seller's

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specifications; and (iii) the sale or use of such product will not infringe the claims of any U.S. patent covering the product itself, but Seller does not warrant against infringement which might arise by the use of said product in any combination with other products or arising in the operation of any process. SELLER MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, EVER IF THAT PURPOSE IS KNOWN TO SELLER. ANY APPLICATION INFORMATION OR ASSISTANCE WHICH SELLER MAY FURNISH TO BUYER IS GRATUITOUS AND SHALL IN NO WAY BE DEEMED PART OF THE SALE OF PRODUCT HEREUNDER OR A WARRANTY OF THE RESULTS OBTAINED THROUGH THE USE OF SUCH PRODUCT.

Without limiting the generality of the foregoing, if any product fails to meet warranties mentioned above, Seller shall at Seller's option either replace the nonconforming product at no cost to Buyer or refund Buyer the purchase price thereof. The foregoing is Buyer's sole and exclusive remedy for failure of Seller to deliver or supply product that meets the foregoing warranties. Seller's liability with respect to this contract and the product purchased under it shall not exceed the purchase price of the portion of such product as to which such liability arises. Seller shall not be liable for any injury, loss, or damage resulting from the handling or use of the product shipped hereunder whether in the manufacturing process or

otherwise. In no event shall Seller be liable for special, incidental, or consequential damages including without limitations loss of profits, capital or business opportunity, downtime costs, or claims of customers or employees of Buyer. Failure to give Seller notice of any claim within thirty (30) days of shipment of the product concerned shall constitute a waiver of such claim by Buyer. Any product credit received by Buyer hereunder, if not used, shall automatically expire one (1) year from the date the credit was granted. Notwithstanding any applicable statute of limitations to the contrary, any action by Buyer in relation to a claim hereunder must be instituted no later than two (2) years after the occurrence of the event upon which the claim is based. All the foregoing limitations shall apply irrespective of whether Buyer's claim is based upon breach of contract, breach of warranty, negligence, strict liability, or any other legal theory.



## MATERIAL SAFETY DATA SHEET

Chemtrec 24-Hour Emergency Telephone  
Domestic North America (800)424-9300  
International (800)527-3887

*This MSDS complies with 29 CFR 1910.1200 (Hazard Communication)*

### 1. Product and Supplier Identification

**Product:** 052320D - Orca Fire Retardant ISO Resin

**Product Type:** Polyester Resin Solution – Halogenated

**Product Use:** Fire Retardant Resin

**Supplier:** Fiberlay Inc.  
24 S. Idaho St  
Seattle, Wa 98134  
(206)782-0660

### 2. Composition

Component	% (w/w)	CAS Number
Styrene	39.0	100-42-5
Cobalt Compounds	0.1 – 1	78-40-0
Triethyl Phosphate	1 – 5	Mixture

### 3. Hazards Identification

**WHMIS (Canada):** B-2, D-2A, D-2B

**NFPA (USA):** 2, 3, 1, X

**HMIS (USA):** 2,3,1,X

**Protective Clothing:** Goggles, Gas Mask, Gloves

**Routes of Entry:** Eye contact, Skin contact, Inhalation, Ingestion

**Potential Acute Health Effects:**

**Eyes:** Severe eye irritant which may result in redness, burning, tearing and blurred vision.

**Skin:** Skin irritant which may result in burning sensation. Repeated or prolonged skin contact may cause dermatitis.

**Ingestion:** Ingestion may result in mouth, throat and gastrointestinal irritation, nausea, vomiting and diarrhea.

**Inhalation:** Inhalation of spray mist or liquid vapors may cause upper respiratory irritation and possible central nervous system effects including headaches, nausea, vomiting, dizziness, drowsiness, loss of coordination, impaired judgement and general weakness.

## 052320D - Orca Fire Retardant ISO Resin

### **Chronic Health Effects: CARCINOGENIC EFFECTS:**

**Styrene:** Classified A4 (not classifiable for human or animal) by ACGIH. Classified 2B (possible for human) by IARC. An increased incidence of lung tumors was observed in mice from a recent inhalation study. The relevance of this finding is uncertain since data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic to humans.

Lung effects have been observed in mouse studies following repeated exposure.

**Cobalt Compounds:** Classified A3 (proven for animal) by ACGIH. Classified 2B (possible for human) by IARC.

**MUTAGENIC or TERATOGENIC EFFECTS:** No known effect according to our database.

**Medical Conditions Aggravated by Exposure:** Pre-existing eye, skin, respiratory tract disorders may be aggravated by exposure.

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

## 4. First Aid Measures

**INHALATION:** Move the victim to a safe area as soon as possible. Allow the victim to rest in a well-ventilated area. If breathing is difficult, give oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**SKIN CONTACT:** Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. If irritation persists, seek medical attention.

**EYE CONTACT:** Flush with a continuous flow of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Use of buffered baby shampoo will aid in removal. Seek medical attention.

**INGESTION:** Do not induce vomiting. Seek immediate medical attention.

## 5. Fire Fighting Measures

<b>Class:</b>	Flammable Liquid, Class IC
<b>Flash point:</b>	87.6°F (31°C) Styrene
<b>Autotemperature:</b>	914°F(490°C) Styrene
<b>Lower Explosive Limit:</b>	0.09 % by volume
<b>Upper Explosion Limit:</b>	6.8% by volume

**Hazardous Combustion Products:** May produce carbon monoxide, carbon dioxide, and irritating or toxic vapors, gases or particulate.

**Fire Hazard:** Flammable in the presence of open flames, sparks, or heat.

**Explosion Hazard:** Can react with oxidizing materials. Explosive in the form of vapor when exposed to heat or flame. Material may polymerize when container is exposed to heat (fire) and polymerization will increase pressure in a closed container which may cause the container to rupture violently.

**Extinguishing Media:** **SMALL FIRE:** Use carbon dioxide, foam, dry chemical or water fog to extinguish. **LARGE FIRE:** Evacuate surrounding areas. Use carbon dioxide, foam, dry chemical or water fog to extinguish. Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Cool containing vessels with water spray in order to prevent pressure build-

## 052320D - Orca Fire Retardant ISO Resin

up, autoignition or explosion. Prevent run off to sewers or other water ways.

### 6. Accidental Release Measures

**Small Spill:** Absorb with an inert material and place in an appropriate waste disposal container.

**Large Spill:** Stop leak if without risk. Eliminate all ignition sources. Contain with an inert material, recover as much as possible and place the remainder in an appropriate waste disposal container. Warn unauthorized personnel to move away. Prevent entry into sewers or confined areas.

### 7. Handling and Storage

**Handling Procedures:** WARNING! Use only in well-ventilated areas. Store away from direct sunlight. Avoid inhalation and contact with eyes, skin, and clothing. Wear appropriate personal protective equipment for your task. Ground and bond all containers when transferring the material. Empty containers may retain product and product vapor. Do not expose to heat, flame, sparks or other ignition sources such as cutting, welding, drilling, grinding or static electricity. Do not pressurize. Provide adequate safety showers and eyewashes in the area of use.

**Note:** If product contains metal compounds (Section III), avoid dust from dried product or grinding of articles made from this material.

**Storage:** Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well ventilated place. Containers should be grounded.

### 8. Exposure Controls, Personal Protection

#### Exposure Limits:

#### Styrene

**ACGIH TLV (United States, 1/2009). Skin**

TWA: 20 ppm 8 hour(s).

TWA: 85 mg/m<sup>3</sup> 8 hour(s).

STEL: 40 ppm 15 minute(s).

STEL: 170 mg/m<sup>3</sup> 15 minute(s).

**OSHA PEL Z2 (United States, 11/2006).**

TWA: 100 ppm 8 hour(s).

CEIL: 200 ppm

AMP: 600 ppm 5 minute(s).

**NIOSH REL (United States, 6/2009).**

TWA: 50 ppm 10 hour(s).

TWA: 215 mg/m<sup>3</sup> 10 hour(s).

STEL: 100 ppm 15 minute(s).

STEL: 425 mg/m<sup>3</sup> 15 minute(s).

#### Triethyl Phosphate

**Not Available**

#### Cobalt Compounds

**OSHA PEL (United States).**

TWA: 0.1 mg/m<sup>3</sup>

**ACGIH TLV (United States).**

TWA: 0.02 mg/m<sup>3</sup>

While the federal workplace exposure limit for styrene is 100 ppm, OSHA accepted the styrene industry's proposal to voluntarily meet a PEL of 50 ppm on an 8 hours TWA.

**Engineering Controls:** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Provide adequate safety showers and eyewashes in the area of use.

## 052320D - Orca Fire Retardant ISO Resin

**Personal Protection:** Protective equipment may vary depending on the job being performed.

**Eye/face:** Wear eye protection such as safety glasses with side shields, splash goggles or face shield with safety glasses.

**Skin:** Avoid skin contact. Impervious gloves should be worn. Other items may include long sleeves, lab coats, or impervious jackets.

**Respiratory:** Determine if airborne concentrations are below the recommended exposure limits in accordance your company's PPE program and regulatory requirements. If they are not, select a NIOSH-approved respirator that provides adequate protection from the concentration levels encountered. Air-purifying respirators are generally adequate for organic vapors. Use positive pressure, supplied-air respirators if there is potential for an uncontrolled release, if exposure levels are unknown, or under circumstances where air-purifying respirators may not provide adequate protection. Reference OSHA 29 CFR 1910.134.

**Personal Protection in Case of Large Spill:** Chemical resistant gloves, full protective suit, and boots. Respiratory protection in accordance with OSHA regulation 29 CFR 1910.134. A self-contained breathing apparatus should be used to avoid inhalation of the product vapors.

### 9. Physical and Chemical Properties

**Appearance:** Liquid

**Odour:** Aromatic

**pH:** Not applicable.

**Vapour Pressure:** 4.5 mm Hg@ 68°F (20°C)

Styrene

**Molecular Weight (g/mol):** 1000 to 15000

**Vapour Density:** 3.59 Styrene (Air = 1)

**Vapor Gravity:** 1.1 (Water = 1)

**Melting Point:** Not applicable.

**Boiling Point:** 293°F(145°C) Styrene

**Freezing Point:** Not available.

**Relative Density:** 1.15-1.320 (water = 1)

**Partition Coefficient:** No data

**Evaporation Rate:** Not available.

**Water/Oil Dist. Coeff:** Not available

**Odor Threshold:** 0.14 ppm Styrene

**Solubility in Water:** Slight

**Dispersibility Properties:**

Not dispensed in wat

### 10. Stability and Reactivity

**Chemical Stability:** Normally stable, but can become unstable at elevated temperatures.

**Instability Temperature:** >170°F (77°C)

**Condition of Instability:** Heat.

**Incompatibility:** Polymerizes in the presence of organic peroxides, oxidizing materials, or heat.

**Corrosivity:** Our database contains no additional remark on the corrosivity of this product

### 11. Toxicological Information

Name	Result	Species	Dose	Exposure
Styrene	LD50 Oral	Rat	2650 mg/kg	-
	LC50 Inhalation	Rat	5634.2 ppm	4 hours
	Vapor			
Cobalt Compounds	LD50 Oral	Rat	6171 mg/kg	-

**Special remarks on toxicity to animals:** Lung effects have been observed in mouse studies following repeated exposure.

**Special remarks on chronic effects on humans:** No additional remark.

**Special remarks on other toxic effects on humans:** No additional remark.

## 12. Ecological Information

Toxic to aquatic organisms. Should not be released to sewage system or other bodies of water at concentrations above limits established in regulations or permits.

## 13. Disposal Considerations

Recycle to process, if possible. Consult your local or regional authorities. Ignitable characteristic.

## 14. Transport Information

**DOT** UN1866; Resin Solution; 3; III.  
**TDG** UN1866; Resin Solution; 3; III.  
**IATA/IMDG** IATA: UN1866; Resin Solution; 3; III;  
Pkg. Inst.: Passenger - 309; Cargo - 310  
IMDG: UN1866; Resin Solution; 3; III;  
FP=31°C; EmS No.: F-E, S-E

**Additional Transportation Information:** US regulations require the reporting of spills when the amount exceeds the Reportable Quantity (RQ) for specific components of this material. See CERCLA in Section 15, Regulatory Information, for the Reportable Quantities.

## 15. Regulatory Information

This section does not reference all applicable regulatory compliance lists.

**TSCA:** All ingredients are listed or compliant with TSCA.

**DSL:** All ingredients are listed or compliant with the NSNR.

**Proposition 65 Warning:** This product contains a chemical(s) known to the State of California to cause cancer, birth defects and/or reproductive harm.

**SARA 302 component(s):** None.

**SARA 313 component(s):** Styrene, Cobalt Compounds.

**CERCLA(RQ):** Styrene - 1000 lbs. (453.6 kg)

## 16. Other Information

**Preparation Date:** August 4<sup>th</sup>, 2010

**Prepared by:** Fiberlay Inc

**Comments:** This Material Safety Data Sheet was prepared using information provided by Fiberlay Inc. and AOC, LLC.

**Revisions:** None



## MATERIAL SAFETY DATA SHEET

Chemtrec 24-Hour Emergency Telephone  
 Domestic North America (800)424-9300  
 International (800)527-3887

*This MSDS complies with 29 CFR 1910.1200 (Hazard Communication)*

### 1. Product and Supplier Identification / Product Hazard Summary

**Product:** ORCA GUARD White Gel Coat 50# 5-Gal 0571100F

**Trade Name:** Unsaturated Polyester Gelcoat in Monomer

**Supplier:** Fiberlay Inc.  
 24 S. Idaho St  
 Seattle, Wa 98134  
 (206)782-0660

**HMIS <CODE>**

**HEALTH:** <2>

**\*CAUTION!**

\*May be harmful if swallowed or inhaled

\*May be irritating to the skin eyes and respiratory tract

\*May cause allergic skin reaction

\*Heated material may cause thermal burns

**FLAMMABILITY:** <3>

\*Warning! Flammable Liquid & Vapor

**REACTIVITY:** <2>

\*Caution! Unstable at high temperatures

**SPECIFIC HAZARD:** < -- >

### 2. Composition

Component	%	CAS Number	Exposure Limits
Unsaturated polyester	33-41	Not applicable (mixture)	20 ppm (ACGIH TLV) 50 ppm (OSHA PEL)
Styrene Monomer	35-36	000100-42-5	20 ppm (ACGIH TLV) 50 ppm (OSHA PEL)
Titania	6-16	013463-67-7	15 mg/m <sup>3</sup> (OSHA PEL) 10 mg/m <sup>3</sup> (ACGIH TLV)
C.I. Yellow Pigment 42	0-2	051274-00-1	10 mppcf (OSHA PEL) 5 mg/m <sup>3</sup> (ACGIH TLV)
Magnesium Silicate	7-16	014807-96-6	5 mg/m <sup>3</sup> (OSHA PEL) 2 mg/m <sup>3</sup> (ACGIH TLV)
Silicon Dioxide	1-5	007631-86-9	20 mppcf (OSHA PEL) 10 mg/m <sup>3</sup> (ACGIH TLV)

## ORCA GUARD WHITE GEL COAT 50# 5-GAL

Remaining components not determined to be hazardous and/or hazardous components present at less than 1.0% (0.1% for Carcinogens)

**NOTE:** This chemical subject to reporting requirements under SARA Title III, Section 313

### 3. Hazards Identification

#### Routes of Entry:

Skin Contact: Moderate Eye Contact: Moderate Ingestion: Moderate Inhalation: Major

**Emergency Overview:** Central nervous system depressant. High vapour concentration may cause headache, nausea, dizziness, drowsiness and confusion. Causes skin and eye irritation. Aspiration hazard. Swallowing or vomiting of the liquid may result in aspiration into the lungs.

#### Acute Health Effects:

##### INHALATION:

Slightly Toxic. May cause respiratory tract irritation. May cause harmful central nervous system effects. Effects may include drowsiness, impaired balance, nausea, vomiting, loss of appetite and general weakness—"Styrene Sickness". May cause blood changes and liver damage. The disagreeable odor and irritation of this material make inhalation of acutely toxic concentrations unlikely.

##### SPECIAL TOXIC EFFECTS:

**Carcinogenic determinations:** The International Agency for Research on Cancer (IARC) has classified styrene in Group 2B (possibly carcinogenic to humans). This classification is not based on any significant new evidence that styrene may be carcinogenic, but rather on a revised definition for group 2B and consideration of new data on styrene oxide. A number of lifetime animal studies with styrene including those conducted in the NCI bioassay program have not shown styrene to be carcinogenic. On the other hand an increased incidence of lung tumours observed in mice from a recent inhalation study. The relevance of this finding is uncertain since data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic. Lung effects have been observed in the mouse following repeated exposure.

##### SKIN CONTACT:

Moderately Irritating. Repeated or prolonged skin contact may cause reddening, inflammation or blistering. May cause allergic reactions in some individuals. Contact with heated material may cause thermal burns. Exposure may cause symptoms similar to those listed under "Inhalation" (see Inhalation section).

##### EYE CONTACT:

Moderately Irritating. Direct contact may cause temporary corneal lesions. Contact with heated material may cause thermal burns.

##### INGESTION:

Moderately Toxic. May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. Exposure may cause symptoms similar to those listed under "Inhalation" (see Inhalation section).

#### Medical Conditions Aggravated by Exposure:

Pre-existing eye, skin, respiratory tract disorders may be aggravated by exposure.

#### 4. First Aid Measures

**INHALATION:** This product is flammable. Take proper precautions. Remove victim to fresh air. Give artificial respiration if indicated. Get medical attention.

**SKIN CONTACT:** Avoid direct contact. Wear chemical protective clothing, if necessary. Quickly and gently blot or brush away excess chemical. Wash gently and thoroughly with water and non-abrasive soap for 20 minutes or until chemical is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Completely decontaminate clothing, shoes and leather goods before re-use or discard. If the contact is severe and pain persists after long term rinsing with water, rinse the contaminated area with lukewarm pasteurized milk. After pain has stopped, rinse thoroughly with water. Obtain medical attention immediately.

**EYE CONTACT:** MAY CAUSE EYE IRRITATION. Check and remove any contact lenses. Flush with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. DO NOT INTERRUPT FLUSHING. Take care not to contaminate non-affected eye. Seek medical attention.

**INGESTION:** If patient is conscious, give three or four glasses of water. *Do not induce vomiting*. Do not give anything by mouth to a convulsing or unconscious person. Get medical attention.

**GENERAL COMMENTS:** Good personal hygiene is essential. Avoid eating, smoking or drinking in work areas.

#### 5. Fire Fighting Measures

<b>Flash point:</b>	30-35 °C TCC
<b>Flammability Classification:</b>	Class 1C
<b>Autoignition Temperature:</b>	490°C. See information under "Fire Fighting Instructions"
<b>Lower Explosive Limit:</b>	0.09 % by volume
<b>Upper Explosion Limit:</b>	6.8% by volume
<b>Sensitivity to Impact:</b>	No
<b>Sensitivity to Static Discharge:</b>	No

**Hazardous Combustion Products:** Burning may produce oxides of carbon.

**Extinguishing Media:** Use carbon dioxide, alcohol foam, or dry chemical. Water should be used to cool surrounding containers.

**Fire Fighting Instructions:** Vapour will flash and the liquid will burn. Keep away from all sources of ignition and avoid elevated temperatures. Vapours are heavier than air, and may collect in low-lying areas. Firefighters must wear self-contained breathing apparatus and full protective clothing.

#### 6. Accidental Release Measures

**Personal Protection:** Wear adequate personal protection to prevent skin contact. See Section 8 for specific recommendations

**Environmental Precautions:** Prevent release into waterways and sewers. Stop spill as soon as possible to prevent contamination of soil, groundwater, or surface water.

## ORCA GUARD WHITE GEL COAT 50# 5-GAL

**Cleanup Procedures:** Poisonous, flammable liquid, insoluble or very slightly soluble in water. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand, or other non-combustible material. Prevent entry into sewers, basements, or confined areas. Dike if needed. Eliminate all sources of ignition. Call for assistance on disposal. Consult national, provincial, and local regulations.

### 7. Handling and Storage

**Handling Procedures:** Keep away from heat and all sources of ignition. Ground all equipment containing material. Do not ingest. Do not breath gas, fumes, vapor, or spray. Follow safe work procedures and wear appropriate personal protective equipment.

**Storage:** Keep well away from all sources of ignition. Store in a cool well-ventilated area out of direct sunlight and away from heat and ignitions sources. Do not store near foodstuffs. Styrene should not be stored for longer than 3 months. Containers should be checked weekly after 30 days to determine inhibitor concentration and possible polymerization. Store away from oxidizers and corrosives and other incompatible materials such as sulfuric acid, peroxides, alkali metal, which increase the risk of fire and explosion.

### 8. Exposure Controls, Personal Protection

**Engineering Controls:** If used indoors, ensure adequate non-sparking ventilation. Remove all sources of ignition and post "No Smoking" signs in the work place. Keep away from heat, and never weld, cut, or solder empty containers. Use adequate ventilation to reduce concentration to below TLV.

**Respiratory Protection:** Use a NIOSH approved organic vapour respirator if concentration below minimum IDLH of 500 ppm in the workplace. For vapour concentrations in excess of 500 ppm, use a positive pressure respirator.

**Skin Protection:** Wear impervious gloves (butyl rubber) and clothing to prevent skin contact.

**Eye and Face Protection:** Chemical splash-proof goggles must be worn at all times.

**Other:** Eye wash station should be located near work area.

### 9. Physical and Chemical Properties

<b>Appearance:</b>	Color Liquid	<b>Boiling Point:</b>	≈146 °C
<b>Odour:</b>	Pungent Odor	<b>Freezing Point:</b>	Not available.
<b>pH:</b>	Not applicable.	<b>Relative Density:</b>	1.26
<b>Vapour Pressure:</b>	<5 @ 20 C mm Hg		(water = 1)
<b>Solubility:</b>	Negligible	<b>Partition Coefficient:</b>	No data
<b>Vapour Density:</b>	3.6 (styrene)	<b>Evaporation Rate:</b>	<1
<b>Melting Point:</b>	Not applicable.		
		<b>Percent Volatile:</b>	39

## 10. Stability and Reactivity

**Chemical Stability:** This product is stable.

**Hazardous Polymerization:** May polymerize violently with risk of fire and explosion. Uninhibited styrene, or styrene with low inhibitor concentration, polymerizes slowly at room temperature and on exposure to light and air, and readily at elevated temperatures, greater than 65°C (149°F). Polymerization becomes self-sustaining above 95 deg C. Metal salts (e.g. ferric or aluminum chloride), peroxides, oxidizers and strong acids may also cause polymerization.

**Incompatibility:** Oxygen, oxidizing agents - Increased risk of fire and explosion. Can form explosive peroxides. Strong acids (e.g. sulfuric acid, oleum, chlorosulfonic acid) – increased temperature and pressure; increased risk of fire and explosion. Alkali metal, graphite compounds, metallic halide salts, peroxides (dibenzoyl peroxide di-tertbutyl peroxide), azoisobutyronitrile – Can initiate polymerization. Byllithium - Explosion can occur. Halogens - Can react with low concentrations of halogens, in the presence of UV light, to form a strong irritant. Can form peroxides in the presence of light and air or on contact with acids. Styrene monomer has been involved in several plant-scale explosions when stored inappropriately or accidentally heated.

**Hazardous Decomposition Products:** Styrene oxide.

## 11. Toxicological Information

**Acute Exposure (LD<sub>50</sub>):** Styrene Monomer 5000 mg/kg (oral/rat)

**Acute Exposure (LC<sub>50</sub>):** Styrene Monomer 5640 ppm (Rat, 4 hour exposure)

**Chronic Exposure:** See Section 3.

**Exposure Limits:** See Section 2.

**Irritancy:** See Section 3.

**Sensitization:** See Section 3.

**Neurotoxicity:** There is evidence of subtle changes in hearing. Balance, colour vision, the speed of nerve conduction and psychological performance.

**Carcinogenicity:** Styrene is listed by IARC, Group 2B possible human carcinogen.

**Teratogenicity:** Not reported

**Reproductive Toxicity:** There is some evidence that high exposures to styrene can affect the male reproductive system in rats.

**Mutagenicity:** Data cited but not conclusive.

**Synergistic Products:** Styrene metabolism is slowed down by the presence of other organic solvents, including ethyl alcohol. Thus the toxic effects of styrene are enhanced by exposure to other solvents

## 12. Ecological Information

**Environmental Toxicity:** No data available.

**Biodegradability:** No data available.

### 13. Disposal Considerations

Review federal, provincial or state, and local government requirements prior to disposal. Store material for disposal as indicated in Storage Conditions. Disposal by controlled incineration may be acceptable.

### 14. Transport Information

**Canadian Transportation of Dangerous Goods Regulations:** Resin Solution, Class 3, UN 1866, P.G. III

**International Air Transport Association (IATA):** Resin Solution, Class 3, UN 1866, P.G. III

**International Maritime Organization (IMO):** Resin Solution, Class 3, UN 1866, P.G. III, Flash Point = 31°C, EmS No. 3-05, Stowage Category "A"

### 15. Regulatory Information

#### CANADIAN FEDERAL REGULATIONS:

**CEPA, DOMESTIC SUBSTANCES LIST:** Listed

**WHMIS CLASSIFICATION:** B2, D2A, D2B, F

#### UNITED STATES REGULATIONS:

**29CFR 1910.1200:** Hazardous

**40CFR 116-117:** Hazardous

**40CFR 355, Appendices A and B:** Not subject to Emergency Planning and Notification

**40CFR 372:** Listed

**40CFR 302:** Listed, Reportable Quantity, 1000 lbs (454 Kg)

### 16. Other Information

#### **California Proposition 65 Statement**

California Proposition 65 involving warnings of the presence of certain listed chemicals is now in effect.

ORCA COMPOSITES/FIBERLAY INC. believes the law requires us to inform you that detectable amounts of any of the listed chemicals might be present in ORCA COMPOSITES products. Based on a review of the list, ORCA COMPOSITES products, like all synthetic and naturally occurring chemical substances, may conceivably contain trace contaminants of some of the listed substances. While not necessarily added to our products as ingredients, some of the listed chemicals may be present in the raw materials as received from suppliers over which we have no control.

**ORCA GUARD WHITE GEL COAT 50# 5-GAL**

**In order to comply with the California Law, even though some of the listed substances may not represent a significant risk as defined by the regulations, we feel obligated to make the following statement:**

**"Warning: This product may contain trace amounts of some chemicals considered by the State of California to be carcinogens or reproductive Toxicants."**

**Preparation Date: 11/18/10**

**Prepared by: Fiberlay Inc**

**Comments: This Material Safety Data Sheet was prepared using information provided by HK Research Corp and Fiberlay Inc.**

**Revisions: None**



**MATERIAL SAFETY DATA SHEET**

Chemtrec 24-Hour Emergency Telephone

Domestic North America  
International

(800)424-9300  
(800)527-3887

*This MSDS complies with 29 CFR 1910.1200 (Hazard Communication)*

**1. Product and Supplier Identification, Product Hazard Summary**

1. Product: **ORCA GUARD**

0583016

Trade Name: **Unsaturated Polyester Gelcoat in Monomer**

Supplier: **Fiberlay Inc.  
24 S. Idaho St  
Seattle, Wa 98134  
(206)782-0680**

2. HMIS <CODE>

HEALTH: <2>

- \*CAUTION!
- \*May be harmful if swallowed or inhaled
- \*May be irritating to the skin eyes and respiratory tract
- \*May cause allergic skin reaction
- \*Heated material may cause thermal burns

FLAMMABILITY: <3>

- \*Warning! Flammable Liquid & Vapor

REACTIVITY: <2>

- \*Caution! Unstable at high temperatures

SPECIFIC HAZARD: < --- >

**2. Composition**

Component	%	CAS Number	Exposure Limits
Unsaturated polyester	33-41	Not applicable (mixture)	20 ppm (ACGIH TLV) 50 ppm (OSHA PEL)
Styrene Monomer	35-38	000100-42-5	20 ppm (ACGIH TLV) 50 ppm (OSHA PEL)
Titania	6-16	013463-87-7	15 mg/m <sup>3</sup> (OSHA PEL) 10 mg/m <sup>3</sup> (ACGIH TLV)

**ORCA GUARD ISO NPG GELCOAT OFF WHITE**

C.I. Yellow Pigment 42	0-2	051274-00-1	10 mppcf (OSHA PEL) 5 mg/m <sup>3</sup> (ACGIH TLV)
Magnesium Silicate	7-16	014807-96-6	5 mg/m <sup>3</sup> (OSHA PEL) 2 mg/m <sup>3</sup> (ACGIH TLV)
Silicon Dioxide	1-5	007631-86-9	20 mppcf (OSHA PEL) 10 mg/m <sup>3</sup> (ACGIH TLV)

Remaining components not determined to be hazardous and/or hazardous components present at less than 1.0% (0.1% for Carcinogens)

<1> **NOTE:** This chemical subject to reporting requirements under SARA Title III, Section 313



**Routes of Entry:**

Skin Contact: Moderate Eye Contact: Moderate Ingestion: Moderate Inhalation: Major

**Emergency Overview:** Central nervous system depressant. High vapour concentration may cause headache, nausea, dizziness, drowsiness and confusion. Causes skin and eye irritation. Aspiration hazard. Swallowing or vomiting of the liquid may result in aspiration into the lungs.

**Acute Health Effects:**

**INHALATION:**

Slightly Toxic. May cause respiratory tract irritation. May cause harmful central nervous system effects. Effects may include drowsiness, impaired balance, nausea, vomiting, loss of appetite and general weakness—"Styrene Sickness". May cause blood changes and liver damage. The disagreeable odor and irritation of this material make inhalation of acutely toxic concentrations unlikely.

**SPECIAL TOXIC EFFECTS:**

**Carcinogenic determinations:** The International Agency for Research on Cancer (IARC) has classified styrene in Group 2B (possibly carcinogenic to humans). This classification is not based on any significant new evidence that styrene may be carcinogenic, but rather on a revised definition for group 2B and consideration of new data on styrene oxide. A number of lifetime animal studies with styrene including those conducted in the NCI bioassay program have not shown styrene to be carcinogenic. On the other hand an increased incidence of lung tumours observed in mice from a recent inhalation study. The relevance of this finding is uncertain since data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic. Lung effects have been observed in the mouse following repeated exposure.

**SKIN CONTACT:**

Moderately Irritating. Repeated or prolonged skin contact may cause reddening, inflammation or blistering. May cause allergic reactions in some individuals. Contact with heated material may cause thermal burns. Exposure may cause symptoms similar to those listed under "inhalation" (see Inhalation section).

**EYE CONTACT:**

## ORCA GUARD ISO NPG GELCOAT OFF WHITE

Moderately Irritating. Direct contact may cause temporary corneal lesions. Contact with heated material may cause thermal burns.

### **INGESTION:**

Moderately Toxic. May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. Exposure may cause symptoms similar to those listed under "Inhalation" (see Inhalation section).

### **Medical Conditions Aggravated by Exposure:**

~~Pre-existing eye, skin, respiratory tract disorders may be aggravated by exposure.~~

### **A. First Aid Measures**

**INHALATION:** This product is flammable. Take proper precautions. Remove victim to fresh air. Give artificial respiration if indicated. Get medical attention.

**SKIN CONTACT:** Avoid direct contact. Wear chemical protective clothing, if necessary. Quickly and gently blot or brush away excess chemical. Wash gently and thoroughly with water and non-abrasive soap for 20 minutes or until chemical is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Completely decontaminate clothing, shoes and leather goods before re-use or discard. If the contact is severe and pain persists after long term rinsing with water, rinse the contaminated area with lukewarm pasteurized milk. After pain has stopped, rinse thoroughly with water. Obtain medical attention immediately.

**EYE CONTACT:** MAY CAUSE EYE IRRITATION. Check and remove any contact lenses. Flush with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. DO NOT INTERRUPT FLUSHING. Take care not to contaminate non-affected eye. Seek medical attention.

**INGESTION:** If patient is conscious, give three or four glasses of water. *Do not induce vomiting*. Do not give anything by mouth to a convulsing or unconscious person. Get medical attention.

**GENERAL COMMENTS:** Good personal hygiene is essential. Avoid eating, smoking or drinking in work areas.

### **B. Fire Fighting Measures**

Flash point:	30-35 °C TCC
Flammability Classification:	Class 1C
Autoignition Temperature:	490°C. See information under "Fire Fighting Instructions"
Lower Explosive Limit:	0.09 % by volume
Upper Explosion Limit:	6.8% by volume
Sensitivity to Impact:	No
Sensitivity to Static Discharge:	No

**Hazardous Combustion Products:** Burning may produce oxides of carbon.

**Extinguishing Media:** Use carbon dioxide, alcohol foam, or dry chemical. Water should be used to cool surrounding containers.

## ORCA GUARD ISO NPG GELCOAT OFF WHITE

**Fire Fighting Instructions:** Vapour will flash and the liquid will burn. Keep away from all sources of ignition and avoid elevated temperatures. Vapours are heavier than air, and may collect in low-lying areas. Firefighters must wear self-contained breathing apparatus and full protective clothing.

### C. Accidental Release Measures

**Personal Protection:** Wear adequate personal protection to prevent skin contact. See Section 8 for specific recommendations

**Environmental Precautions:** Prevent release into waterways and sewers. Stop spill as soon as possible to prevent contamination of soil, groundwater, or surface water.

**Cleanup Procedures:** Poisonous, flammable liquid, insoluble or very slightly soluble in water. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand, or other non-combustible material. Prevent entry into sewers, basements, or confined areas. Dike if needed. Eliminate all sources of ignition. Call for assistance on disposal. Consult national, provincial, and local regulations.

### D. Handling and Storage

**Handling Procedures:** Keep away from heat and all sources of ignition. Ground all equipment containing material. Do not ingest. Do not breath gas, fumes, vapor, or spray. Follow safe work procedures and wear appropriate personal protective equipment.

**Storage:** Keep well away from all sources of ignition. Store in a cool well-ventilated area out of direct sunlight and away from heat and ignitions sources. Do not store near foodstuffs. Styrene should not be stored for longer than 3 months. Containers should be checked weekly after 30 days to determine inhibitor concentration and possible polymerization. Store away from oxidizers and corrosives and other incompatible materials such as sulfuric acid, peroxides, alkali metal, which increase the risk of fire and explosion.

### E. Exposure Controls, Personal Protection

**Engineering Controls:** If used indoors, ensure adequate non-sparking ventilation. Remove all sources of ignition and post "No Smoking" signs in the work place. Keep away from heat, and never weld, cut, or solder empty containers. Use adequate ventilation to reduce concentration to below TLV.

**Respiratory Protection:** Use a NIOSH approved organic vapour respirator if concentration below minimum IDLH of 500 ppm in the workplace. For vapour concentrations in excess of 500 ppm, use a positive pressure respirator.

**Skin Protection:** Wear impervious gloves (butyl rubber) and clothing to prevent skin contact.

**Eye and Face Protection:** Chemical splash-proof goggles must be worn at all times.

# ORCA GUARD ISO NPG GELCOAT OFF WHITE

Other: Eye wash station should be located near work area.

## 9. Physical and Chemical Properties

<b>Appearance:</b>	Color Liquid	<b>Boiling Point:</b>	≈146 °C
<b>Odour:</b>	Pungent Odor	<b>Freezing Point:</b>	Not available.
<b>pH:</b>	Not applicable.	<b>Relative Density:</b>	1.28 (water = 1)
<b>Vapour Pressure:</b>	<5 @ 20 C mm Hg	<b>Partition Coefficient:</b>	No data
<b>Solubility:</b>	Negligible	<b>Evaporation Rate:</b>	<1
<b>Vapour Density:</b>	3.6 (styrene)	<b>Percent Volatile:</b>	39
<b>Melting Point:</b>	Not applicable.		

## 10. Stability and Reactivity

**Chemical Stability:** This product is stable.

**Hazardous Polymerization:** May polymerize violently with risk of fire and explosion. Uninhibited styrene, or styrene with low inhibitor concentration, polymerizes slowly at room temperature and on exposure to light and air, and readily at elevated temperatures, greater than 65°C (149°F). Polymerization becomes self-sustaining above 95 deg C. Metal salts (e.g. ferric or aluminum chloride), peroxides, oxidizers and strong acids may also cause polymerization.

**Incompatibility:** Oxygen, oxidizing agents - Increased risk of fire and explosion. Can form explosive peroxides. Strong acids (e.g. sulfuric acid, oleum, chlorosulfonic acid) - Increased temperature and pressure; increased risk of fire and explosion. Alkali metal, graphite compounds, metallic halide salts, peroxides (dibenzoyl peroxide di-tertbutyl peroxide), azobisisobutyronitrile - Can initiate polymerization. Byllithium - Explosion can occur. Halogens - Can react with low concentrations of halogens, in the presence of UV light, to form a strong irritant. Can form peroxides in the presence of light and air or on contact with acids. Styrene monomer has been involved in several plant-scale explosions when stored inappropriately or accidentally heated.

**Hazardous Decomposition Products:** Styrene oxide.

## 11. Toxicological Information

<b>Acute Exposure (LD<sub>50</sub>):</b>	Styrene Monomer	5000 mg/kg (oral/rat)
<b>Acute Exposure (LC<sub>50</sub>):</b>	Styrene Monomer	5840 ppm (Rat, 4 hour exposure)
<b>Chronic Exposure:</b>	See Section 3.	
<b>Exposure Limits:</b>	See Section 2.	
<b>Irritancy:</b>	See Section 3.	
<b>Sensitization:</b>	See Section 3.	
<b>Neurotoxicity:</b>	There is evidence of subtle changes in hearing. Balance, colour vision, the speed of nerve conduction and psychological performance.	

**ORCA GUARD ISO NPG GELCOAT OFF WHITE**

**Carcinogenicity:** Styrene is listed by IARC, Group 2B possible human carcinogen.  
**Teratogenicity:** Not reported  
**Reproductive Toxicity:** There is some evidence that high exposures to styrene can affect the male reproductive system in rats.  
**Mutagenicity:** Data cited but not conclusive.  
**Synergistic Products:** Styrene metabolism is slowed down by the presence of other organic solvents, including ethyl alcohol. Thus the toxic effects of styrene are enhanced by exposure to other solvents

**13 Ecological Information**

**Environmental Toxicity:** No data available.

**Biodegradability:** No data available.

**14 Disposal Considerations**

Review federal, provincial or state, and local government requirements prior to disposal. Store material for disposal as indicated in Storage Conditions. Disposal by controlled incineration may be acceptable.

**15 Transport Information**

**Canadian Transportation of Dangerous Goods Regulations:** Resin Solution, Class 3, UN 1866, P.G. III

**International Air Transport Association (IATA):** Resin Solution, Class 3, UN 1866, P.G. III

**International Maritime Organization (IMO):** Resin Solution, Class 3, UN 1866, P.G. III, Flash Point = 31°C, EmS No. 3-05, Stowage Category "A"

**16 Regulatory Information**

**CANADIAN FEDERAL REGULATIONS:**

**CEPA, DOMESTIC SUBSTANCES LIST:** Listed

**WHMIS CLASSIFICATION:** B2, D2A, D2B, F

**UNITED STATES REGULATIONS:**

**29CFR 1910.1200:** Hazardous

**40CFR 116-117:** Hazardous

**40CFR 355, Appendices A and B:** Not subject to Emergency Planning and Notification

**ORCA GUARD ISO NPG GELCOAT OFF WHITE**

**40CFR 372:**

Listed

**40CFR 302:**

Listed, Reportable Quantity, 1000 lbs (454 Kg)

**16. Other Information**

**California Proposition 65 Statement**

**California Proposition 65 involving warnings of the presence of certain listed chemicals is now in effect.**

**ORCA COMPOSITES/FIBERLAY INC. believes the law requires us to inform you that detectable amounts of any of the listed chemicals might be present in ORCA COMPOSITES products. Based on a review of the list, ORCA COMPOSITES products, like all synthetic and naturally occurring chemical substances, may conceivably contain trace contaminants of some of the listed substances. While not necessarily added to our products as ingredients, some of the listed chemicals may be present in the raw materials as received from suppliers over which we have no control.**

**In order to comply with the California Law, even though some of the listed substances may not represent a significant risk as defined by the regulations, we feel obligated to make the following statement:**

**"Warning: This product may contain trace amounts of some chemicals considered by the State of California to be carcinogens or reproductive Toxicants."**

**Preparation Date: April 1, 2008**

**Prepared by: Fiberlay Inc**

**Comments: This Material Safety Data Sheet was prepared using information provided by HK Research Corp and Fiberlay Inc.**

**Revisions: None**

ORCA GUARD ISO NPG GELCOAT OFF WHITE



**MATERIAL SAFETY DATA SHEET**

Chemtrec 24-Hour Emergency Telephone

Domestic North America  
International

(800)424-9300  
(800)527-3887

*This MSDS complies with 29 CFR 1910.1200 (Hazard Communication)*

**1. Product and Supplier Identification / Product Hazard Summary**

**1. Product:** ORCA GUARD

**Trade Name:** Unsaturated Polyester Gelcoat In Monomer

**Supplier:** Fiberlay Inc.  
24 S. Idaho St  
Seattle, Wa 98134  
(206)782-0660

**2. HMIS <CODE>**

**HEALTH:** <2>

- \*CAUTION!
- \*May be harmful if swallowed or inhaled
- \*May be irritating to the skin eyes and respiratory tract
- \*May cause allergic skin reaction
- \*Heated material may cause thermal burns

**FLAMMABILITY:** <3>

- \*Warning! Flammable Liquid & Vapor

**REACTIVITY:** <2>

- \*Caution! Unstable at high temperatures

**SPECIFIC HAZARD:** < --- >

**2. Composition**

Component	%	CAS Number	Exposure Limits
Unsaturated polyester	33-41	Not applicable (mixture)	20 ppm (ACGIH TLV) 50 ppm (OSHA PEL)
Styrene Monomer	35-38	000100-42-5	20 ppm (ACGIH TLV) 50 ppm (OSHA PEL)
Titania	6-18	013463-87-7	15 mg/m <sup>3</sup> (OSHA PEL) 10 mg/m <sup>3</sup> (ACGIH TLV)

**ORCA GUARD ISO NPG GELCOAT OFF WHITE**

C.I. Yellow Pigment 42	0-2	051274-00-1	10 mppcf (OSHA PEL) 5 mg/m <sup>3</sup> (ACGIH TLV)
Magnesium Silicate	7-16	014807-96-6	5 mg/m <sup>3</sup> (OSHA PEL) 2 mg/m <sup>3</sup> (ACGIH TLV)
Silicon Dioxide	1-5	007631-86-9	20 mppcf (OSHA PEL) 10 mg/m <sup>3</sup> (ACGIH TLV)

Remaining components not determined to be hazardous and/or hazardous components present at less than 1.0% (0.1% for Carcinogens)

<1> **NOTE:** This chemical subject to reporting requirements under SARA Title III, Section 313



**Routes of Entry:**

Skin Contact: Moderate Eye Contact: Moderate Ingestion: Moderate Inhalation: Major

**Emergency Overview:** Central nervous system depressant. High vapour concentration may cause headache, nausea, dizziness, drowsiness and confusion. Causes skin and eye irritation. Aspiration hazard. Swallowing or vomiting of the liquid may result in aspiration into the lungs.

**Acute Health Effects:**

**INHALATION:**

Slightly Toxic. May cause respiratory tract irritation. May cause harmful central nervous system effects. Effects may include drowsiness, impaired balance, nausea, vomiting, loss of appetite and general weakness—"Styrene Sickness". May cause blood changes and liver damage. The disagreeable odor and irritation of this material make inhalation of acutely toxic concentrations unlikely.

**SPECIAL TOXIC EFFECTS:**

**Carcinogenic determinations:** The International Agency for Research on Cancer (IARC) has classified styrene in Group 2B (possibly carcinogenic to humans). This classification is not based on any significant new evidence that styrene may be carcinogenic, but rather on a revised definition for group 2B and consideration of new data on styrene oxide. A number of lifetime animal studies with styrenes including those conducted in the NCI bioassay program have not shown styrene to be carcinogenic. On the other hand an increased incidence of lung tumours observed in mice from a recent inhalation study. The relevance of this finding is uncertain since data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic. Lung effects have been observed in the mouse following repeated exposure.

**SKIN CONTACT:**

Moderately Irritating. Repeated or prolonged skin contact may cause reddening, inflammation or blistering. May cause allergic reactions in some individuals. Contact with heated material may cause thermal burns. Exposure may cause symptoms similar to those listed under "Inhalation" (see Inhalation section).

**EYE CONTACT:**

## ORCA GUARD ISO NPG GELCOAT OFF WHITE

Moderately Irritating. Direct contact may cause temporary corneal lesions. Contact with heated material may cause thermal burns.

### **INGESTION:**

Moderately Toxic. May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. Exposure may cause symptoms similar to those listed under "Inhalation" (see Inhalation section).

### **Medical Conditions Aggravated by Exposure:**

~~Pre-existing eye, skin, respiratory tract disorders may be aggravated by exposure.~~

## **A. First Aid Measures**

**INHALATION:** This product is flammable. Take proper precautions. Remove victim to fresh air. Give artificial respiration if indicated. Get medical attention.

**SKIN CONTACT:** Avoid direct contact. Wear chemical protective clothing, if necessary. Quickly and gently blot or brush away excess chemical. Wash gently and thoroughly with water and non-abrasive soap for 20 minutes or until chemical is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Completely decontaminate clothing, shoes and leather goods before re-use or discard. If the contact is severe and pain persists after long term rinsing with water, rinse the contaminated area with lukewarm pasteurized milk. After pain has stopped, rinse thoroughly with water. Obtain medical attention immediately.

**EYE CONTACT:** MAY CAUSE EYE IRRITATION. Check and remove any contact lenses. Flush with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. DO NOT INTERRUPT FLUSHING. Take care not to contaminate non-affected eye. Seek medical attention.

**INGESTION:** If patient is conscious, give three or four glasses of water. *Do not induce vomiting* Do not give anything by mouth to a convulsing or unconscious person. Get medical attention.

**GENERAL COMMENTS:** Good personal hygiene is essential. Avoid eating, smoking or drinking in work areas.

## **B. Fire Fighting Measures**

<b>Flash point:</b>	30-35 °C TCC
<b>Flammability Classification:</b>	Class 1C
<b>Autoignition Temperature:</b>	490°C. See information under "Fire Fighting Instructions"
<b>Lower Explosive Limit:</b>	0.09 % by volume
<b>Upper Explosion Limit:</b>	6.8% by volume
<b>Sensitivity to Impact:</b>	No
<b>Sensitivity to Static Discharge:</b>	No

**Hazardous Combustion Products:** Burning may produce oxides of carbon.

**Extinguishing Media:** Use carbon dioxide, alcohol foam, or dry chemical. Water should be used to cool surrounding containers.

## ORCA GUARD ISO NPG GELCOAT OFF WHITE

**Fire Fighting Instructions:** Vapour will flash and the liquid will burn. Keep away from all sources of ignition and avoid elevated temperatures. Vapours are heavier than air, and may collect in low-lying areas. Firefighters must wear self-contained breathing apparatus and full protective clothing.

### 4. Accidental Release Measures

**Personal Protection:** Wear adequate personal protection to prevent skin contact. See Section 8 for specific recommendations

**Environmental Precautions:** Prevent release into waterways and sewers. Stop spill as soon as possible to prevent contamination of soil, groundwater, or surface water.

**Cleanup Procedures:** Poisonous, flammable liquid, insoluble or very slightly soluble in water. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand, or other non-combustible material. Prevent entry into sewers, basements, or confined areas. Dike if needed. Eliminate all sources of ignition. Call for assistance on disposal. Consult national, provincial, and local regulations.

### 5. Handling and Storage

**Handling Procedures:** Keep away from heat and all sources of ignition. Ground all equipment containing material. Do not ingest. Do not breath gas, fumes, vapor, or spray. Follow safe work procedures and wear appropriate personal protective equipment.

**Storage:** Keep well away from all sources of ignition. Store in a cool well-ventilated area out of direct sunlight and away from heat and ignitions sources. Do not store near foodstuffs. Styrene should not be stored for longer than 3 months. Containers should be checked weekly after 30 days to determine inhibitor concentration and possible polymerization. Store away from oxidizers and corrosives and other incompatible materials such as sulfuric acid, peroxides, alkali metal, which increase the risk of fire and explosion.

### 6. Exposure Controls, Personal Protection

**Engineering Controls:** If used indoors, ensure adequate non-sparking ventilation. Remove all sources of ignition and post "No Smoking" signs in the work place. Keep away from heat, and never weld, cut, or solder empty containers. Use adequate ventilation to reduce concentration to below TLV.

**Respiratory Protection:** Use a NIOSH approved organic vapour respirator if concentration below minimum IDLH of 500 ppm in the workplace. For vapour concentrations in excess of 500 ppm, use a positive pressure respirator.

**Skin Protection:** Wear impervious gloves (butyl rubber) and clothing to prevent skin contact.

**Eye and Face Protection:** Chemical splash-proof goggles must be worn at all times.

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Other: Eye wash station should be located near work area.

**9. Physical and Chemical Properties**

<b>Appearance:</b>	Color Liquid	<b>Boiling Point:</b>	≈146 °C
<b>Odour:</b>	Pungent Odor	<b>Freezing Point:</b>	Not available.
<b>pH:</b>	Not applicable.	<b>Relative Density:</b>	1.26
<b>Vapour Pressure:</b>	<5 @ 20 C mm Hg		(water = 1)
<b>Solubility:</b>	Negligible	<b>Partition Coefficient:</b>	No data
<b>Vapour Density:</b>	3.6 (styrene)	<b>Evaporation Rate:</b>	<1
<b>Melting Point:</b>	Not applicable.		
		<b>Percent Volatile:</b>	39

**10. Stability and Reactivity**

**Chemical Stability:** This product is stable.

**Hazardous Polymerization:** May polymerize violently with risk of fire and explosion. Uninhibited styrene, or styrene with low inhibitor concentration, polymerizes slowly at room temperature and on exposure to light and air, and readily at elevated temperatures, greater than 65°C (149°F). Polymerization becomes self-sustaining above 95 deg C. Metal salts (e.g. ferric or aluminum chloride), peroxides, oxidizers and strong acids may also cause polymerization.

**Incompatibility:** Oxygen, oxidizing agents - Increased risk of fire and explosion. Can form explosive peroxides. Strong acids (e.g. sulfuric acid, oleum, chlorosulfonic acid) - Increased temperature and pressure; increased risk of fire and explosion. Alkali metal, graphite compounds, metallic halide salts, peroxides (dibenzoyl peroxide di-terbutyl peroxide), azoisobutyronitrile - Can initiate polymerization. Butyllithium - Explosion can occur. Halogens - Can react with low concentrations of halogens, in the presence of UV light, to form a strong irritant. Can form peroxides in the presence of light and air or on contact with acids. Styrene monomer has been involved in several plant-scale explosions when stored inappropriately or accidentally heated.

**Hazardous Decomposition Products:** Styrene oxide.

**11. Toxicological Information**

<b>Acute Exposure (LD<sub>50</sub>):</b>	Styrene Monomer	5000 mg/kg (oral/rat)
<b>Acute Exposure (LC<sub>50</sub>):</b>	Styrene Monomer	5640 ppm (Rat, 4 hour exposure)
<b>Chronic Exposure:</b>	See Section 3.	
<b>Exposure Limits:</b>	See Section 2.	
<b>Irritancy:</b>	See Section 3.	
<b>Sensitization:</b>	See Section 3.	
<b>Neurotoxicity:</b>	There is evidence of subtle changes in hearing. Balance, colour vision, the speed of nerve conduction and psychological performance.	

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**Carcinogenicity:** Styrene is listed by IARC, Group 2B possible human carcinogen.  
**Teratogenicity:** Not reported  
**Reproductive Toxicity:** There is some evidence that high exposures to styrene can affect the male reproductive system in rats.  
**Mutagenicity:** Data cited but not conclusive.  
**Synergistic Products:** Styrene metabolism is slowed down by the presence of other organic solvents, including ethyl alcohol. Thus the toxic effects of styrene are enhanced by exposure to other solvents

**12. Ecological Information**

**Environmental Toxicity:** No data available.

**Biodegradability:** No data available.

**13. Disposal Considerations**

Review federal, provincial or state, and local government requirements prior to disposal. Store material for disposal as indicated in Storage Conditions. Disposal by controlled incineration may be acceptable.

**14. Regulatory Information**

**Canadian Transportation of Dangerous Goods Regulations:** Resin Solution, Class 3, UN 1866, P.G. III

**International Air Transport Association (IATA):** Resin Solution, Class 3, UN 1866, P.G. III

**International Maritime Organization (IMO):** Resin Solution, Class 3, UN 1866, P.G. III, Flash Point = 31°C, EmS No. 3-05, Stowage Category "A"

**15. Regulatory Information**

**CANADIAN FEDERAL REGULATIONS:**

**CEPA, DOMESTIC SUBSTANCES LIST:** Listed

**WHMIS CLASSIFICATION:** B2, D2A, D2B, F

**UNITED STATES REGULATIONS:**

**29CFR 1910.1200:** Hazardous

**40CFR 116-117:** Hazardous

**40CFR 355, Appendices A and B:** Not subject to Emergency Planning and Notification

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40CFR 372:

Listed

40CFR 302:

Listed, Reportable Quantity, 1000 lbs (454 Kg)

**9. Other Information**

**California Proposition 65 Statement**

California Proposition 65 involving warnings of the presence of certain listed chemicals is now in effect.

ORCA COMPOSITES/FIBERLAY INC. believes the law requires us to inform you that detectable amounts of any of the listed chemicals might be present in ORCA COMPOSITES products. Based on a review of the list, ORCA COMPOSITES products, like all synthetic and naturally occurring chemical substances, may conceivably contain trace contaminants of some of the listed substances. While not necessarily added to our products as ingredients, some of the listed chemicals may be present in the raw materials as received from suppliers over which we have no control.

In order to comply with the California Law, even though some of the listed substances may not represent a significant risk as defined by the regulations, we feel obligated to make the following statement:

**"Warning: This product may contain trace amounts of some chemicals considered by the State of California to be carcinogens or reproductive Toxicants."**

**Preparation Date:** April 1, 2008

**Prepared by:** Fiberlay Inc

**Comments:** This Material Safety Data Sheet was prepared using information provided by HK Research Corp and Fiberlay Inc.

**Revisions:** None



## MATERIAL SAFETY DATA SHEET

Chemtrec 24-Hour Emergency Telephone  
 Domestic North America (800)424-9300  
 International (703)527-3887

*This MSDS complies with 29 CFR 1910.1200 (Hazard Communication)*

### 1. Product and Supplier Identification

**Product:** Orca Guard Neutral/Base Gel Coat -- 057100D, 057100G, 057100F, 057100D

**Product Use:** Used in the manufacture of thermoset plastic parts.

**Supplier:** Fiberlay Inc.  
 24 S. Idaho St  
 Seattle, Wa 98134  
 (206)782-0860

### 2. Composition

Name	CAS #	% by weight
1) Styrene	100-42-5	36.7
2) Methyl Methacrylate	80-62-6	7.1
3) Talc	14807-96-6	1 - 5
4) Silica, Gel	112926-00-8	1 - 5
5) Silica, Amorphous	7631-86-9	1 - 5
6) Cobalt Compounds	Mixture	0.1 - 1

### 3. Hazards Identification

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

**Routes of Entry:**

Eye contact, Skin contact, Inhalation, Ingestion

**Potential Acute Health Effects:**

**Eyes:** Severe eye irritant which may result in redness, burning, tearing and blurred vision.

**Skin:** Skin irritant which may result in burning sensation. Repeated or prolonged skin contact may cause dermatitis.

**Ingestion:** Ingestion may result in mouth, throat and gastrointestinal irritation, nausea, vomiting and diarrhea.

**Inhalation:** Inhalation of spray mist or liquid vapors may cause upper respiratory irritation and possible central nervous system effects including headaches, nausea, vomiting, dizziness, drowsiness, loss of coordination, impaired judgement and general weakness.

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### Potential Chronic Health Effects:

#### CARCINOGENIC EFFECTS:

**Styrene:** Classified A4 (not classifiable for human or animal) by ACGIH. Classified 2B (possible for human) by IARC. An increased incidence of lung tumors was observed in mice from a recent inhalation study. The relevance of this finding is uncertain since data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic to humans. Lung effects have been observed in mouse studies following repeated exposure.

**Methyl Methacrylate:** Classified A4 (not classifiable for human or animal) by ACGIH. Classified 3 (not classifiable for human) by IARC.

**Talc:** Classified A2 (suspected for human) by ACGIH. Classified 1 (proven for human) by IARC. Classified 1 (known) by NTP.

**Silica, Gel:** Classified 3 (not classifiable for human) by IARC.

**Silica, Amorphous:** Classified 3 (not classifiable for human) by IARC.

**Carbon Black:** Classified A4 (not classifiable for human or animal) by ACGIH. Classified 2B (possible for human) by IARC.

**Cobalt Compounds:** Classified A3 (proven for animal) by ACGIH. Classified 2B (possible for human) by IARC.

**MUTAGENIC or TERATOGENIC EFFECTS:** No known effect according to our database.

**Other:** Prolonged exposure may cause dermatitis. Repeated or prolonged overexposure to near lethal concentrations can produce liver and kidney damage.

## 4. First Aid Measures

**INHALATION:** Move the victim to a safe area as soon as possible. Allow the victim to rest in a well-ventilated area.

**Hazardous Inhalation:** Move the victim to a safe area as soon as possible. If breathing is difficult, give oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**SKIN CONTACT:** Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. If irritation persists, seek medical attention.

**EYE CONTACT:** Flush with a continuous flow of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Use of buffered baby shampoo will aid in removal. Seek medical attention.

**INGESTION:** Do not induce vomiting. Seek immediate medical attention.

## 5. Fire Fighting Measures

<b>Class:</b>	Flammable Liquid, Class IC
<b>Flash point:</b>	75-89°F (24.8-32°C)
<b>Autoignition Temperature:</b>	790°F (421°C) Methyl Methacrylate
<b>Lower Explosive Limit:</b>	0.09 % by volume
<b>Upper Explosion Limit:</b>	12.5% by volume

**Hazardous Combustion Products:** May produce carbon monoxide, carbon dioxide, and irritating or toxic vapors, gases or particulate.

**Fire Hazard:** Flammable in the presence of open flames, sparks, or heat.

**Explosion Hazard:** Can react with oxidizing materials. Explosive in the form of vapor when exposed to heat or flame. Material may polymerize when container is exposed to heat (fire) and polymerization will increase pressure in a closed container which may cause the container to rupture violently.

**Extinguishing Media:** **SMALL FIRE:** Use carbon dioxide, foam, dry chemical or water fog to extinguish. **LARGE FIRE:** Evacuate surrounding areas. Use carbon dioxide, foam, dry chemical or water fog to extinguish. Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. Prevent run off to sewers or other water ways

## 6. Accidental Release Measures

**Small Spill:** Absorb with an inert material and place in an appropriate waste disposal container.

**Large Spill:** Stop leak if without risk. Eliminate all ignition sources. Contain with an inert material, recover as much as possible and place the remainder in an appropriate waste disposal container. Warn unauthorized personnel to move away. Prevent entry into sewers or confined areas.

## 7. Handling and Storage

**Handling Procedures:** **WARNING!** Use only in well-ventilated areas. Store away from direct sunlight. Avoid inhalation and contact with eyes, skin, and clothing. Wear appropriate personal protective equipment for your task. Ground and bond all containers when transferring the material. Empty containers may retain product and product vapor. Do not expose to heat, flame, sparks or other ignition sources such as cutting, welding, drilling, grinding or static electricity. Do not pressurize. Provide adequate safety showers and eyewashes in the area of use.

**Note:** If product contains metal compounds (Section II), avoid dust from dried product or grinding of articles made from this material.

**Storage:** Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well ventilated place. Containers should be grounded.

## 8. Exposure Controls, Personal Protection

### Exposure Limits:

Styrene

ACGIH TLV (United States, 1/2009). Skin

TWA: 20 ppm 8 hour(s).

TWA: 85 mg/m<sup>3</sup> 8 hour(s).

STEL: 40 ppm 15 minute(s).

STEL: 170 mg/m<sup>3</sup> 15 minute(s).

OSHA PEL Z2 (United States, 11/2006).

TWA: 100 ppm 8 hour(s).

CEIL: 200 ppm

AMP: 600 ppm 5 minute(s).

NIOSH REL (United States, 6/2009).

TWA: 50 ppm 10 hour(s).

TWA: 215 mg/m<sup>3</sup> 10 hour(s).

STEL: 100 ppm 15 minute(s).

STEL: 425 mg/m<sup>3</sup> 15 minute(s).

Methyl Methacrylate

ACGIH TLV (United States).TWA: 410 mg/m<sup>3</sup>

TWA: 50 ppm 8 hour(s).

STEL: 100 ppm 8 hour(s).

NIOSH REL (United States, 6/2008).

TWA: 100 ppm 10 hour(s). TWA: 410 mg/m<sup>3</sup> 10 hour(s).

OSHA PEL (United States, 11/2006).

TWA: 100 ppm 8 hour(s).

TWA: 410 mg/m<sup>3</sup> 8 hour(s).

Talc

ACGIH TLV (United States, 1/2008).

TWA: 0.1 f/cc 8 hour(s).

NIOSH REL (United States, 6/2008).

TWA: 2 mg/m<sup>3</sup> 10 hour(s). Form: Respirable fraction

OSHA PEL 1989 (United States).

TWA: 2 mg/m<sup>3</sup> 8 hour(s). Form: Respirable dust

OSHA PEL Z3 (United States, 9/2005)

STEL: 1 f/cc 30 minute(s). Form: not containing asbestos

TWA: 20 mppcf 8 hour(s). Form: not containing asbestos

Silica, Gel

OSHA PEL 1989 (United States, 3/1989).

TWA: 6 mg/m<sup>3</sup> 8 hour(s).

Silica, Amorphous

NIOSH REL (United States, 6/2009).

TWA: 6 mg/m<sup>3</sup> 10 hour(s).

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### Cobalt Compounds

OSHA PEL (United States).

TWA: 0.1 mg/m<sup>3</sup>

ACGIH TLV (United States).

TWA: 0.02 mg/m<sup>3</sup>

While the federal workplace exposure limit for styrene is 100 ppm, OSHA accepted the styrene industry's proposal to voluntarily meet a PEL of 50 ppm on an 8 hours TWA.

**Engineering Controls:** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Provide adequate safety showers and eyewashes in the area of use.

**Personal Protection:** Personal protective equipment may vary depending on the job being performed.

**Eye/Face:** Wear eye protection such as safety glasses with side shields, splash goggles or face shield with safety glasses.

**Skin:** Avoid skin contact. Impervious gloves should be worn. Other items may include long sleeves, lab coats, or impervious jackets.

**Respiratory:** Determine if airborne concentrations are below the recommended exposure limits in accordance with your company's PPE program and regulatory requirements. If they are not, select a NIOSH-approved respirator that provides adequate protection from the concentration levels encountered. Air-purifying respirators are generally adequate for organic vapors. Use positive pressure, supplied-air respirators if there is potential for an uncontrolled release, if exposure levels are unknown, or under circumstances where air-purifying respirators may not provide adequate protection. Reference OSHA 29 CFR 1910.134

**Personal Protection in Case of Large Spill:** Chemical resistant gloves, full protective suit, and boots. Respiratory protection in accordance with OSHA regulation 29 CFR 1910.134. A self-contained breathing apparatus should be used to avoid inhalation of the product vapors.

## 9. Physical and Chemical Properties

**Appearance:** Black Liquid

**Odour:** Aromatic

**pH:** Not applicable.

**Vapour Pressure:** 40 mm Hg @ 77°F (25°C)

Methyl Methacrylate

**Molecular Weight (g/mol):** Not Available

**Vapour Density:** 3.5-3.6 (Air = 1)

**Vapor Gravity:** 1.1 to 1.4 (Water = 1)

**Melting Point:** Not available.

**Boiling Point:** 214°F (101°C) Methyl

Methacrylate

**Freezing Point:** Not available.

**Relative Density:** 1.05-1.30 (water = 1)

**Partition Coefficient:** No data

**Evaporation Rate:** Not available.

**Water/Oil Dist. Coeff:** Not available

**Odor Threshold:** <1.0 ppm

**Solubility in Water:** Slight

**Dispersibility Properties:**

Slight dispersion in water

## 10. Stability and Reactivity

**Chemical Stability:** Normally stable, but can become unstable at elevated temperatures.

**Instability Temperature:** >120°F (48.9°C)

**Condition of Instability:** Heat.

**Incompatibility:** Polymerizes in the presence of organic peroxides, oxidizing materials, or heat.

**Corrosivity:** No specific information is available in our database regarding the corrosivity of this product in presence of various materials.

## 11. Toxicological Information

Toxicity to Animals:	Name	Result	Species	Dose	Exposure
	Styrene	LD50 Oral	Rat	2650 mg/kg	-
		LC50 Inhalation Vapor	Rat	5634.2 ppm	4 hours

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Methyl Methacrylate	LD50 Oral	Rat	7872 mg/kg	-
	LC50 Inhalation Gas.	Rat	7094 ppm	4 hours
Cobalt Compounds	LD50 Oral	Rat	6171 mg/kg	-
Silica, Gel	LD50 Oral	Rat	>10000 mg/kg	-

**Special remarks on toxicity to animals:** Lung effects have been observed in mouse studies following repeated exposure.

**Special remarks on chronic effects on humans:** Repeated or prolonged overexposure to near lethal concentrations can produce liver and kidney damage.

**Special remarks on other toxic effects on humans:**

**Methyl Methacrylate:** MMA has both acute and chronic effects. Inhalation overexposure may result in irritation of nose and throat, headache, nausea, vomiting, dizziness, irritation of upper respiratory tract and unconsciousness. Overexposure will result in moderate irritation to the skin, eyes and mucous membranes. Prolonged skin contact may cause dermatitis. Chronic exposure can cause headache and nausea, central nervous system depression, and ultimately liver, lung or kidney damage. An allergic skin reaction may also be possible.

**Talc:** Exposure to dusts containing talc can be toxic and can produce acute and chronic effects. Contact with dusts may irritate the eyes. Breathing dust may irritate the nose and throat and cause coughing and chest discomfort. There are reports that relatively mild pneumoconiosis can develop after years of occupational exposure to mixed dusts containing talc. Prolonged inhalation may also produce a fibrotic response.

## 12. Ecological Information

Toxic to aquatic organisms. Should not be released to sewage system or other bodies of water at concentrations above limits established in regulations or permits.

## 13. Disposal Considerations

Recycle to process, if possible. Consult your local or regional authorities. Ignitable characteristic.

## 14. Transport Information

**DOT** UN1866; Resin Solution; 3; III.  
**TDG** UN1866; Resin Solution; 3; III.  
**IATA/IMDG** IATA: UN1866; Resin Solution; 3; III;  
Pkg. Inst.: Passenger - 309; Cargo - 310  
IMDG: UN1866; Resin Solution; 3; III;  
FP=24.8° - 32°C; EmS No.: F-E, S-E

**Additional Transportation Information:** US regulations require the reporting of spills when the amount exceeds the Reportable Quantity (RQ) for specific components of this material. See CERCLA in Section 15, Regulatory Information, for the Reportable Quantities.

## 15. Regulatory Information

This section does not reference all applicable regulatory compliance lists.

**TSCA:** All ingredients are listed or compliant with TSCA.

**DSL:** All ingredients are listed or compliant with the NSNR.

**Proposition 65 Warning:** This product contains a chemical(s) known to the State of California to cause cancer, birth defects and/or reproductive harm.

**SARA 302 component(s):** None.

**057100 - Orca Guard Neutra/Base Gel Coat**

**SARA 313 component(s):** Styrene, Methyl Methacrylate, Cobalt Compounds.

**CERCLA(RQ):** Styrene - 1000 lbs. (453.6 kg)  
Methyl Methacrylate - 1000 lbs. (453.6 kg)

**16. Other Information**

- Transportation of Dangerous Goods Act - "Regulations respecting the handling, offering for transport and transporting of dangerous goods." Extract from the Canada Gazette Part II
- Canada Gazette Part II, Hazardous Products Act "Ingredient Disclosure List".
- Manufacturer's Material Safety Data Sheet.
- 29 CFR 1910.1000, Z - Tables
- ACGIH 2000 TLVs for Chemical Substances and Physical Agents
- Registry of Toxic Effects of Chemical Substances (RTECS)
- California Code of Regulation Proposition 65

**Preparation Date:** 2/09/11

**Prepared by:** Orca Composites

**Comments:** This Material Safety Data Sheet was prepared using information provided by Fiberlay Inc. and AOC, LLC.

**Revisions:** None

## Material Safety Data Sheet

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### Product Identification

**Product ID:** 5776W90065ZF  
**Product Name:** INTERMED-5776W90065ZF  
**Product Use:** Paint product.  
**Print date:** 05/Aug/2009  
**Revision Date:** 10/Jul/2009

#### Company Identification

The Valspar Corporation  
2350 114TH ST.  
GRAND PRAIRIE, TX 75050

**Manufacturer's Phone:** 1-800-472-6243

**24-Hour Medical Emergency Phone:** 1-888-345-5732

### 2. HAZARDS IDENTIFICATION

#### Primary Routes of Exposure:

Inhalation  
Ingestion  
Skin absorption

#### Eye Contact:

- Moderate eye irritation
- Risk of serious damage to eyes.

#### Skin Contact:

- Causes skin irritation.
- Dermatitis
- Can be absorbed through skin.
- May cause sensitization by skin contact.

#### Ingestion:

- Irritation of the mouth, throat, and stomach.
- Harmful if swallowed.
- Aspiration hazard if swallowed - can enter lungs and cause damage.

#### Inhalation:

- Causes respiratory tract irritation.
- Harmful by inhalation.
- May cause sensitization by inhalation.
- May cause pulmonary edema.

**Target Organ and Other Health Effects:**

- Causes headache, drowsiness or other effects to the central nervous system.
- Liver injury may occur.
- Kidney injury may occur.
- Hearing loss.

**This product contains ingredients that may contribute to the following potential chronic health effects:**

- Notice: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.
- Prolonged exposure over TLV may produce pneumoconiosis.
- Prolonged exposure to respirable crystalline quartz silica may cause delayed chronic injury (silicosis).
- Possible sensitization.
- Chronic exposure may cause permanent damage of health.

**Teratogens:**

- Contains material that may cause adverse reproductive effects.

**Carcinogens:**

- Possible cancer hazard. Contains material which may cause cancer based on animal data.
- Cancer hazard. Contains material which can cause cancer.

**3. COMPOSITION / INFORMATION ON HAZARDOUS INGREDIENTS**

Ingredient Name CAS-No.	Approx. Weight %	Chemical Name
STYRENE MONOMER (VOC) 100-42-5	30 - 35	Styrene
TALC 14807-96-6	10 - 15	Talc (Mg <sub>3</sub> H <sub>2</sub> (SiO <sub>3</sub> ) <sub>4</sub> )
TITANIUM DIOXIDE 13463-67-7	10 - 15	Titanium dioxide
METHYL METHACRYLATE 80-62-6	1 - 5	2-Propenoic acid, 2-methyl-, methyl ester
SILICA 14808-60-7	.1 - 1	QUARTZ (SiO <sub>2</sub> )
COBALT OCTOATE 136-52-7	.1 - 1	Hexanoic acid, 2-ethyl-, cobalt(2+) salt

If this section is blank there are no hazardous components per OSHA guidelines.

**4. FIRST AID MEASURES****Eye Contact:**

Remove any contact lenses and open eyes wide apart. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If medical assistance is not immediately available, flush an additional 15 minutes. Get medical attention immediately.

**Skin Contact:**

Remove contaminated clothing and shoes. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention, if symptoms develop or persist.

**Ingestion:**

Rinse mouth with water. Give one or two glasses of water. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. If vomiting occurs, keep head lower than hips to prevent aspiration. Get medical attention immediately.

**Inhalation:**

Move injured person into fresh air and keep person calm under observation. Get medical attention immediately. For breathing difficulties, oxygen may be necessary. If breathing stops, provide artificial respiration.

**Medical conditions aggravated by exposure:**

Any respiratory or skin condition.

**5. FIRE FIGHTING MEASURES**

Flash point (Fahrenheit):	86°F (30°C)
Lower explosive limit:	1 %
Upper explosive limit:	6 %
Autoignition temperature:	not determined -°F (°C)
Sensitivity to impact:	no
Sensitivity to static discharge:	Subject to static discharge hazards. Please see bonding and grounding information in Section 7.
Hazardous combustion products:	See Section 10.

**Unusual fire and explosion hazards:**

None known.

**Extinguishing media:**

Carbon dioxide, dry chemical, foam and/or water fog.

**Fire fighting procedures:**

Firefighters should be equipped with self-contained breathing apparatus and turn out gear. Keep containers and surroundings cool with water spray.

**6. ACCIDENTAL RELEASE MEASURES****Action to be taken if material is released or spilled:**

Ventilate the area. Avoid breathing dust or vapor. Use self-containing breathing apparatus or airmask for large spills in a confined area. Wipe, scrape or soak up in an inert material and put in a container for disposal. See section 7, "Handling and Storage", for proper container and storage procedures. Remove all sources of ignition. Soak up with inert absorbent material. Use only non-sparking tools. Avoid contact with eyes.

**7. HANDLING AND STORAGE****Precautions to be taken in handling and storage:**

Keep away from heat, sparks and open flame. - No smoking. Keep container closed when not in use. Based on flash point and vapor pressure, suitable storage should be provided in accordance with OSHA regulation 1910.106, Ontario OH&S regulation 851 section 22. Empty containers may contain product residue, including flammable or explosive vapors. Do not cut, puncture or weld on or near container. All label warnings must be observed until the container has been commercially cleaned or reconditioned. If the product is used near or above the flashpoint, an ignition hazard may be present. Activities, uses, or operations which liberate vapor (such as mixing or free fall of liquids) may also present an ignition hazard. Please ensure containers and other interconnected equipment are properly bonded and grounded at all times. To maintain product quality, do not store in heat or direct sunlight. Do not store above 85 degrees F (29.4 degrees C).

**8. PERSONAL PROTECTIVE EQUIPMENT AND EXPOSURE CONTROLS****Personal Protective Equipment****Eye and face protection:**

Wear chemical goggles with splash shields or face shield. Contact lenses should not be worn when working with chemicals because contact lenses may contribute to the severity of an eye injury in case of exposure.

**Skin protection:**

Appropriate chemical resistant gloves should be worn.

**Other Personal Protection Data:**

To prevent skin contact wear protective clothing covering all exposed areas. Ensure that eyewash stations and safety showers are close to the workstation location.

**Respiratory protection:**

If exposure cannot be controlled below applicable limits, use the appropriate NIOSH approved respirator such as an air purifying respirator with organic vapor cartridge and dust/mist filter. Consult the respirator manufacturer's literature to ensure that the respirator will provide adequate protection. Read and follow all respirator manufacturer's instructions.

**Ventilation**

Use only in well-ventilated areas. Ensure adequate ventilation, especially in confined areas. Ovens used for curing should contain a fresh air purge to prevent vapours from accumulating and creating a possible explosive mixture. Where the product is used in a hazardous classified area, use explosion-proof electrical/ventilating/lighting/equipment.

**Exposure Guidelines**

**OSHA Permissible Exposure Limits (PEL's)**

Ingredient Name CAS-No.	Approx. Weight %	TWA (final)	Ceilings limits (final)	Skin designations
STYRENE MONOMER (VOC) 100-42-5	30 - 35	100 ppm	200 ppm	
TALC 14807-96-6	10 - 15	Respirable. Listed. Total dust. Listed.		
TITANIUM DIOXIDE 13463-67-7	10 - 15	15 mg/m <sup>3</sup> Total dust.		
METHYL METHACRYLATE 80-62-6	1 - 5	410 mg/m <sup>3</sup> 100 ppm		
SILICA 14808-60-7	.1 - 1	Respirable. Listed. Total dust. Listed.		

**ACGIH Threshold Limit Value (TLV's)**

Ingredient Name CAS-No.	Approx. Weight %	TWA	STEL	Ceiling limits	Skin designations
STYRENE MONOMER (VOC) 100-42-5	30 - 35	20 ppm	40 ppm		
TALC 14807-96-6	10 - 15	2 mg/m <sup>3</sup> Respirable fraction. The value is for particulate matter containing no asbestos and <1% crystalline silica.			
TITANIUM DIOXIDE 13463-67-7	10 - 15	10 mg/m <sup>3</sup>			
METHYL METHACRYLATE 80-62-6	1 - 5	50 ppm	100 ppm		
SILICA 14808-60-7	.1 - 1	0.05 mg/m <sup>3</sup> Respirable fraction.			
COBALT OCTOATE 136-52-7	.1 - 1	0.02 mg/m <sup>3</sup> Co			

**9. PHYSICAL PROPERTIES**

Odor:	Normal for this product type.
Physical State:	liquid
pH:	not determined
Vapor pressure:	35.3383459 mmHg @ 68°F (20°C)
Vapor density (air = 1.0):	3.6
Boiling point:	not determined
Solubility in water:	not determined
Coefficient of water/oil distribution:	not determined
Density (lbs per US gallon):	10.72
Specific Gravity:	1.28
Evaporation rate (butyl acetate = 1.0):	3.1
Flash point (Fahrenheit):	86°F (30°C)
Lower explosive limit:	1 %
Upper explosive limit:	6 %
Autoignition temperature:	not determined -°F (°C)

## 10. STABILITY AND REACTIVITY

Stability:	Stable if protected from heat and exposure to air.
Conditions to Avoid:	Heat. Peroxides
Incompatibility:	Strong oxidizing agents Acids or alkalis. Acids
Hazardous Polymerization:	Product may polymerize when exposed to heat.
Hazardous Decomposition Products:	Silicon dioxide. Carbon monoxide and carbon dioxide. Metal oxide fumes.

**Sensitivity to static discharge:** Subject to static discharge hazards. Please see bonding and grounding information in Section 7.

## 11. TOXICOLOGICAL INFORMATION

Ingredient Name CAS-No.	Approx. Weight %	NIOSH - Selected LD50s and LC50s
STYRENE MONOMER (VOC) 100-42-5	30 - 35	Inhalation LC50 Rat : 12 gm/m <sup>3</sup> /4H Inhalation LC50 Mouse : 9500 mg/m <sup>3</sup> /4H Oral LD50 Rat : 2650 mg/kg Oral LD50 Mouse : 316 mg/kg
METHYL METHACRYLATE 80-62-6	1 - 5	Inhalation LC50 Rat : 78000 mg/m <sup>3</sup> /4H Inhalation LC50 Mouse : 18500 mg/m <sup>3</sup> /2H Oral LD50 Rat : 7872 mg/kg Oral LD50 Mouse : 3625 mg/kg Dermal LD50 Rabbit : >5 gm/kg

### Mutagens/Teratogens/Carcinogens:

Contains material that may cause adverse reproductive effects.

Possible cancer hazard. Contains material which may cause cancer based on animal data. Cancer hazard. Contains material which can cause cancer.

Contains styrene which is listed by IARC as a possible human carcinogen based on animal data. Neither long term animal studies, nor human epidemiology studies of workers exposed to styrene provide an adequate basis to conclude styrene is carcinogenic. Contains TIO2 which is listed by IARC as a possible human carcinogen (Group 2B) based on animal data. Neither long term animal studies, nor human epidemiology studies of workers exposed to TIO2 provide an adequate basis to conclude TIO2 is carcinogenic. TIO2 is not classified as a carcinogen by NTP, U.S. OSHA, or the U.S. EPA. Contains crystalline silica. The IARC has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (group 1). Refer to IARC monograph 68 in conjunction with the use of these materials. Risk of cancer depends on the duration and level of exposure. In coatings products, risk is due primarily to inhalation of sanding dusts or respirable particles in spray mists. The NTP has also determined that crystalline silica is a known human carcinogen in the form of fine, breathable particles. Risk of cancer depends on duration and level of exposure in coatings products, risk is due primarily to inhalation of sanding dust or respirable particles in spray mist. The International Agency For Research On Cancer (IARC) has determined that Cobalt and Cobalt Compounds are substances that are possibly carcinogenic to humans (IARC group 2B).

Ingredient Name CAS-No.	Approx. Weight %	California Prop 65 - Reproductive (Female)	California Prop 65 - Carcinogen
SILICA 14808-60-7	.1 - 1		Listed: October 1, 1988 Carcinogenic.

Ingredient Name CAS-No.	Approx. Weight %	IARC Group 1 - Human Evidence	IARC Group 2A - Limited Human Data	IARC Group 2B - Sufficient Animal Data
STYRENE MONOMER (VOC) 100-42-5	30 - 35			Monograph 60, 1994; (Overall evaluation upgraded from 3 to 2B with supporting evidence from other data relevant to the evaluation of carcinogenicity and its mechanisms)
TITANIUM DIOXIDE 13463-67-7	10 - 15			2B Possible Carcinogen
SILICA 14808-60-7	.1 - 1	Monograph 68, 1997; (inhaled in the form of quartz or cristobalite from occupational sources)		
COBALT OCTOATE 136-52-7	.1 - 1			YES

Ingredient Name CAS-No.	Approx. Weight %	NTP Known Carcinogens	NTP Suspect Carcinogens	NTP Evidence of Carcinogenicity
TALC 14807-96-6	10 - 15			male rat-some evidence; female rat-clear evidence; male mice-no evidence; female mice- no evidence
SILICA 14808-60-7	.1 - 1	Known carcinogen.		

Ingredient Name CAS-No.	Approx. Weight %	OSHA Select Carcinogens	OSHA Possible Select Carcinogens	ACGIH Carcinogens
SILICA 14808-60-7	.1 - 1			Group A2 Suspected human carcinogen.
COBALT OCTOATE 136-52-7	.1 - 1			Group A3 Confirmed animal carcinogen with unknown relevance to humans.

## 12. ECOLOGICAL DATA

No information on ecology is available.

## 13. DISPOSAL CONSIDERATIONS

Disposal should be made in accordance with federal, state and local regulations.

## 14. TRANSPORTATION INFORMATION

### U.S. Department of Transportation

Proper Shipping Name: PAINT  
Hazard Class: 3  
UN ID Number: UN1263  
Packing Group: III  
Hazardous Ingredient (Land) 1 METHYL METHACRYLATE  
Hazardous Ingredient (Land) 2 STYRENE MONOMER (VOC)

### U.S. Highway & Rail Shipments

The supplier may apply one of the following exceptions: Combustible Liquid, Consumer Commodity, Limited Quantity, Viscous Liquid, Does Not Sustain Combustion, or others, as allowed under 49CFR Hazmat Regulations. Please consult 49CFR Subchapter C to ensure that subsequent shipments comply with these exceptions.

### Reportable Quantity Description:

#### International Air Transport Association (IATA):

Proper Shipping Name: Paint  
Hazard Class: 3  
UN ID Number: UN1263  
Packing Group: III  
IATA N.O.S. Technical Name 1 METHYL METHACRYLATE  
IATA N.O.S. Technical Name 2 STYRENE MONOMER (VOC)

#### International Maritime Organization (IMO):

Proper Shipping Name: PAINT  
Hazard Class: 3  
IMO UN/ID Number: UN1263  
Packing Group: III  
IMDG N.O.S. Technical Name 1 METHYL METHACRYLATE  
IMDG N.O.S. Technical Name 2 STYRENE MONOMER (VOC)

## 15. REGULATORY INFORMATION

### U.S. FEDERAL REGULATIONS:

Ingredient Name CAS-No.	Approx. Weight %	SARA 302	SARA 313	CERCLA RQ in lbs.
STYRENE MONOMER (VOC) 100-42-5	30 - 35		form R reporting required for 0.1% de minimis concentration	1000
METHYL METHACRYLATE 80-62-6	1 - 5		form R reporting required for 1.0% de minimis concentration	1000
COBALT OCTOATE 136-52-7	1 - 1		YES	1

**SARA 311/312 Hazard Class:**

Acute: yes  
Chronic: yes  
Flammability: yes  
Reactivity: yes  
Sudden Pressure: no

**U.S. STATE REGULATIONS:**

**Right to Know:**

The specific chemical identity of a component may be withheld as a trade secret under 34 Pennsylvania Code, Chapter 317.

**Pennsylvania Right To Know:**

TALC 14807-96-6  
METHYL METHACRYLATE 80-62-6  
STYRENE MONOMER (VOC) 100-42-5  
TITANIUM DIOXIDE 13463-67-7

**Additional Non-Hazardous Materials**

PROPRIETARY RESIN Trade Secret

**California Proposition 65:**

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

**Rule 66 status of product** Not photochemically reactive.

**INTERNATIONAL REGULATIONS - Chemical Inventories**

**US TSCA Inventory:**

All components of this product are in compliance with U.S. TSCA Chemical Substance Inventory Requirements.

**Canada Domestic Substances List:**

All components of this product are listed on the Domestic Substances List.

**16. OTHER INFORMATION**

**HMIS Codes**

**Health:** 2\*  
**Flammability:** 3  
**Reactivity:** 1  
**PPE:** X - See Section 8 for Personal Protective Equipment (PPE).

**Abbreviations:**

OSHA - Occupational Safety and Health Administration, IARC - International Agency for Research on Cancer, NIOSH - National Institute of Occupational Safety and Health, NTP - National Toxicology Program, ACGIH - American Conference of Governmental Industrial Hygienists, SCAQMD - South Coast Air Quality Management District, TSCA - Toxic Substances Control Act, IATA - International Air Transport Association, IMO - International Maritime Organization, DOT - Department of Transportation, NA - Not applicable, NOT ESTAB - Not established, N.A.V. - Not available, RQ - Reportable quantity, WT - Weight, MG/CU M - Milligrams per cubic meter, G/L - Grams per liter, MM - Millimeters, MPPCF - Millions of particles per cubic foot, PPM - parts per million, PPT - parts per thousand, TCC/PM - Tag closed cup / Pinsky-Martens, PB - Lead, PEL - Permissible exposure level, TWA - Time Weighted Average, STEL - Short term exposure limit, C - Celsius, F - Fahrenheit.

**Disclaimer:**

The data on this sheet represent typical values. Since application variables are a major factor in product performance, this information should serve only as a general guide. Valspar assumes no obligation or liability for use of this information. UNLESS VALSPAR AGREES OTHERWISE IN WRITING, VALSPAR MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AND DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR FREEDOM FROM PATENT INFRINGEMENT. VALSPAR WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. Your only remedy for any defect in this product is the replacement of the defective product, or a refund of its purchase price, at our option. This MSDS contains additional information required by the state of Pennsylvania.

**Preparation Information:**

Prepared By:	Regulatory Affairs Department
Print date:	05/Aug/2009
Revision Date:	10/Jul/2009



# Material Safety Data Sheet

## 1. PRODUCT AND COMPANY IDENTIFICATION

### Product Identification

**Product ID:** 5777E90028  
**Product Name:** 5E-6 LIGHT GRAY  
**Product Use:** Paint product.  
**Print date:** 02/Feb/2009  
**Revision Date:** 02/Feb/2009

### Company Identification

The Valspar Corporation  
2350 114TH ST.  
GRAND PRAIRIE, TX 75050

**Manufacturer's Phone:** 1-972-647-9049

**24-Hour Medical Emergency Phone:** 1-888-345-5732

## 2. HAZARDS IDENTIFICATION

### Primary Routes of Exposure:

Inhalation  
Ingestion  
Skin absorption

### Eye Contact:

- Moderate eye irritation
- Risk of serious damage to eyes.

### Skin Contact:

- Causes skin irritation.
- Dermatitis
- Can be absorbed through skin.
- May cause sensitization by skin contact.

### Ingestion:

- Irritation of the mouth, throat, and stomach.
- Harmful if swallowed.
- Aspiration hazard if swallowed - can enter lungs and cause damage.

### Inhalation:

- Causes respiratory tract irritation.
- Harmful by inhalation.

**Target Organ and Other Health Effects:**

- Causes headache, drowsiness or other effects to the central nervous system.
- Liver injury may occur.
- Hearing loss.

**This product contains ingredients that may contribute to the following potential chronic health effects:**

- Notice: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.
- Prolonged exposure over TLV may produce pneumoconiosis.
- Possible sensitization.
- Prolonged exposure to respirable crystalline quartz silica may cause delayed chronic injury (silicosis).

**Teratogens:**

- Contains material that may cause adverse reproductive effects.

**Carcinogens:**

- Possible cancer hazard. Contains material which may cause cancer based on animal data.
- Cancer hazard. Contains material which can cause cancer.

**3. COMPOSITION / INFORMATION ON HAZARDOUS INGREDIENTS**

<b>Ingredient Name CAS-No.</b>	<b>Approx. Weight %</b>	<b>Chemical Name</b>
STYRENE MONOMER (VOC) 100-42-5	30 - 35	Styrene
TALC 14807-96-6	10 - 15	TALC (MG3H2(SI03)4)
TITANIUM DIOXIDE 13463-67-7	10 - 15	Titanium dioxide
METHYL METHACRYLATE 80-62-6	1 - 5	2-Propenoic acid, 2-methyl-, methyl ester
SILICA 14808-60-7	.1 - 1	QUARTZ (SiO2)

If this section is blank there are no hazardous components per OSHA guidelines.

**4. FIRST AID MEASURES****Eye Contact:**

Remove any contact lenses and open eyes wide apart. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If medical assistance is not immediately available, flush an additional 15 minutes. Get medical attention immediately.

**Skin Contact:**

Remove contaminated clothing and shoes. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention, if symptoms develop or persist.

**Ingestion:**

Rinse mouth with water. Give one or two glasses of water. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. If vomiting occurs, keep head lower than hips to prevent aspiration. Get medical attention immediately.

**Inhalation:**

Move injured person into fresh air and keep person calm under observation. Get medical attention immediately.

**Medical conditions aggravated by exposure:**

Any respiratory or skin condition.

**5. FIRE FIGHTING MEASURES**

Flash point (Fahrenheit):	85°F (29°C)
Lower explosive limit:	1 %
Upper explosive limit:	6 %
Autoignition temperature:	not determined -°F (°C)
Sensitivity to impact:	no
Sensitivity to static discharge:	Subject to static discharge hazards. Please see bonding and grounding information in Section 7.
Hazardous combustion products:	See Section 10.

**Unusual fire and explosion hazards:**

None known.

**Extinguishing media:**

Carbon dioxide, dry chemical, foam and/or water fog.

**Fire fighting procedures:**

Firefighters should be equipped with self-contained breathing apparatus and turn out gear. Keep containers and surroundings cool with water spray.

**6. ACCIDENTAL RELEASE MEASURES****Action to be taken if material is released or spilled:**

Ventilate the area. Avoid breathing dust or vapor. Use self-containing breathing apparatus or airmask for large spills in a confined area. Wipe, scrape or soak up in an inert material and put in a container for disposal. See section 7, "Handling and Storage", for proper container and storage procedures. Remove all sources of ignition. Soak up with inert absorbent material. Use only non-sparking tools. Avoid contact with eyes.

**7. HANDLING AND STORAGE****Precautions to be taken in handling and storage:**

Keep away from heat, sparks and open flame. - No smoking. Keep container closed when not in use. Based on flash point and vapor pressure, suitable storage should be provided in accordance with OSHA regulation 1910.106, Ontario OH&S regulation 851 section 22. Empty containers may contain product residue, including flammable or explosive vapors. Do not cut, puncture or weld on or near container. All label warnings must be observed until the container has been commercially cleaned or reconditioned. If the product is used near or above the flashpoint, an ignition hazard may be present. Activities, uses, or operations which liberate vapor (such as mixing or free fall of liquids) may also present an ignition hazard. Please ensure containers and other interconnected equipment are properly bonded and grounded at all times. To maintain product quality, do not store in heat or direct sunlight. Do not store above 85 degrees F (29.4 degrees C).

**8. PERSONAL PROTECTIVE EQUIPMENT AND EXPOSURE CONTROLS****Personal Protective Equipment****Eye and face protection:**

Wear chemical goggles with splash shields or face shield. Contact lenses should not be worn when working with chemicals because contact lenses may contribute to the severity of an eye injury in case of exposure.

**Skin protection:**

Appropriate chemical resistant gloves should be worn.

**Other Personal Protection Data:**

To prevent skin contact wear protective clothing covering all exposed areas. Ensure that eyewash stations and safety showers are close to the workstation location.

**Respiratory protection:**

If exposure cannot be controlled below applicable limits, use the appropriate NIOSH approved respirator such as an air purifying respirator with organic vapor cartridge and dust/mist filter. Consult the respirator manufacturer's literature to ensure that the respirator will provide adequate protection. Read and follow all respirator manufacturer's instructions.

**Ventilation**

Use only in well-ventilated areas. Ensure adequate ventilation, especially in confined areas. Ovens used for curing should contain a fresh air purge to prevent vapours from accumulating and creating a possible explosive mixture. Where the product is used in a hazardous classified area, use explosion-proof electrical/ventilating/lighting/equipment.

**Exposure Guidelines****OSHA Permissible Exposure Limits (PEL's)**

Ingredient Name CAS-No.	Approx. Weight %	TWA (final)	Ceilings limits (final)	Skin designations
STYRENE MONOMER (VOC) 100-42-5	30 - 35	100 ppm	200 ppm	
TALC 14807-96-6	10 - 15	Respirable. Listed. Total dust. Listed.		
TITANIUM DIOXIDE 13463-67-7	10 - 15	15 mg/m <sup>3</sup> Total dust.		
METHYL METHACRYLATE 80-62-6	1 - 5	410 mg/m <sup>3</sup> 100 ppm		
SILICA 14808-60-7	.1 - 1	Respirable. Listed. Total dust. Listed.		

**ACGIH Threshold Limit Value (TLV's)**

Ingredient Name CAS-No.	Approx. Weight %	TWA	STEL	Ceiling limits	Skin designations
STYRENE MONOMER (VOC) 100-42-5	30 - 35	20 ppm	40 ppm		
TALC 14807-96-6	10 - 15	2 mg/m <sup>3</sup> Respirable fraction. The value is for particulate matter containing no asbestos and <1% crystalline silica.			
TITANIUM DIOXIDE 13463-67-7	10 - 15	10 mg/m <sup>3</sup>			
METHYL METHACRYLATE 80-62-6	1 - 5	50 ppm	100 ppm		
SILICA 14808-60-7	.1 - 1	0.05 mg/m <sup>3</sup> Respirable fraction.			

**9. PHYSICAL PROPERTIES**

Odor: Normal for this product type.

## 9. PHYSICAL PROPERTIES

Physical State:	liquid
pH:	not determined
Vapor pressure:	35.3383459 mmHg @ 68°F (20°C)
Vapor density (air = 1.0):	3.6
Boiling point:	not determined
Solubility in water:	not determined
Coefficient of water/oil distribution:	not determined
Density (lbs per US gallon):	10.73
Specific Gravity:	1.29
Evaporation rate (butyl acetate = 1.0):	3.1
Flash point (Fahrenheit):	85°F (29°C)
Lower explosive limit:	1 %
Upper explosive limit:	6 %
Autoignition temperature:	not determined -°F (°C)

## 10. STABILITY AND REACTIVITY

Stability:	Stable if protected from heat and exposure to air.
Conditions to Avoid:	Heat. Peroxides
Incompatibility:	Strong oxidizing agents Acids or alkalis. Acids
Hazardous Polymerization:	Product may polymerize when exposed to heat.
Hazardous Decomposition Products:	Carbon monoxide and carbon dioxide. Metal oxide fumes. This product contains diarylide pigments. While they are not dangerous, they are, however, susceptible to decomposition to monoazoics and dichlorobenzidine at temperatures above 200 C. Consequently, use at temperatures above 200 C should be avoided.

**Sensitivity to static discharge:** Subject to static discharge hazards. Please see bonding and grounding information in Section 7.

## 11. TOXICOLOGICAL INFORMATION

Ingredient Name CAS-No.	Approx. Weight %	NIOSH - Selected LD50s and LC50s
STYRENE MONOMER (VOC) 100-42-5	30 - 35	Inhalation LC50 Rat : 12 gm/m <sup>3</sup> /4H Inhalation LC50 Mouse : 9500 mg/m <sup>3</sup> /4H Oral LD50 Rat : 2650 mg/kg Oral LD50 Mouse : 316 mg/kg
METHYL METHACRYLATE 80-62-6	1 - 5	Inhalation LC50 Rat : 78000 mg/m <sup>3</sup> /4H Inhalation LC50 Mouse : 18500 mg/m <sup>3</sup> /2H Oral LD50 Rat : 7872 mg/kg Oral LD50 Mouse : 3625 mg/kg Dermal LD50 Rabbit : >5 gm/kg

### Mutagens/Teratogens/Carcinogens:

Contains material that may cause adverse reproductive effects.

Possible cancer hazard. Contains material which may cause cancer based on animal data. Cancer hazard. Contains material which can cause cancer.

Contains styrene which is listed by IARC as a possible human carcinogen based on animal data. Neither long term animal studies, nor human epidemiology studies of workers exposed to styrene provide an adequate basis to conclude styrene is carcinogenic. Contains TIO2 which is listed by IARC as a possible human carcinogen (Group 2B) based on animal data. Neither long term animal studies, nor human epidemiology studies of workers exposed to TIO2 provide an adequate basis to conclude TIO2 is carcinogenic. TIO2 is not classified as a carcinogen by NTP, U.S. OSHA, or the U.S EPA. Contains crystalline silica. The IARC has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (group 1). Refer to IARC monograph 68 in conjunction with the use of these materials. Risk of cancer depends on the duration and level of exposure. In coatings products, risk is due primarily to inhalation of sanding dusts or respirable particles in spray mists. The NTP has also determined that crystalline silica is a known human carcinogen in the form of fine, breathable particles. Risk of cancer depends on duration and level of exposure in coatings products, risk is due primarily to inhalation of sanding dust or respirable particles in spray mist.

Ingredient Name CAS-No.	Approx. Weight %	California Prop 65 - Reproductive (Female)	California Prop 65 - Carcinogen
SILICA 14808-60-7	.1 - 1		Listed: October 1, 1988 Carcinogenic.

Ingredient Name CAS-No.	Approx. Weight %	IARC Group 1 - Human Evidence	IARC Group 2A - Limited Human Data	IARC Group 2B - Sufficient Animal Data
STYRENE MONOMER (VOC) 100-42-5	30 - 35			Monograph 60, 1994; (Overall evaluation upgraded from 3 to 2B with supporting evidence from other data relevant to the evaluation of carcinogenicity and its mechanisms)
TITANIUM DIOXIDE 13463-67-7	10 - 15			2B Possible Carcinogen
SILICA 14808-60-7	.1 - 1	Monograph 68, 1997; (inhaled in the form of quartz or cristobalite from occupational sources)		

Ingredient Name CAS-No.	Approx. Weight %	NTP Known Carcinogens	NTP Suspect Carcinogens	NTP Evidence of Carcinogenicity
TALC 14807-96-6	10 - 15			male rat-some evidence; female rat-clear evidence; male mice-no evidence; female mice- no evidence
SILICA 14808-60-7	.1 - 1	Known carcinogen.		

Ingredient Name CAS-No.	Approx. Weight %	OSHA Select Carcinogens	OSHA Possible Select Carcinogens	ACGIH Carcinogens
SILICA 14808-60-7	.1 - 1			Group A2 Suspected human carcinogen.

## 12. ECOLOGICAL DATA

No information on ecology is available.

## 13. DISPOSAL CONSIDERATIONS

Disposal should be made in accordance with federal, state and local regulations.

## 14. TRANSPORTATION INFORMATION

### U.S. Department of Transportation

Proper Shipping Name: PAINT  
Hazard Class: 3  
UN ID Number: UN1263  
Packing Group: III

### U.S. Highway & Rail Shipments

The supplier may apply one of the following exceptions: Combustible Liquid, Consumer Commodity, Limited Quantity, Viscous Liquid, Does Not Sustain Combustion, or others, as allowed under 49CFR Hazmat Regulations. Please consult 49CFR Subchapter C to ensure that subsequent shipments comply with these exceptions.

### Reportable Quantity Description:

#### International Air Transport Association (IATA):

Proper Shipping Name: Paint  
Hazard Class: 3  
UN ID Number: UN1263  
Packing Group: III

#### International Maritime Organization (IMO):

Proper Shipping Name: PAINT  
Hazard Class: 3  
Non-Bulk UN ID Number: UN1263  
Packing Group: III

## 15. REGULATORY INFORMATION

### U.S. FEDERAL REGULATIONS:

Ingredient Name CAS-No.	Approx. Weight %	SARA 302	SARA 313	CERCLA RQ in lbs.
STYRENE MONOMER (VOC) 100-42-5	30 - 35		form R reporting required for 0.1% de minimis concentration	1000
METHYL METHACRYLATE 80-62-6	1 - 5		form R reporting required for 1.0% de minimis concentration	1000

### SARA 311/312 Hazard Class:

Acute: yes  
Chronic: yes  
Flammability: yes  
Reactivity: yes  
Sudden Pressure: no

### U.S. STATE REGULATIONS:

#### Right to Know:

The specific chemical identity of a component may be withheld as a trade secret under 34 Pennsylvania Code, Chapter 317.

**Pennsylvania Right To Know:**

STYRENE MONOMER (VOC)	100-42-5
TALC	14807-96-6
METHYL METHACRYLATE	80-62-6
TITANIUM DIOXIDE	13463-67-7

**Additional Non-Hazardous Materials**

PROPRIETARY RESIN Trade Secret

**California Proposition 65:**

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

**Rule 66 status of product** Not photochemically reactive.

**INTERNATIONAL REGULATIONS - Chemical Inventories**

**US TSCA Inventory:**

All components of this product are in compliance with U.S. TSCA Chemical Substance Inventory Requirements.

**Canada Domestic Substances List:**

All components of this product are listed on the Domestic Substances List.

**16. OTHER INFORMATION**

**HMIS Codes**

<b>Health:</b>	2*
<b>Flammability:</b>	3
<b>Reactivity:</b>	1
<b>PPE:</b>	X - See Section 8 for Personal Protective Equipment (PPE).

**Abbreviations:**

OSHA - Occupational Safety and Health Administration, IARC - International Agency for Research on Cancer, NIOSH - National Institute of Occupational Safety and Health, NTP - National Toxicology Program, ACGIH - American Conference of Governmental Industrial Hygienists, SCAQMD - South Coast Air Quality Management District, TSCA - Toxic Substances Control Act, IATA - International Air Transport Association, IMO - International Maritime Organization, DOT - Department of Transportation, NA - Not applicable, NOT ESTAB - Not established, N.A.V. - Not available, RQ - Reportable quantity, WT - Weight, MG/CU M - Milligrams per cubic meter, G/L - Grams per liter, MM - Millimeters, MPPCF - Millions of particles per cubic foot, PPM - parts per million, PPT - parts per thousand, TCC/PM - Tag closed cup / Pinsky-Martens, PB - Lead, PEL - Permissible exposure level, TWA - Time Weighted Average, STEL - Short term exposure limit, C - Celsius, F - Fahrenheit.

**Disclaimer:**

The data on this sheet represent typical values. Since application variables are a major factor in product performance, this information should serve only as a general guide. Valspar assumes no obligation or liability for use of this information. UNLESS VALSPAR AGREES OTHERWISE IN WRITING, VALSPAR MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AND DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR FREEDOM FROM PATENT INFRINGEMENT. VALSPAR WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. Your only remedy for any defect in this product is the replacement of the defective product, or a refund of its purchase price, at our option. This MSDS contains additional information required by the state of Pennsylvania.

**Preparation Information:**

Prepared By:	Regulatory Affairs Department
Print date:	02/Feb/2009
Revision Date:	02/Feb/2009



# Material Safety Data Sheet

## 1. PRODUCT AND COMPANY IDENTIFICATION

### Product Identification

**Product ID:** 5777W90032  
**Product Name:** WHITE 5W-1 67-3992  
**Product Use:** Paint product.  
**Print date:** 31/Jul/2009  
**Revision Date:** 30/Jul/2009

### Company Identification

The Valspar Corporation  
2350 114TH ST.  
GRAND PRAIRIE, TX 75050

**Manufacturer's Phone:** 1-800-472-6243

**24-Hour Medical Emergency Phone:** 1-888-345-5732

## 2. HAZARDS IDENTIFICATION

### Primary Routes of Exposure:

Inhalation  
Ingestion  
Skin absorption

### Eye Contact:

- Moderate eye irritation
- Risk of serious damage to eyes.

### Skin Contact:

- Causes skin irritation.
- Dermatitis
- Can be absorbed through skin.
- May cause sensitization by skin contact.

### Ingestion:

- Irritation of the mouth, throat, and stomach.
- Harmful if swallowed.
- Aspiration hazard if swallowed - can enter lungs and cause damage.

### Inhalation:

- Causes respiratory tract irritation.
- Harmful by inhalation.
- May cause sensitization by inhalation.
- May cause pulmonary edema.

**Target Organ and Other Health Effects:**

- Causes headache, drowsiness or other effects to the central nervous system.
- Liver injury may occur.
- Kidney injury may occur.
- Hearing loss.

**This product contains ingredients that may contribute to the following potential chronic health effects:**

- Notice: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.
- Prolonged exposure over TLV may produce pneumoconiosis.
- Prolonged exposure to respirable crystalline quartz silica may cause delayed chronic injury (silicosis).
- Possible sensitization.
- Chronic exposure may cause permanent damage of health.

**Teratogens:**

- Contains material that may cause adverse reproductive effects.

**Carcinogens:**

- Possible cancer hazard. Contains material which may cause cancer based on animal data.
- Cancer hazard. Contains material which can cause cancer.

**3. COMPOSITION / INFORMATION ON HAZARDOUS INGREDIENTS**

<b>Ingredient Name CAS-No.</b>	<b>Approx. Weight %</b>	<b>Chemical Name</b>
STYRENE MONOMER (VOC) 100-42-5	30 - 35	Styrene
TALC 14807-96-6	10 - 15	Talc (Mg <sub>3</sub> H <sub>2</sub> (SiO <sub>3</sub> ) <sub>4</sub> )
TITANIUM DIOXIDE 13463-67-7	10 - 15	Titanium dioxide
METHYL METHACRYLATE 80-62-6	1 - 5	2-Propenoic acid, 2-methyl-, methyl ester
SILICA 14808-60-7	.1 - 1	QUARTZ (SiO <sub>2</sub> )
COBALT OCTOATE 136-52-7	.1 - 1	Hexanoic acid, 2-ethyl-, cobalt(2+) salt

If this section is blank there are no hazardous components per OSHA guidelines.

**4. FIRST AID MEASURES****Eye Contact:**

Remove any contact lenses and open eyes wide apart. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If medical assistance is not immediately available, flush an additional 15 minutes. Get medical attention immediately.

**Skin Contact:**

Remove contaminated clothing and shoes. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention, if symptoms develop or persist.

**Ingestion:**

Rinse mouth with water. Give one or two glasses of water. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. If vomiting occurs, keep head lower than hips to prevent aspiration. Get medical attention immediately.

**Inhalation:**

Move injured person into fresh air and keep person calm under observation. Get medical attention immediately. For breathing difficulties, oxygen may be necessary. If breathing stops, provide artificial respiration.

**Medical conditions aggravated by exposure:**

Any respiratory or skin condition.

**5. FIRE FIGHTING MEASURES**

Flash point (Fahrenheit):	85°F (29°C)
Lower explosive limit:	1 %
Upper explosive limit:	6 %
Autoignition temperature:	not determined -°F (°C)
Sensitivity to impact:	no
Sensitivity to static discharge:	Subject to static discharge hazards. Please see bonding and grounding information in Section 7.
Hazardous combustion products:	See Section 10.

**Unusual fire and explosion hazards:**

None known.

**Extinguishing media:**

Carbon dioxide, dry chemical, foam and/or water fog.

**Fire fighting procedures:**

Firefighters should be equipped with self-contained breathing apparatus and turn out gear. Keep containers and surroundings cool with water spray.

**6. ACCIDENTAL RELEASE MEASURES****Action to be taken if material is released or spilled:**

Ventilate the area. Avoid breathing dust or vapor. Use self-containing breathing apparatus or airmask for large spills in a confined area. Wipe, scrape or soak up in an inert material and put in a container for disposal. See section 7, "Handling and Storage", for proper container and storage procedures. Remove all sources of ignition. Soak up with inert absorbent material. Use only non-sparking tools. Avoid contact with eyes.

**7. HANDLING AND STORAGE****Precautions to be taken in handling and storage:**

Keep away from heat, sparks and open flame. - No smoking. Keep container closed when not in use. Based on flash point and vapor pressure, suitable storage should be provided in accordance with OSHA regulation 1910.106, Ontario OH&S regulation 851 section 22. Empty containers may contain product residue, including flammable or explosive vapors. Do not cut, puncture or weld on or near container. All label warnings must be observed until the container has been commercially cleaned or reconditioned. If the product is used near or above the flashpoint, an ignition hazard may be present. Activities, uses, or operations which liberate vapor (such as mixing or free fall of liquids) may also present an ignition hazard. Please ensure containers and other interconnected equipment are properly bonded and grounded at all times. To maintain product quality, do not store in heat or direct sunlight. Do not store above 85 degrees F (29.4 degrees C).

**8. PERSONAL PROTECTIVE EQUIPMENT AND EXPOSURE CONTROLS****Personal Protective Equipment****Eye and face protection:**

Wear chemical goggles with splash shields or face shield. Contact lenses should not be worn when working with chemicals because contact lenses may contribute to the severity of an eye injury in case of exposure.

**Skin protection:**

Appropriate chemical resistant gloves should be worn.

**Other Personal Protection Data:**

To prevent skin contact wear protective clothing covering all exposed areas. Ensure that eyewash stations and safety showers are close to the workstation location.

**Respiratory protection:**

If exposure cannot be controlled below applicable limits, use the appropriate NIOSH approved respirator such as an air purifying respirator with organic vapor cartridge and dust/mist filter. Consult the respirator manufacturer's literature to ensure that the respirator will provide adequate protection. Read and follow all respirator manufacturer's instructions.

**Ventilation**

Use only in well-ventilated areas. Ensure adequate ventilation, especially in confined areas. Ovens used for curing should contain a fresh air purge to prevent vapours from accumulating and creating a possible explosive mixture. Where the product is used in a hazardous classified area, use explosion-proof electrical/ventilating/lighting/equipment.

**Exposure Guidelines**

**OSHA Permissible Exposure Limits (PEL's)**

Ingredient Name CAS-No.	Approx. Weight %	TWA (final)	Ceilings limits (final)	Skin designations
STYRENE MONOMER (VOC) 100-42-5	30 - 35	100 ppm	200 ppm	
TALC 14807-96-6	10 - 15	Respirable. Listed. Total dust. Listed.		
TITANIUM DIOXIDE 13463-67-7	10 - 15	15 mg/m <sup>3</sup> Total dust.		
METHYL METHACRYLATE 80-62-6	1 - 5	410 mg/m <sup>3</sup> 100 ppm		
SILICA 14808-60-7	.1 - 1	Respirable. Listed. Total dust. Listed.		

**ACGIH Threshold Limit Value (TLV's)**

Ingredient Name CAS-No.	Approx. Weight %	TWA	STEL	Ceiling limits	Skin designations
STYRENE MONOMER (VOC) 100-42-5	30 - 35	20 ppm	40 ppm		
TALC 14807-96-6	10 - 15	2 mg/m <sup>3</sup> Respirable fraction. The value is for particulate matter containing no asbestos and <1% crystalline silica.			
TITANIUM DIOXIDE 13463-67-7	10 - 15	10 mg/m <sup>3</sup>			
METHYL METHACRYLATE 80-62-6	1 - 5	50 ppm	100 ppm		
SILICA 14808-60-7	.1 - 1	0.05 mg/m <sup>3</sup> Respirable fraction.			
COBALT OCTOATE 136-52-7	.1 - 1	0.02 mg/m <sup>3</sup> Co			

**9. PHYSICAL PROPERTIES**

Odor:	Normal for this product type.
Physical State:	liquid
pH:	not determined
Vapor pressure:	35.3383459 mmHg @ 68°F (20°C)
Vapor density (air = 1.0):	3.6
Boiling point:	not determined
Solubility in water:	not determined
Coefficient of water/oil distribution:	not determined
Density (lbs per US gallon):	10.71
Specific Gravity:	1.28
Evaporation rate (butyl acetate = 1.0):	3.1
Flash point (Fahrenheit):	85°F (29°C)
Lower explosive limit:	1 %
Upper explosive limit:	6 %
Autoignition temperature:	not determined -°F (°C)

## 10. STABILITY AND REACTIVITY

Stability:	Stable if protected from heat and exposure to air.
Conditions to Avoid:	Heat. Peroxides
Incompatibility:	Strong oxidizing agents Acids or alkalis. Acids
Hazardous Polymerization:	Product may polymerize when exposed to heat.
Hazardous Decomposition Products:	Silicon dioxide. Carbon monoxide and carbon dioxide. Metal oxide fumes.

**Sensitivity to static discharge:** Subject to static discharge hazards. Please see bonding and grounding information in Section 7.

## 11. TOXICOLOGICAL INFORMATION

Ingredient Name CAS-No.	Approx. Weight %	NIOSH - Selected LD50s and LC50s
STYRENE MONOMER (VOC) 100-42-5	30 - 35	Inhalation LC50 Rat : 12 gm/m <sup>3</sup> /4H Inhalation LC50 Mouse : 9500 mg/m <sup>3</sup> /4H Oral LD50 Rat : 2650 mg/kg Oral LD50 Mouse : 316 mg/kg
METHYL METHACRYLATE 80-62-6	1 - 5	Inhalation LC50 Rat : 78000 mg/m <sup>3</sup> /4H Inhalation LC50 Mouse : 18500 mg/m <sup>3</sup> /2H Oral LD50 Rat : 7872 mg/kg Oral LD50 Mouse : 3625 mg/kg Dermal LD50 Rabbit : >5 gm/kg

### Mutagens/Teratogens/Carcinogens:

Contains material that may cause adverse reproductive effects.

Possible cancer hazard. Contains material which may cause cancer based on animal data. Cancer hazard. Contains material which can cause cancer.

Contains styrene which is listed by IARC as a possible human carcinogen based on animal data. Neither long term animal studies, nor human epidemiology studies of workers exposed to styrene provide an adequate basis to conclude styrene is carcinogenic. Contains TIO2 which is listed by IARC as a possible human carcinogen (Group 2B) based on animal data. Neither long term animal studies, nor human epidemiology studies of workers exposed to TIO2 provide an adequate basis to conclude TIO2 is carcinogenic. TIO2 is not classified as a carcinogen by NTP, U.S. OSHA, or the U.S. EPA. Contains crystalline silica. The IARC has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (group 1). Refer to IARC monograph 68 in conjunction with the use of these materials. Risk of cancer depends on the duration and level of exposure. In coatings products, risk is due primarily to inhalation of sanding dusts or respirable particles in spray mists. The NTP has also determined that crystalline silica is a known human carcinogen in the form of fine, breathable particles. Risk of cancer depends on duration and level of exposure in coatings products, risk is due primarily to inhalation of sanding dust or respirable particles in spray mist. The International Agency For Research On Cancer (IARC) has determined that Cobalt and Cobalt Compounds are substances that are possibly carcinogenic to humans (IARC group 2B).

Ingredient Name CAS-No.	Approx. Weight %	California Prop 65 - Reproductive (Female)	California Prop 65 - Carcinogen
SILICA 14808-60-7	.1 - 1		Listed: October 1, 1988 Carcinogenic.

Ingredient Name CAS-No.	Approx. Weight %	IARC Group 1 - Human Evidence	IARC Group 2A - Limited Human Data	IARC Group 2B - Sufficient Animal Data
STYRENE MONOMER (VOC) 100-42-5	30 - 35			Monograph 60, 1994; (Overall evaluation upgraded from 3 to 2B with supporting evidence from other data relevant to the evaluation of carcinogenicity and its mechanisms)
TITANIUM DIOXIDE 13463-67-7	10 - 15			2B Possible Carcinogen
SILICA 14808-60-7	.1 - 1	Monograph 68, 1997; (inhaled in the form of quartz or cristobalite from occupational sources)		
COBALT OCTOATE 136-52-7	.1 - 1			YES

Ingredient Name CAS-No.	Approx. Weight %	NTP Known Carcinogens	NTP Suspect Carcinogens	NTP Evidence of Carcinogenicity
TALC 14807-96-6	10 - 15			male rat-some evidence; female rat-clear evidence; male mice-no evidence; female mice- no evidence
SILICA 14808-60-7	.1 - 1	Known carcinogen.		

Ingredient Name CAS-No.	Approx. Weight %	OSHA Select Carcinogens	OSHA Possible Select Carcinogens	ACGIH Carcinogens
SILICA 14808-60-7	.1 - 1			Group A2 Suspected human carcinogen.
COBALT OCTOATE 136-52-7	.1 - 1			Group A3 Confirmed animal carcinogen with unknown relevance to humans.

## 12. ECOLOGICAL DATA

No information on ecology is available.

## 13. DISPOSAL CONSIDERATIONS

Disposal should be made in accordance with federal, state and local regulations.

## 14. TRANSPORTATION INFORMATION

### U.S. Department of Transportation

Proper Shipping Name: PAINT  
Hazard Class: 3  
UN ID Number: UN1263  
Packing Group: III  
Hazardous Ingredient (Land) 1: METHYL METHACRYLATE  
Hazardous Ingredient (Land) 2: STYRENE MONOMER (VOC)

### U.S. Highway & Rail Shipments

The supplier may apply one of the following exceptions: Combustible Liquid, Consumer Commodity, Limited Quantity, Viscous Liquid, Does Not Sustain Combustion, or others, as allowed under 49CFR Hazmat Regulations. Please consult 49CFR Subchapter C to ensure that subsequent shipments comply with these exceptions.

### Reportable Quantity Description:

#### International Air Transport Association (IATA):

Proper Shipping Name: Paint  
Hazard Class: 3  
UN ID Number: UN1263  
Packing Group: III  
IATA N.O.S. Technical Name 1: METHYL METHACRYLATE  
IATA N.O.S. Technical Name 2: STYRENE MONOMER (VOC)

#### International Maritime Organization (IMO):

Proper Shipping Name: PAINT  
Hazard Class: 3  
IMO UN/ID Number: UN1263  
Packing Group: III  
IMDG N.O.S. Technical Name 1: METHYL METHACRYLATE  
IMDG N.O.S. Technical Name 2: STYRENE MONOMER (VOC)

## 15. REGULATORY INFORMATION

### U.S. FEDERAL REGULATIONS:

Ingredient Name CAS-No.	Approx. Weight %	SARA 302	SARA 313	CERCLA RQ in lbs.
STYRENE MONOMER (VOC) 100-42-5	30 - 35		form R reporting required for 0.1% de minimis concentration	1000
METHYL METHACRYLATE 80-62-6	1 - 5		form R reporting required for 1.0% de minimis concentration	1000
COBALT OCTOATE 36-52-7	.1 - 1		YES	1

**SARA 311/312 Hazard Class:**

Acute: yes  
 Chronic: yes  
 Flammability: yes  
 Reactivity: yes  
 Sudden Pressure: no

**U.S. STATE REGULATIONS:****Right to Know:**

The specific chemical identity of a component may be withheld as a trade secret under 34 Pennsylvania Code, Chapter 317.

**Pennsylvania Right To Know:**

TALC	14807-96-6
STYRENE MONOMER (VOC)	100-42-5
METHYL METHACRYLATE	80-62-6
TITANIUM DIOXIDE	13463-67-7

**Additional Non-Hazardous Materials**

PROPRIETARY RESIN Trade Secret

**California Proposition 65:**

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

**Rule 66 status of product**

Not photochemically reactive.

**INTERNATIONAL REGULATIONS - Chemical Inventories****US TSCA Inventory:**

All components of this product are in compliance with U.S. TSCA Chemical Substance Inventory Requirements.

**Canada Domestic Substances List:**

All components of this product are listed on the Domestic Substances List.

**16. OTHER INFORMATION****HMIS Codes**

<b>Health:</b>	2*
<b>Flammability:</b>	3
<b>Reactivity:</b>	1
<b>PPE:</b>	X - See Section 8 for Personal Protective Equipment (PPE).

**Abbreviations:**

OSHA - Occupational Safety and Health Administration, IARC - International Agency for Research on Cancer, NIOSH - National Institute of Occupational Safety and Health, NTP - National Toxicology Program, ACGIH - American Conference of Governmental Industrial Hygienists, SCAQMD - South Coast Air Quality Management District, TSCA - Toxic Substances Control Act, IATA - International Air Transport Association, IMO - International Maritime Organization, DOT - Department of Transportation, NA - Not applicable, NOT ESTAB - Not established, N.A.V. - Not available, RQ - Reportable quantity, WT - Weight, MG/CU M - Milligrams per cubic meter, G/L - Grams per liter, MM - Millimeters, MPPCF - Millions of particles per cubic foot, PPM - parts per million, PPT - parts per thousand, TCC/PM - Tag closed cup / Pensky-Martens, PB - Lead, PEL - Permissible exposure level, TWA - Time Weighted Average, STEL - Short term exposure limit, C - Celsius, F - Fahrenheit.

**Disclaimer:**

The data on this sheet represent typical values. Since application variables are a major factor in product performance, this information should serve only as a general guide. Valspar assumes no obligation or liability for use of this information. UNLESS VALSPAR AGREES OTHERWISE IN WRITING, VALSPAR MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AND DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR FREEDOM FROM PATENT INFRINGEMENT. VALSPAR WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. Your only remedy for any defect in this product is the replacement of the defective product, or a refund of its purchase price, at our option. This MSDS contains additional information required by the state of Pennsylvania.

**Preparation Information:**

Prepared By:	Regulatory Affairs Department
Print date:	31/Jul/2009
Revision Date:	30/Jul/2009



## Material Safety Data Sheet

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### Product Identification

**Product ID:** 5788C90007  
**Product Name:** 85-X3 SURFACING AGENT  
**Product Use:** Coatings product.  
**Print date:** 28/Oct/2009  
**Revision Date:** 29/Jan/2009

#### Company Identification

The Valspar Corporation  
2350 114TH ST.  
GRAND PRAIRIE, TX 75050

**Manufacturer's Phone:** 1-800-472-6243

**24-Hour Medical Emergency Phone:** 1-888-345-5732

### 2. HAZARDS IDENTIFICATION

#### Primary Routes of Exposure:

Inhalation  
Ingestion  
Skin absorption

#### Eye Contact:

- Moderate eye irritation
- Risk of serious damage to eyes.

#### Skin Contact:

- Causes skin irritation.
- Dermatitis
- Can be absorbed through skin.

#### Ingestion:

- Irritation of the mouth, throat, and stomach.
- Harmful if swallowed.
- Aspiration hazard if swallowed - can enter lungs and cause damage.

#### Inhalation:

- May cause irritation of respiratory tract.
- Harmful by inhalation.

**Target Organ and Other Health Effects:**

- Causes headache, drowsiness or other effects to the central nervous system.
- Liver injury may occur.
- Hearing loss.

**This product contains ingredients that may contribute to the following potential chronic health effects:**

- Notice: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

**Teratogens:**

- Contains material that may cause adverse reproductive effects.

**Carcinogens:**

- Possible cancer hazard. Contains material which may cause cancer based on animal data.

**3. COMPOSITION / INFORMATION ON HAZARDOUS INGREDIENTS**

Ingredient Name CAS-No.	Approx. Weight %	Chemical Name
STYRENE MONOMER (VOC) 100-42-5	85 - 90	Styrene

If this section is blank there are no hazardous components per OSHA guidelines.

**4. FIRST AID MEASURES****Eye Contact:**

Remove any contact lenses and open eyes wide apart. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If medical assistance is not immediately available, flush an additional 15 minutes. Get medical attention immediately.

**Skin Contact:**

Remove contaminated clothing and shoes. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention, if symptoms develop or persist.

**Ingestion:**

Rinse mouth with water. Give one or two glasses of water. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. If vomiting occurs, keep head lower than hips to prevent aspiration. Get medical attention immediately.

**Inhalation:**

Move injured person into fresh air and keep person calm under observation. Get medical attention immediately.

**Medical conditions aggravated by exposure:**

Any respiratory or skin condition.

**5. FIRE FIGHTING MEASURES**

Flash point (Fahrenheit):	88°F (31°C)
Lower explosive limit:	1 %
Upper explosive limit:	6 %
Autoignition temperature:	not determined -°F (°C)
Sensitivity to impact:	no
Sensitivity to static discharge:	Subject to static discharge hazards. Please see bonding and grounding information in Section 7.
Hazardous combustion products:	See Section 10.

**Unusual fire and explosion hazards:**

None known.

**Extinguishing media:**

Carbon dioxide, dry chemical, foam and/or water fog.

**Fire fighting procedures:**

Firefighters should be equipped with self-contained breathing apparatus and turn out gear. Keep containers and surroundings cool with water spray.

## 6. ACCIDENTAL RELEASE MEASURES

**Action to be taken if material is released or spilled:**

Ventilate the area. Avoid breathing dust or vapor. Use self-containing breathing apparatus or airmask for large spills in a confined area. Wipe, scrape or soak up in an inert material and put in a container for disposal. See section 7, "Handling and Storage", for proper container and storage procedures. Remove all sources of ignition. Soak up with inert absorbent material. Use only non-sparking tools. Avoid all personal contact.

## 7. HANDLING AND STORAGE

**Precautions to be taken in handling and storage:**

Keep away from heat, sparks and open flame. - No smoking. Keep container closed when not in use. Based on flash point and vapor pressure, suitable storage should be provided in accordance with OSHA regulation 1910.106, Ontario OH&S regulation 851 section 22. Empty containers may contain product residue, including flammable or explosive vapors. Do not cut, puncture or weld on or near container. All label warnings must be observed until the container has been commercially cleaned or reconditioned. If the product is used near or above the flashpoint, an ignition hazard may be present. Activities, uses, or operations which liberate vapor (such as mixing or free fall of liquids) may also present an ignition hazard. Please ensure containers and other interconnected equipment are properly bonded and grounded at all times. To maintain product quality, do not store in heat or direct sunlight. Do not store above 85 degrees F (29.4 degrees C).

## 8. PERSONAL PROTECTIVE EQUIPMENT AND EXPOSURE CONTROLS

**Personal Protective Equipment****Eye and face protection:**

Wear chemical goggles with splash shields or face shield. Contact lenses should not be worn when working with chemicals because contact lenses may contribute to the severity of an eye injury in case of exposure.

**Skin protection:**

Gloves: Neoprene or other nonporous.

**Other Personal Protection Data:**

To prevent skin contact wear protective clothing covering all exposed areas. Ensure that eyewash stations and safety showers are close to the workstation location.

**Respiratory protection:**

If exposure cannot be controlled below applicable limits, use the appropriate NIOSH approved respirator such as an air purifying respirator with organic vapor cartridge and dust/mist filter. Consult the respirator manufacturer's literature to ensure that the respirator will provide adequate protection. Read and follow all respirator manufacturer's instructions.

**Ventilation**

Use only in well-ventilated areas. Ensure adequate ventilation, especially in confined areas. Ovens used for curing should contain a fresh air purge to prevent vapours from accumulating and creating a possible explosive mixture. Where the product is used in a hazardous classified area, use explosion-proof electrical/ventilating/lighting/equipment.

**Exposure Guidelines**

### OSHA Permissible Exposure Limits (PEL's)

Ingredient Name CAS-No.	Approx. Weight %	TWA (final)	Ceilings limits (final)	Skin designations
STYRENE MONOMER (VOC) 100-42-5	85 - 90	100 ppm TWA	= 200 ppm Ceiling	

### ACGIH Threshold Limit Value (TLV's)

Ingredient Name CAS-No.	Approx. Weight %	TWA	STEL	Ceiling limits	Skin designations
STYRENE MONOMER (VOC) 100-42-5	85 - 90	20 ppm TWA	40 ppm STEL		

## 9. PHYSICAL PROPERTIES

Odor:	Normal for this product type.
Physical State:	liquid
pH:	not determined
Vapor pressure:	2.556391 mmHg @ 50°F (10°C)
Vapor density (air = 1.0):	3.6
Boiling point:	not determined
Solubility in water:	not determined
Coefficient of water/oil distribution:	not determined
Density (lbs per US gallon):	7.38
Specific Gravity:	.88
Evaporation rate (butyl acetate = 1.0):	0.49
Flash point (Fahrenheit):	88°F (31°C)
Lower explosive limit:	1 %
Upper explosive limit:	6 %
Autoignition temperature:	not determined -°F (°C)

## 10. STABILITY AND REACTIVITY

Stability:	Stable if protected from heat and exposure to air.
Conditions to Avoid:	Heat. Peroxides
Incompatibility:	Strong oxidizing agents Acids or alkalis.
Hazardous Polymerization:	Product may polymerize when exposed to heat.
Hazardous Decomposition Products:	Carbon monoxide and carbon dioxide. This product contains diarylide pigments. While they are not dangerous, they are, however, susceptible to decomposition to monoazoics and dichlorobenzidine at temperatures above 200 C. Consequently, use at temperatures above 200 C should be avoided.

**Sensitivity to static discharge:** Subject to static discharge hazards. Please see bonding and grounding information in Section 7.

## 11. TOXICOLOGICAL INFORMATION

Ingredient Name CAS-No.	Approx. Weight %	NIOSH - Selected LD50s and LC50s

STYRENE MONOMER (VOC) 100-42-5	85 - 90	= 1000 mg/kg Oral LD50 Rat = 11.8 mg/L Inhalation LC50 Rat 4 h
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**Mutagens/Teratogens/Carcinogens:**

Contains material that may cause adverse reproductive effects.

Possible cancer hazard. Contains material which may cause cancer based on animal data.

Contains styrene which is listed by IARC as a possible human carcinogen based on animal data. Neither long term animal studies, nor human epidemiology studies of workers exposed to styrene provide an adequate basis to conclude styrene is carcinogenic.

Ingredient Name CAS-No.	Approx. Weight %	IARC Group 1 - Human Evidence	IARC Group 2A - Limited Human Data	IARC Group 2B - Sufficient Animal Data
STYRENE MONOMER (VOC) 100-42-5	85 - 90			Monograph 60 [1994]

Ingredient Name CAS-No.	Approx. Weight %	NTP Known Carcinogens	NTP Suspect Carcinogens	NTP Evidence of Carcinogenicity
STYRENE MONOMER (VOC) 100-42-5	85 - 90			male rat-negative; female rat-negative; male mice-equivocal; female mice-negative

Ingredient Name CAS-No.	Approx. Weight %	OSHA - Hazard Communication Carcinogens	OSHA - Specifically Regulated Carcinogens	ACGIH Carcinogens
STYRENE MONOMER (VOC) 100-42-5	85 - 90	Present		

**12. ECOLOGICAL DATA**

No information on ecology is available.

**13. DISPOSAL CONSIDERATIONS**

Disposal should be made in accordance with federal, state and local regulations.

**14. TRANSPORTATION INFORMATION**

**U.S. Department of Transportation**

Proper Shipping Name: STYRENE MONOMER, STABILIZED, MIXTURE  
Hazard Class: 3  
UN ID Number (msds): UN2055  
Packing Group: III

**U.S. Highway & Rail Shipments**

The supplier may apply one of the following exceptions: Combustible Liquid, Consumer Commodity, Limited Quantity, Viscous Liquid, Does Not Sustain Combustion, or others, as allowed under 49CFR Hazmat Regulations. Please consult 49CFR Subchapter C to ensure that subsequent shipments comply with these exceptions.

**Reportable Quantity Description:**

**International Air Transport Association (IATA):**

Proper Shipping Name: STYRENE MONOMER, STABILIZED, MIXTURE  
 Hazard Class: 3  
 UN ID Number (msds): UN2055  
 Packing Group: III

**International Maritime Organization (IMO):**

Proper Shipping Name: STYRENE MONOMER, STABILIZED, MIXTURE  
 Hazard Class: 3  
 IMO UN/ID Number (msds): UN2055  
 Packing Group: III

**15. REGULATORY INFORMATION****U.S. FEDERAL REGULATIONS:**

Ingredient Name CAS-No.	Approx. Weight %	SARA 302	SARA 313	CERCLA RQ in lbs.
STYRENE MONOMER (VOC) 100-42-5	85 - 90		form R reporting required for 0.1% de minimis concentration	1000

**SARA 311/312 Hazard Class:**

Acute: yes  
 Chronic: yes  
 Flammability: yes  
 Reactivity: yes  
 Sudden Pressure: no

**U.S. STATE REGULATIONS:****Right to Know:**

The specific chemical identity of a component may be withheld as a trade secret under 34 Pennsylvania Code, Chapter 317.

**Pennsylvania Right To Know:**

STYRENE MONOMER (VOC) 100-42-5

**Additional Non-Hazardous Materials**

PROPRIETARY ADDITIVE Trade Secret

**Rule 66 status of product** Not photochemically reactive.

**INTERNATIONAL REGULATIONS - Chemical Inventories****US TSCA Inventory:**

All components of this product are in compliance with U.S. TSCA Chemical Substance Inventory Requirements.

**Canada Domestic Substances List:**

All components of this product are listed on the Domestic Substances List.

**16. OTHER INFORMATION****HMIS Codes**

Health: 2\*  
 Flammability: 3  
 Reactivity: 1

## 16. OTHER INFORMATION

### PPE:

X - See Section 8 for Personal Protective Equipment (PPE).

### Abbreviations:

OSHA - Occupational Safety and Health Administration, IARC - International Agency for Research on Cancer, NIOSH - National Institute of Occupational Safety and Health, NTP - National Toxicology Program, ACGIH - American Conference of Governmental Industrial Hygienists, SCAQMD - South Coast Air Quality Management District, TSCA - Toxic Substances Control Act, IATA - International Air Transport Association, IMO - International Maritime Organization, DOT - Department of Transportation, NA - Not applicable, NOT ESTAB - Not established, N.A.V. - Not available, RQ - Reportable quantity, WT - Weight, MG/CU M - Milligrams per cubic meter, G/L - Grams per liter, MM - Millimeters, MPPCF - Millions of particles per cubic foot, PPM - parts per million, PPT - parts per thousand, TCC/PM - Tag closed cup / Pensky-Martens, PB - Lead, PEL - Permissible exposure level, TWA - Time Weighted Average, STEL - Short term exposure limit, C - Celsius, F - Fahrenheit.

### Disclaimer:

The data on this sheet represent typical values. Since application variables are a major factor in product performance, this information should serve only as a general guide. Valspar assumes no obligation or liability for use of this information. UNLESS VALSPAR AGREES OTHERWISE IN WRITING, VALSPAR MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AND DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR FREEDOM FROM PATENT INFRINGEMENT. VALSPAR WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. Your only remedy for any defect in this product is the replacement of the defective product, or a refund of its purchase price, at our option. This MSDS contains additional information required by the state of Pennsylvania.

### Preparation Information:

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**APPENDIX C**  
**DETAILED REGULATORY REVIEW**  
**40 CFR 63 SUBPART WWWW**

**40 CFR- 63 Subpart WWWW**  
**National Emissions Standards for Hazardous Air Pollutants:**  
**Reinforced Plastic Composites Production**

**Source:** 68 FR 19402, Apr. 21, 2003, unless otherwise noted.

**What This Subpart Covers**

**§ 63.5780 What is the purpose of this subpart?**

This subpart establishes national emissions standards for hazardous air pollutants (NESHAP) for reinforced plastic composites production. This subpart also establishes requirements to demonstrate initial and continuous compliance with the hazardous air pollutants (HAP) emissions standards.

*Spunstrand acknowledges the purpose of this subpart.*

**§ 63.5785 Am I subject to this subpart?**

(a) You are subject to this subpart if you own or operate a reinforced plastic composites production facility that is located at a major source of HAP emissions. Reinforced plastic composites production is limited to operations in which reinforced and/or nonreinforced plastic composites or plastic molding compounds are manufactured using thermoset resins and/or gel coats that contain styrene to produce plastic composites. The resins and gel coats may also contain materials designed to enhance the chemical, physical, and/or thermal properties of the product. Reinforced plastic composites production also includes cleaning, mixing, HAP-containing materials storage, and repair operations associated with the production of plastic composites.

(b) You are not subject to this subpart if your facility only repairs reinforced plastic composites. Repair includes the non-routine manufacture of individual components or parts intended to repair a larger item as defined in §63.5935

(c) You are not subject to this subpart if your facility is a research and development facility as defined in section 112(c)(7) of the Clean Air Act (CAA).

(d) You are not subject to this subpart if your reinforced plastic composites operations use less than 1.2 tons per year (tpy) of thermoset resins and gel coats that contain styrene combined.

*The requirements of this subpart apply because Spunstrand, Inc. owns and operates a reinforced plastic composites production facility that is located at a major source of HAP emissions.*

**§ 63.5787 What if I also manufacture fiberglass boats or boat parts?**

(a) If your source meets the applicability criteria in §63.5785, and is not subject to the Boat Manufacturing NESHAP (40 CFR part 63, subpart VVVV), you are subject to this subpart regardless of the final use of the parts you manufacture.

(b) If your source is subject to 40 CFR part 63, subpart VVVV, and all the reinforced plastic composites you manufacture are used in manufacturing your boats, you are not subject to this subpart.

(c) If you are subject to 40 CFR part 63, subpart VVVV, and meet the applicability criteria in §63.5785, and produce reinforced plastic composites that are not used in fiberglass boat manufacture at your facility, all operations associated with the manufacture of the reinforced plastic composites parts that are not used in fiberglass boat manufacture at your facility are subject to this subpart, except as noted in paragraph (d) of this section.

(d) Facilities potentially subject to both this subpart and 40 CFR part 63, subpart VVVV may elect to have the operations in paragraph (c) of this section covered by 40 CFR part 63, subpart VVVV, in lieu of this subpart, if they can demonstrate that this will not result in any organic HAP emissions increase compared to complying with this subpart.

*The Spunstrand facility meets the applicability criteria of this subpart, and is not subject to the Boat Manufacturing NESHAP (40 CFR 63, Subpart VVVV).*

**§ 63.5790 What parts of my plant does this subpart cover?**

(a) This subpart applies to each new or existing affected source at reinforced plastic composites production facilities.

*The facility does contain existing affected sources at a reinforced plastic composites production facility.*

(b) The affected source consists of all parts of your facility engaged in the following operations: Open molding, closed molding, centrifugal casting, continuous lamination, continuous casting, polymer casting, pultrusion, sheet molding compound (SMC) manufacturing, bulk molding compound (BMC) manufacturing, mixing, cleaning of equipment used in reinforced plastic composites manufacture, HAP-containing materials storage, and repair operations on parts you also manufacture.

*The affected sources at the facility include open molding, mixing, cleaning of equipment used in reinforced plastic composites manufacture, HAP containing materials storage, and repair operations on parts the facility manufactures.*

(c) The following operations are specifically excluded from any requirements in this subpart: application of mold sealing and release agents; mold stripping and cleaning; repair of parts that you did not manufacture, including non-routine manufacturing of parts; personal activities that are not part of the manufacturing operations (such as hobby shops on military bases); prepreg materials as defined in §63.5935; non-gel coat surface coatings; application of putties, polyputties, and adhesives; repair or production materials that do not contain resin or gel coat; research and development operations as defined in section 112(c)(7) of the CAA; polymer casting; and closed molding operations (except for compression/injection molding). Note that the exclusion of certain operations from any requirements applies only to operations specifically listed in this paragraph. The requirements for any co-located operations still apply.

*Spunstrand, Inc. acknowledges the above operations as specifically excluded from any requirements of this subpart.*

(d) Production resins that must meet military specifications are allowed to meet the organic HAP limit contained in that specification. In order for this exemption to be used, you must supply to the permitting authority the specifications certified as accurate by the military procurement officer, and those specifications must state a requirement for a specific resin, or a specific resin HAP content. Production resins for which this exemption is used must be applied with nonatomizing resin application equipment unless you can demonstrate this is infeasible. You must keep a record of the resins for which you are using this exemption.

*Spunstrand, Inc. is not proposing to meet military specifications in lieu of the specifications in this subpart.*

[68 FR 19402, Apr. 21, 2003, as amended at 70 FR 50124, Aug. 25, 2005]

**§ 63.5795 How do I know if my reinforced plastic composites production facility is a new affected source or an existing affected source?**

(a) A reinforced plastic composites production facility is a new affected source if it meets all the criteria in paragraphs (a)(1) and (2) of this section.

(1) You commence construction of the source after August 2, 2001.

(2) You commence construction, and no other reinforced plastic composites production source exists at that site.

(b) For the purposes of this subpart, an existing affected source is any affected source that is not a new affected source.

[70 FR 50124, Aug. 25, 2005]

*The Spunstrand facility is an existing source because it began construction circa 1961.*

## Calculating Organic HAP Emissions Factors for Open Molding and Centrifugal Casting

### § 63.5796 What are the organic HAP emissions factor equations in Table 1 to this subpart, and how are they used in this subpart?

Emissions factors are used in this subpart to determine compliance with certain organic HAP emissions limits in Tables 3 and 5 to this subpart. You may use the equations in Table 1 to this subpart to calculate your emissions factors. Equations are available for each open molding operation and centrifugal casting operation and have units of pounds of organic HAP emitted per ton (lb/ton) of resin or gel coat applied. These equations are intended to provide a method for you to demonstrate compliance without the need to conduct for a HAP emissions test. In lieu of these equations, you can elect to use site-specific organic HAP emissions factors to demonstrate compliance provided your site-specific organic HAP emissions factors are incorporated in the facility's air emissions permit and are based on actual facility HAP emissions test data. You may also use the organic HAP emissions factors calculated using the equations in Table 1 to this subpart, combined with resin and gel coat use data, to calculate your organic HAP emissions.

*Spunstrand acknowledges the information presented in this section and will utilize the equations in Table 1 of this subpart.*

### § 63.5797 How do I determine the organic HAP content of my resins and gel coats?

In order to determine the organic HAP content of resins and gel coats, you may rely on information provided by the material manufacturer, such as manufacturer's formulation data and material safety data sheets (MSDS), using the procedures specified in paragraphs (a) through (c) of this section, as applicable.

(a) Include in the organic HAP total each organic HAP that is present at 0.1 percent by mass or more for Occupational Safety and Health Administration-defined carcinogens, as specified in 29 CFR 1910.1200(d)(4) and at 1.0 percent by mass or more for other organic HAP compounds.

(b) If the organic HAP content is provided by the material supplier or manufacturer as a range, you must use the upper limit of the range for determining compliance. If a separate measurement of the total organic HAP content, such as an analysis of the material by EPA Method 311 of appendix A to 40 CFR part 63, exceeds the upper limit of the range of the total organic HAP content provided by the material supplier or manufacturer, then you must use the measured organic HAP content to determine compliance.

(c) If the organic HAP content is provided as a single value, you may use that value to determine compliance. If a separate measurement of the total organic HAP content is made and is less than 2 percentage points higher than the value for total organic HAP content provided by the material supplier or manufacturer, then you still may use the provided value to demonstrate compliance. If the measured total organic HAP content exceeds the provided value by 2 percentage points or more, then you must use the measured organic HAP content to determine compliance.

*Spunstrand, Inc. intends to use the information provided by the material manufacturer to determine the organic HAP content of resins and gel coats in accordance with 63.5797(a) through (c).*

### § 63.5798 What if I want to use, or I manufacture, an application technology (new or existing) whose organic HAP emissions characteristics are not represented by the equations in Table 1 to this subpart?

If you wish to use a resin or gel coat application technology (new or existing), whose emission characteristics are not represented by the equations in Table 1 to this subpart, you may use the procedures in paragraphs (a) or (b) of this section to establish an organic HAP emissions factor. This organic HAP emissions factor may then be used to determine compliance with the emission limits in this subpart, and to calculate facility organic HAP emissions.

(a) Perform an organic HAP emissions test to determine a site-specific organic HAP emissions factor using the test procedures in §63.5850.

(b) Submit a petition to the Administrator for administrative review of this subpart. This petition must contain a description of the resin or gel coat application technology and supporting organic HAP emissions test data obtained using EPA test methods or their equivalent. The emission test data should be obtained using a range of resin or gel coat HAP contents to demonstrate the

effectiveness of the technology under the different conditions, and to demonstrate that the technology will be effective at different sites. We will review the submitted data, and, if appropriate, update the equations in Table 1 to this subpart.

*This section does not apply as the Spunstrand facility does not use a resin or gel coat application technology (new or existing), whose emission characteristics are not represented by the equations in Table 1 to this subpart.*

### **§ 63.5799 How do I calculate my facility's organic HAP emissions on a tpy basis for purposes of determining which paragraphs of §63.5805 apply?**

To calculate your facility's organic HAP emissions in tpy for purposes of determining which paragraphs in §63.5805 apply to you, you must use the procedures in either paragraph (a) of this section for new facilities prior to startup, or paragraph (b) of this section for existing facilities and new facilities after startup. You are not required to calculate or report emissions under this section if you are an existing facility that does not have centrifugal casting or continuous lamination/casting operations, or a new facility that does not have any of the following operations: Open molding, centrifugal casting, continuous lamination/casting, pultrusion, SMC and BMC manufacturing, and mixing. Emissions calculation and emission reporting procedures in other sections of this subpart still apply. Calculate organic HAP emissions prior to any add-on control device, and do not include organic HAP emissions from any resin or gel coat used in operations subject to the Boat Manufacturing NESHAP, 40 CFR part 63, subpart VVVV, or from the manufacture of large parts as defined in §63.5805(d)(2). For centrifugal casting operations at existing facilities, do not include any organic HAP emissions where resin or gel coat is applied to an open centrifugal mold using open molding application techniques. Table 1 and the Table 1 footnotes to this subpart present more information on calculating centrifugal casting organic HAP emissions. The timing and reporting of these calculations is discussed in paragraph (c) of this section.

(a) For new facilities prior to startup, calculate a weighted average organic HAP emissions factor for the operations specified in §63.5805(c) and (d) on a lbs/ton of resin and gel coat basis. Base the weighted average on your projected operation for the 12 months subsequent to facility startup. Multiply the weighted average organic HAP emissions factor by projected resin use over the same period. You may calculate your organic HAP emissions factor based on the factors in Table 1 to this subpart, or you may use any HAP emissions factor approved by us, such as factors from the "Compilation of Air Pollutant Emissions Factors, Volume I: Stationary Point and Area Sources (AP-42)," or organic HAP emissions test data from similar facilities.

(b) For existing facilities and new facilities after startup, you may use the procedures in either paragraph (b)(1) or (2) of this section. If the emission factors for an existing facility have changed over the period of time prior to their initial compliance date due to incorporation of pollution-prevention control techniques, existing facilities may base the average emission factor on their operations as they exist on the compliance date. If an existing facility has accepted an enforceable permit limit that would result in less than 100 tpy of HAP measured prior to any add-on controls, and can demonstrate that they will operate at that level subsequent to the compliance date, they can be deemed to be below the 100 tpy threshold.

(1) Use a calculated emission factor. Calculate a weighted average organic HAP emissions factor on a lbs/ton of resin and gel coat basis. Base the weighted average on the prior 12 months of operation. Multiply the weighted average organic HAP emissions factor by resin and gel coat use over the same period. You may calculate this organic HAP emissions factor based on the equations in Table 1 to this subpart, or you may use any organic HAP emissions factor approved by us, such as factors from AP-42, or site-specific organic HAP emissions factors if they are supported by HAP emissions test data.

(2) Conduct performance testing. Conduct performance testing using the test procedures in §63.5850 to determine a site-specific organic HAP emissions factor in units of lbs/ton of resin and gel coat used. Conduct the test under conditions expected to result in the highest possible organic HAP emissions. Multiply this factor by annual resin and gel coat use to determine annual organic HAP emissions. This calculation must be repeated and reported annually.

(c) Existing facilities must initially perform this calculation based on their 12 months of operation prior to April 21, 2003, and include this information with their initial notification report. Existing facilities must repeat the calculation based on their resin and gel coat use in the 12 months prior to their initial compliance date, and submit this information with their initial compliance report. After their initial compliance date, existing and new facilities must recalculate organic HAP emissions over the 12-month period ending June 30 or December 31, whichever date is the first date following their compliance date specified in §63.5800. Subsequent calculations should cover the periods in the semiannual compliance reports.

[68 FR 19402, Apr. 21, 2003, as amended at 70 FR 50124, Aug. 25, 2005]

*As an existing facility, Spunstrand, Inc. utilizes the equation in Table 1 of this subpart to calculate emissions factors according to 63.5799(b)(1).*

**Compliance Dates and Standards**

**§ 63.5800 When do I have to comply with this subpart?**

You must comply with the standards in this subpart by the dates specified in Table 2 to this subpart. Facilities meeting an organic HAP emissions standard based on a 12-month rolling average must begin collecting data on the compliance date in order to demonstrate compliance.

*Due to potential emissions, Spunstrand, Inc. must meet the compliance dates from Table 2 as presented below:*

<i>The Spunstrand facility is . . .</i>	<i>And . . .</i>	<i>And met the requirements of this subpart by this date . . .</i>
<i>1. An existing source</i>	<i>a. Is a major source on or before the publication date of this subpart</i>	<i>i. April 21, 2006</i>

**§ 63.5805 What standards must I meet to comply with this subpart?**

You must meet the requirements of paragraphs (a) through (h) of this section that apply to you. You may elect to comply using any options to meet the standards described in §§63.5810 through 63.5830. Use the procedures in §63.5799 to determine if you meet or exceed the 100 tpy threshold.

(a) If you have an existing facility that has any centrifugal casting or continuous casting/lamination operations, you must meet the requirements of paragraph (a)(1) or (2) of this section:

(1) If the combination of all centrifugal casting and continuous lamination/casting operations emit 100 tpy or more of HAP, you must reduce the total organic HAP emissions from centrifugal casting and continuous lamination/casting operations by at least 95 percent by weight. As an alternative to meeting the 95 percent by weight requirement, centrifugal casting operations may meet the applicable organic HAP emissions limits in Table 5 to this subpart and continuous lamination/casting operations may meet an organic HAP emissions limit of 1.47 lbs/ton of neat resin plus and neat gel coat plus applied. For centrifugal casting, the percent reduction requirement does not apply to organic HAP emissions that occur during resin application onto an open centrifugal casting mold using open molding application techniques.

(2) If the combination of all centrifugal casting and continuous lamination/casting operations emit less than 100 tpy of HAP, then centrifugal casting and continuous lamination/casting operations must meet the appropriate requirements in Table 3 to this subpart.

*Paragraph (a) does not apply because Spunstrand, Inc. does not have any centrifugal casting or continuous casting/lamination operations.*

(b) All operations at existing facilities not listed in paragraph (a) of this section must meet the organic HAP emissions limits in Table 3 to this subpart and the work practice standards in Table 4 to this subpart that apply, regardless of the quantity of HAP emitted.

*Spunstrand, Inc. is an existing facility subject to the following organic HAP emission limits in Table 3:*

<i>Spunstrand operations include . . .</i>	<i>And use . . .</i>	<i><sup>1</sup>So the organic HAP emissions limit is . . .</i>
<i>1. open molding—corrosion-resistant and/or high strength (CR/HS)</i>	<i>a. mechanical resin application</i>	<i>113 lb/ton</i>
	<i>b. filament application</i>	<i>171 lb/ton</i>
	<i>c. manual resin application</i>	<i>123 lb/ton</i>

4. open molding—low-flame spread/low-smoke products	a. mechanical resin application b. filament application c. manual resin application	497 lb/ton 270 lb/ton 238 lb/ton
6. open molding—gel coat <sup>3</sup>	a. tooling gel coating b. white/off white pigmented gel coating c. all other pigmented gel coating	440 lb/ton 267 lb/ton 377 lb/ton

*Spunstrand is also subject to the work practice standards in Table 4, with the exception of 1, 4, 5 and 9, which do not apply as the facility does not perform the specified operations.*

(c) If you have a new facility that emits less than 100 tpy of HAP from the combination of all open molding, centrifugal casting, continuous lamination/casting, pultrusion, SMC manufacturing, mixing, and BMC manufacturing, you must meet the organic HAP emissions limits in Table 3 to this subpart and the work practice standards in Table 4 to this subpart that apply to you.

*Paragraph (c) does not apply as Spunstrand, Inc. is not a new facility.*

(d)(1) Except as provided in paragraph (d)(2) of this section, if you have a new facility that emits 100 tpy or more of HAP from the combination of all open molding, centrifugal casting, continuous lamination/casting, pultrusion, SMC manufacturing, mixing, and BMC manufacturing, you must reduce the total organic HAP emissions from these operations by at least 95 percent by weight and meet any applicable work practice standards in Table 4 to this subpart that apply to you. As an alternative to meeting 95 percent by weight, you may meet the organic HAP emissions limits in Table 5 to this subpart. If you have a continuous lamination/casting operation, that operation may alternatively meet an organic HAP emissions limit of 1.47 lbs/ton of neat resin plus and neat gel coat plus applied.

(2)(i) If your new facility manufactures large reinforced plastic composites parts using open molding or pultrusion operations, the specific open molding and pultrusion operations used to produce large parts are not required to reduce HAP emissions by 95 weight percent, but must meet the emission limits in Table 3 to this subpart.

(ii) A large open molding part is defined as a part that, when the final finished part is enclosed in the smallest rectangular six-sided box into which the part can fit, the total interior volume of the box exceeds 250 cubic feet, or any interior sides of the box exceed 50 square feet.

(iii) A large pultruded part is a part that exceeds an outside perimeter of 24 inches or has more than 350 reinforcements.

*Paragraph (d) does not apply as Spunstrand, Inc. is not a new facility.*

(e) If you have a new or existing facility subject to paragraph (a)(2) or (c) of this section at its initial compliance date that subsequently meets or exceeds the 100 tpy threshold in any calendar year, you must notify your permitting authority in your compliance report. You may at the same time request a one-time exemption from the requirements of paragraph (a)(1) or (d) of this section in your compliance report if you can demonstrate all of the following:

- (1) The exceedance of the threshold was due to circumstances that will not be repeated.
- (2) The average annual organic HAP emissions from the potentially affected operations for the last 3 years were below 100 tpy.
- (3) Projected organic HAP emissions for the next calendar year are below 100 tpy, based on projected resin and gel coat use and the HAP emission factors calculated according to the procedures in §63.5799.

*Paragraph (e) does not apply since Spunstrand, Inc. is not subject to paragraphs (a)(2) or (c) of this section.*

(f) If you apply for an exemption in paragraph (e) of this section and subsequently exceed the HAP emission thresholds specified in paragraph (a)(2) or (c) of this section over the next 12-month period, you must notify the permitting authority in your semiannual report, the exemption is removed, and your facility must comply with paragraph (a)(1) or (d) of this section within 3 years from the time your organic HAP emissions first exceeded the threshold.

*Paragraph (f) does not apply, as Spunstrand, Inc. is not applying for exemption under paragraph (e).*

(g) If you have repair operations subject to this subpart as defined in §63.5785, these repair operations must meet the requirements in Tables 3 and 4 to this subpart and are not required to meet the 95 percent organic HAP emissions reduction requirements in paragraph (a)(1) or (d) of this section.

*Spunstrand acknowledges that repair operations subject to this subpart must meet the requirements in Tables 3 and 4 as referenced in paragraph (b) above.*

(h) If you use an add-on control device to comply with this subpart, you must meet all requirements contained in 40 CFR part 63, subpart SS.

*Spunstrand does not use add-on control devices to comply with this subpart.*

[70 FR 50124, Aug. 25, 2005]

### Options for Meeting Standards

#### **§ 63.5810 What are my options for meeting the standards for open molding and centrifugal casting operations at new and existing sources?**

You must use one of the following methods in paragraphs (a) through (d) of this section to meet the standards for open molding or centrifugal casting operations in Table 3 or 5 to this subpart. You may use any control method that reduces organic HAP emissions, including reducing resin and gel coat organic HAP content, changing to nonatomized mechanical application, using covered curing techniques, and routing part or all of your emissions to an add-on control. You may use different compliance options for the different operations listed in Table 3 or 5 to this subpart. The necessary calculations must be completed within 30 days after the end of each month. You may switch between the compliance options in paragraphs (a) through (d) of this section. When you change to an option based on a 12-month rolling average, you must base the average on the previous 12 months of data calculated using the compliance option you are changing to, unless you were previously using an option that did not require you to maintain records of resin and gel coat use. In this case, you must immediately begin collecting resin and gel coat use data and demonstrate compliance 12 months after changing options.

(a) Demonstrate that an individual resin or gel coat, as applied, meets the applicable emission limit in Table 3 or 5 to this subpart. (1) Calculate your actual organic HAP emissions factor for each different process stream within each operation type. A process stream is defined as each individual combination of resin or gel coat, application technique, and control technique. Process streams within operations types are considered different from each other if any of the following four characteristics vary: the neat resin plus or neat gel coat plus organic HAP content, the gel coat type, the application technique, or the control technique. You must calculate organic HAP emissions factors for each different process stream by using the appropriate equations in Table 1 to this subpart for open molding and for centrifugal casting, or site-specific organic HAP emissions factors discussed in §63.5796. The emission factor calculation should include any and all emission reduction techniques used including any add-on controls. If you are using vapor suppressants to reduce HAP emissions, you must determine the vapor suppressant effectiveness (VSE) by conducting testing according to the procedures specified in appendix A to subpart WWWW of 40 CFR part 63. If you are using an add-on control device to reduce HAP emissions, you must determine the add-on control factor by conducting capture and control efficiency testing using the procedures specified in §63.5850. The organic HAP emissions factor calculated from the equations in Table 1 to this subpart, or a site-specific emissions factor, is multiplied by the add-on control factor to calculate the organic HAP emissions factor after control. Use Equation 1 of this section to calculate the add-on control factor used in the organic HAP emissions factor equations.

$$\text{Add-on Control Factor} = 1 - \frac{\% \text{ Control Efficiency}}{100} \quad (\text{Eq. 1})$$

Where:

Percent Control Efficiency=a value calculated from organic HAP emissions test measurements made according to the requirements of §63.5850 to this subpart.

(2) If the calculated emission factor is less than or equal to the appropriate emission limit, you have demonstrated that this process stream complies with the emission limit in Table 3 to this subpart. It is not necessary that all your process streams, considered individually, demonstrate compliance to use this option for some process streams. However, for any individual resin or gel coat you use, if any of the process streams that include that resin or gel coat are to be used in any averaging calculations described in paragraphs (b) through (d) of this section, then all process streams using that individual resin or gel coat must be included in the averaging calculations.

(b) Demonstrate that, on average, you meet the individual organic HAP emissions limits for each combination of operation type and resin application method or gel coat type. Demonstrate that on average you meet the individual organic HAP emissions limits for each unique combination of operation type and resin application method or gel coat type shown in Table 3 to this subpart that applies to you.

(1)(i) Group the process streams described in paragraph (a) to this section by operation type and resin application method or gel coat type listed in Table 3 to this subpart and then calculate a weighted average emission factor based on the amounts of each individual resin or gel coat used for the last 12 months. To do this, sum the product of each individual organic HAP emissions factor calculated in paragraph (a)(1) of this section and the amount of neat resin plus and neat gel coat plus usage that corresponds to the individual factors and divide the numerator by the total amount of neat resin plus and neat gel coat plus used in that operation type as shown in Equation 2 of this section.

$$\text{Average organic HAP Emissions Factor} = \frac{\sum_{i=1}^n (\text{Actual Process Stream } EF_i * \text{Material}_i)}{\sum_{i=1}^n \text{Material}_i} \quad (\text{Eq. 2})$$

Where:

Actual Process Stream  $EF_i$  = actual organic HAP emissions factor for process stream i, lbs/ton;

Material<sub>i</sub> = neat resin plus or neat gel coat plus used during the last 12 calendar months for process stream i, tons;

n = number of process streams where you calculated an organic HAP emissions factor.

(ii) You may, but are not required to, include process streams where you have demonstrated compliance as described in paragraph (a) of this section, subject to the limitations described in paragraph (a)(2) of this section, and you are not required to and should not include process streams for which you will demonstrate compliance using the procedures in paragraph (d) of this section.

(2) Compare each organic HAP emissions factor calculated in paragraph (b)(1) of this section with its corresponding organic HAP emissions limit in Table 3 or 5 to this subpart. If all emissions factors are equal to or less than their corresponding emission limits, then you are in compliance.

(c) Demonstrate compliance with a weighted average emission limit. Demonstrate each month that you meet each weighted average of the organic HAP emissions limits in Table 3 or 5 to this subpart that apply to you. When using this option, you must demonstrate compliance with the weighted average organic HAP emissions limit for all your open molding operations, and then separately demonstrate compliance with the weighted average organic HAP emissions limit for all your centrifugal casting operations. Open molding operations and centrifugal casting operations may not be averaged with each other.

(1) Each month calculate the weighted average organic HAP emissions limit for all open molding operations and the weighted average organic HAP emissions limit for all centrifugal casting operations for your facility for the last 12-month period to determine the organic HAP emissions limit you must meet. To do this, multiply the individual organic HAP emissions limits in Table 3 or 5 to this subpart for each open molding (centrifugal casting) operation type by the amount of neat resin plus or neat gel coat plus used in the last 12 months for each open molding (centrifugal casting) operation type, sum these results, and then divide this sum by the total amount of neat resin plus and neat gel coat plus used in open molding (centrifugal casting) over the last 12 months as shown in Equation 3 of this section.

$$\text{Weighted Average Emission Limit} = \frac{\sum_{i=1}^n (EL_i * \text{Material}_i)}{\sum_{i=1}^n \text{Material}_i} \quad (\text{Eq. 3})$$

Where:

EL<sub>i</sub>=organic HAP emissions limit for operation type i, lbs/ton from Tables 3 or 5 to this subpart;

Material<sub>i</sub>=neat resin plus or neat gel coat plus used during the last 12-month period for operation type i, tons;

n=number of operations.

(2) Each month calculate your weighted average organic HAP emissions factor for open molding and centrifugal casting. To do this, multiply your actual open molding (centrifugal casting) operation organic HAP emissions factors calculated in paragraph (b)(1) of this section and the amount of neat resin plus and neat gel coat plus used in each open molding (centrifugal casting) operation type, sum the results, and divide this sum by the total amount of neat resin plus and neat gel coat plus used in open molding (centrifugal casting) operations as shown in Equation 4 of this section.

$$\begin{array}{l} \text{Actual Weighted} \\ \text{Average organic} \\ \text{HAP Emissions} \\ \text{Factor} \end{array} = \frac{\sum_{i=1}^n (\text{Actual Operation EF}_i * \text{Material}_i)}{\sum_{i=1}^n \text{Material}_i} \quad (\text{Eq. 4})$$

Where:

Actual Individual EF<sub>i</sub>=Actual organic HAP emissions factor for operation type i, lbs/ton;

Material<sub>i</sub>=neat resin plus or neat gel coat plus used during the last 12 calendar months for operation type i, tons;

n=number of operations.

(3) Compare the values calculated in paragraphs (c)(1) and (2) of this section. If each 12-month rolling average organic HAP emissions factor is less than or equal to the corresponding 12-month rolling average organic HAP emissions limit, then you are in compliance.

(d) Meet the organic HAP emissions limit for one application method and use the same resin(s) for all application methods of that resin type. This option is limited to resins of the same type. The resin types for which this option may be used are noncorrosion-resistant, corrosion-resistant and/or high strength, and tooling.

(1) For any combination of manual resin application, mechanical resin application, filament application, or centrifugal casting, you may elect to meet the organic HAP emissions limit for any one of these application methods and use the same resin in all of the resin application methods listed in this paragraph (d)(1). Table 7 to this subpart presents the possible combinations based on a facility selecting the application process that results in the highest allowable organic HAP content resin. If the resin organic HAP content is below the applicable value shown in Table 7 to this subpart, the resin is in compliance.

(2) You may also use a weighted average organic HAP content for each application method described in paragraph (d)(1) of this section. Calculate the weighted average organic HAP content monthly. Use Equation 2 in paragraph (b)(1) of this section except substitute organic HAP content for organic HAP emissions factor. You are in compliance if the weighted average organic HAP content based on the last 12 months of resin use is less than or equal to the applicable organic HAP contents in Table 7 to this subpart.

(3) You may simultaneously use the averaging provisions in paragraph (b) or (c) of this section to demonstrate compliance for any operations and/or resins you do not include in your compliance demonstrations in paragraphs (d)(1) and (2) of this section. However, any resins for which you claim compliance under the option in paragraphs (d)(1) and (2) of this section may not be included in any of the averaging calculations described in paragraph (b) or (c) of this section.

(4) You do not have to keep records of resin use for any of the individual resins where you demonstrate compliance under the option in paragraph (d)(1) of this section unless you elect to include that resin in the averaging calculations described in paragraph (d)(2) of this section.

[70 FR 50125, Aug. 25, 2005]

*Spunstrand, Inc. acknowledges that one of the above methods in paragraphs (a) through (d) must be used to meet the standards for open molding as listed in Table 3.*

### **§ 63.5820 What are my options for meeting the standards for continuous lamination/casting operations?**

You must use one or more of the options in paragraphs (a) through (d) of this section to meet the standards in §63.5805. Use the calculation procedures in §§63.5865 through 63.5890.

(a) *Compliant line option.* Demonstrate that each continuous lamination line and each continuous casting line complies with the applicable standard.

(b) *Averaging option.* Demonstrate that all continuous lamination and continuous casting lines combined, comply with the applicable standard.

(c) *Add-on control device option.* If your operation must meet the 58.5 weight percent organic HAP emissions reduction limit in Table 3 to this subpart, you have the option of demonstrating that you achieve 95 percent reduction of all wet-out area organic HAP emissions.

(d) *Combination option.* Use any combination of options in paragraphs (a) and (b) of this section or, for affected sources at existing facilities, any combination of options in paragraphs (a), (b), and (c) of this section (in which one or more lines meet the standards on their own, two or more lines averaged together meet the standards, and one or more lines have their wet-out areas controlled to a level of 95 percent).

*This section does not apply as Spunstrand, Inc. does not perform continuous lamination/casting operations.*

### **§ 63.5830 What are my options for meeting the standards for pultrusion operations subject to the 60 weight percent organic HAP emissions reductions requirement?**

You must use one or more of the options in paragraphs (a) through (e) of this section to meet the 60 weight percent organic HAP emissions limit in Table 3 to this subpart, as required in §63.5805.

(a) Achieve an overall reduction in organic HAP emissions of 60 weight percent by capturing the organic HAP emissions and venting them to a control device or any combination of control devices. Conduct capture and destruction efficiency testing as specified in 63.5850 to this subpart to determine the percent organic HAP emissions reduction.

(b) Design, install, and operate wet area enclosures and resin drip collection systems on pultrusion machines that meet the criteria in paragraphs (b)(1) through (10) of this section.

(1) The enclosure must cover and enclose the open resin bath and the forming area in which reinforcements are pre-wet or wet-out and moving toward the die(s). The surfaces of the enclosure must be closed except for openings to allow material to enter and exit the enclosure.

(2) For open bath pultrusion machines with a radio frequency pre-heat unit, the enclosure must extend from the beginning of the resin bath to within 12.5 inches or less of the entrance of the radio frequency pre-heat unit. If the stock that is within 12.5 inches or less of the entrance to the radio frequency pre-heat unit has any drip, it must be enclosed. The stock exiting the radio frequency

pre-heat unit is not required to be in an enclosure if the stock has no drip between the exit of the radio frequency pre-heat unit to within 0.5 inches of the entrance of the die.

(3) For open bath pultrusion machines without a radio frequency pre-heat unit, the enclosure must extend from the beginning of the resin bath to within 0.5 inches or less of the die entrance.

(4) For pultrusion lines with pre-wet area(s) prior to direct die injection, no more than 12.5 inches of open wet stock is permitted between the entrance of the first pre-wet area and the entrance to the die. If the pre-wet stock has any drip, it must be enclosed.

(5) The total open area of the enclosure must not exceed two times the cross sectional area of the puller window(s) and must comply with the requirements in paragraphs (b)(5)(i) through (iii) of this section.

(i) All areas that are open need to be included in the total open area calculation with the exception of access panels, doors, and/or hatches that are part of the enclosure.

(ii) The area that is displaced by entering reinforcement or exiting product is considered open.

(iii) Areas that are covered by brush covers are considered closed.

(6) Open areas for level control devices, monitoring devices, agitation shafts, and fill hoses must have no more than 1.0 inch clearance.

(7) The access panels, doors, and/or hatches that are part of the enclosure must close tightly. Damaged access panels, doors, and/or hatches that do not close tightly must be replaced.

(8) The enclosure may not be removed from the pultrusion line, and access panels, doors, and/or hatches that are part of the enclosure must remain closed whenever resin is in the bath, except for the time period discussed in paragraph (b)(9) of this section.

(9) The maximum length of time the enclosure may be removed from the pultrusion line or the access panels, doors, and/or hatches and may be open, is 30 minutes per 8 hour shift, 45 minutes per 12 hour shift, or 90 minutes per day if the machine is operated for 24 hours in a day. The time restrictions do not apply if the open doors or panels do not cause the limit of two times the puller window area to be exceeded. Facilities may average the times that access panels, doors, and/or hatches are open across all operating lines. In that case the average must not exceed the times shown in this paragraph (b)(9). All lines included in the average must have operated the entire time period being averaged.

(10) No fans, blowers, and/or air lines may be allowed within the enclosure. The enclosure must not be ventilated.

(c) Use direct die injection pultrusion machines with resin drip collection systems that meet all the criteria specified in paragraphs (c)(1) through (3) of this section.

(1) All the resin that is applied to the reinforcement is delivered directly to the die.

(2) No exposed resin is present, except at the face of the die.

(3) Resin drip is captured in a closed system and recycled back to the process.

(d) Use a preform injection system that meets the definition in §63.5935

(e) Use any combination of options in paragraphs (a) through (d) of this section in which different pultrusion lines comply with different options described in paragraphs (a) through (d) of this section, and

(1) Each individual pultrusion machine meets the 60 percent reduction requirement, or

(2) The weighted average reduction based on resin throughput of all machines combined is 60 percent. For purposes of the average percent reduction calculation, wet area enclosures reduce organic HAP emissions by 60 percent, and direct die injection and preform injection reduce organic HAP emissions by 90 percent.

[68 FR 19402, Apr. 21, 2003, as amended at 70 FR 50127, Aug. 25, 2005]

*This section does not apply as Spunstrand, Inc. does not conduct pultrusion operations.*

## General Compliance Requirements

### § 63.5835 What are my general requirements for complying with this subpart?

(a) You must be in compliance at all times with the work practice standards in Table 4 to this subpart, as well as the organic HAP emissions limits in Tables 3, or 5, or the organic HAP content limits in Table 7 to this subpart, as applicable, that you are meeting without the use of add-on controls.

*Spunstrand, Inc. acknowledges that the facility must at all times be in compliance with applicable work practice standards in Table 4 as well as organic HAP emission limits in Table 3.*

(b) You must be in compliance with all organic HAP emissions limits in this subpart that you meet using add-on controls, except during periods of startup, shutdown, and malfunction.

*Paragraph (b) does not apply to the facility as Spunstrand does not use add-on controls for the manufacturing operations.*

(c) You must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in §63.6(e)(1)(i).

*Spunstrand, Inc. acknowledges that the facility must always be operated and maintained in accordance with the operation and maintenance requirements set forth in the NESHAP General Provisions under §63.6(e)(1)(i).*

(d) You must develop a written startup, shutdown, and malfunction plan according to the provisions in §63.6(e)(3) for any organic HAP emissions limits you meet using an add-on control.

*Paragraph (d) does not apply to the facility as Spunstrand does not use add-on controls to meet emission limits.*

[68 FR 19402, Apr. 21, 2003, as amended at 71 FR 20466, Apr. 20, 2006]

## Testing and Initial Compliance Requirements

### § 63.5840 By what date must I conduct a performance test or other initial compliance demonstration?

You must conduct performance tests, performance evaluations, design evaluations, capture efficiency testing, and other initial compliance demonstrations by the compliance date specified in Table 2 to this subpart, with three exceptions. Open molding and centrifugal casting operations that elect to meet an organic HAP emissions limit on a 12-month rolling average must initiate collection of the required data on the compliance date, and demonstrate compliance 1 year after the compliance date. New sources that use add-on controls to initially meet compliance must demonstrate compliance within 180 days after their compliance date.

*As the Spunstrand facility is an open molding operation that has elected to meet an organic HAP emissions limit on a 12-month rolling average, Spunstrand acknowledges that the collection of the required data must be initiated on the compliance date, and compliance demonstrated one year after the compliance date of April 21, 2006.*

### **§ 63.5845 When must I conduct subsequent performance tests?**

You must conduct a performance test every 5 years following the initial performance test for any standard you meet with an add-on control device.

*This section does not apply to the facility as Spunstrand does not use add-on controls to meet emission limits.*

### **§ 63.5850 How do I conduct performance tests, performance evaluations, and design evaluations?**

(a) If you are using any add-on controls to meet an organic HAP emissions limit in this subpart, you must conduct each performance test, performance evaluation, and design evaluation in 40 CFR part 63, subpart SS, that applies to you. The basic requirements for performance tests, performance evaluations, and design evaluations are presented in Table 6 to this subpart.

(b) Each performance test must be conducted according to the requirements in §63.7(e)(1) and under the specific conditions that 40 CFR part 63, subpart SS, specifies.

(c) Each performance evaluation must be conducted according to the requirements in §63.8(e) as applicable and under the specific conditions that 40 CFR part 63, subpart SS, specifies.

(d) You may not conduct performance tests or performance evaluations during periods of startup, shutdown, or malfunction, as specified in §63.7(e)(1).

(e) You must conduct the control device performance test using the emission measurement methods specified in paragraphs (e)(1) through (5) of this section.

(1) Use either Method 1 or 1A of appendix A to 40 CFR part 60, as appropriate, to select the sampling sites.

(2) Use Method 2, 2A, 2C, 2D, 2F or 2G of appendix A to 40 CFR part 60, as appropriate, to measure gas volumetric flow rate.

(3) Use Method 18 of appendix A to 40 CFR part 60 to measure organic HAP emissions or use Method 25A of appendix A to 40 CFR part 60 to measure total gaseous organic emissions as a surrogate for total organic HAP emissions. If you use Method 25A, you must assume that all gaseous organic emissions measured as carbon are organic HAP emissions. If you use Method 18 and the number of organic HAP in the exhaust stream exceeds five, you must take into account the use of multiple chromatographic columns and analytical techniques to get an accurate measure of at least 90 percent of the total organic HAP mass emissions. Do not use Method 18 to measure organic HAP emissions from a combustion device; use instead Method 25A and assume that all gaseous organic mass emissions measured as carbon are organic HAP emissions.

(4) You may use American Society for Testing and Materials (ASTM) D6420–99 (available for purchase from at least one of the following addresses: 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.) in lieu of Method 18 of 40 CFR part 60, appendix A, under the conditions specified in paragraphs (c)(4)(i) through (iii) of this section.

(i) If the target compound(s) is listed in Section 1.1 of ASTM D6420–99 and the target concentration is between 150 parts per billion by volume and 100 parts per million by volume.

(ii) If the target compound(s) is not listed in Section 1.1 of ASTM D6420–99, but is potentially detected by mass spectrometry, an additional system continuing calibration check after each run, as detailed in Section 10.5.3 of ASTM D6420–99, must be followed, met, documented, and submitted with the performance test report even if you do not use a moisture condenser or the compound is not considered soluble.

(iii) If a minimum of one sample/analysis cycle is completed at least every 15 minutes.

(5) Use the procedures in EPA Method 3B of appendix A to 40 CFR part 60 to determine an oxygen correction factor if required by §63.997(e)(2)(iii)(C). You may use American Society of Mechanical Engineers (ASME) PTC 19–10–1981–Part 10 (available

for purchase from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, New Jersey, 07007–2900, or online at [www.asme.org/catalog](http://www.asme.org/catalog) ) as an alternative to EPA Method 3B of appendix A to 40 CFR part 60.

(f) The control device performance test must consist of three runs and each run must last at least 1 hour. The production conditions during the test runs must represent normal production conditions with respect to the types of parts being made and material application methods. The production conditions during the test must also represent maximum potential emissions with respect to the organic HAP content of the materials being applied and the material application rates.

(g) If you are using a concentrator/oxidizer control device, you must test the combined flow upstream of the concentrator, and the combined outlet flow from both the oxidizer and the concentrator to determine the overall control device efficiency. If the outlet flow from the concentrator and oxidizer are exhausted in separate stacks, you must test both stacks simultaneously with the inlet to the concentrator to determine the overall control device efficiency.

(h) During the test, you must also monitor and record separately the amounts of production resin, tooling resin, pigmented gel coat, clear gel coat, and tooling gel coat applied inside the enclosure that is vented to the control device.

*Section 63.5850 does not apply as the Spunstrand facility does not use add-on controls to meet the emission standard.*

**§ 63.5855 What are my monitor installation and operation requirements?**

You must monitor and operate all add-on control devices according to the procedures in 40 CFR part 63, subpart SS.

*This section does not apply as the Spunstrand facility does not use add-on controls to meet the emission standard.*

**§ 63.5860 How do I demonstrate initial compliance with the standards?**

(a) You demonstrate initial compliance with each organic HAP emissions standard in paragraphs (a) through (h) of §63.5805 that applies to you by using the procedures shown in Tables 8 and 9 to this subpart.

*Spunstrand acknowledges that initial compliance with each applicable organic HAP emissions standard in paragraphs (a) through (h) of §63.5805 must be demonstrated by using the procedures in Table 8 – Initial Compliance with Organic HAP Emission Limits and Table 9 – Initial Compliance with Work Practice Standards. Only one item 1 from Table 8 and items 2, 3, and 8 from Table 9 apply to the Spunstrand operations, as listed below*

Table 8: Initial Compliance With Organic HAP Emissions Limits

For ...	That must meet the following organic HAP emissions limit ...	You have demonstrated initial compliance if ...
<u>1. open molding and centrifugal casting operations</u>	<u>a. an organic HAP emissions limit shown in Tables 3 or 5 to this subpart, or an organic HAP content limit shown in Table 7 to this subpart</u>	<u>i. you have met the appropriate organic HAP emissions limits for these operations as calculated using the procedures in §63.5810 on a 12-month rolling average 1 year after the appropriate compliance date, and/or</u> <u>ii. you demonstrate that any individual resins or gel coats not included in (i) above, as applied, meet their applicable emission limits, or</u> <u>iii. you demonstrate using the appropriate values in Table 7 to this subpart that the weighted average of all resins and gel coats for each resin type and application method meet the appropriate organic HAP contents.</u>

**Table 9: Initial Compliance With Work Practice Standards**

For ...	That must meet the following standards ...	You have demonstrated initial compliance if ..
<a href="#">2. a new or existing cleaning operation</a>	<a href="#">not use cleaning solvents that contain HAP, except that styrene may be used in closed systems, and organic HAP containing materials may be used to clean cured resin from application equipment. Application equipment includes any equipment that directly contacts resin between storage and applying resin to the mold or reinforcement</a>	<a href="#">the owner or operator submits a certified statement in the notice of compliance status that all cleaning materials, except styrene contained in closed systems, or materials used to clean cured resin from application equipment, contain no HAP.</a>
<a href="#">3. a new or existing materials HAP-containing materials storage operation</a>	<a href="#">keep containers that store HAP-containing materials closed or covered except during the addition or removal of materials. Bulk HAP-containing materials storage tanks may be vented as necessary for safety</a>	<a href="#">the owner or operator submits a certified statement in the notice of compliance status that all HAP-containing storage containers are kept closed or covered except when adding or removing materials, and that any bulk storage tanks are vented only as necessary for safety.</a>
<a href="#">8. a new or existing mixing or BMC manufacturing operation</a>	<a href="#">keep the mixer covers closed during mixing except when adding materials to the mixing vessels</a>	<a href="#">the owner or operator submits a certified statement in the notice of compliance status that mixers closed except when adding materials to the mixing vessels.</a>

(b) If using an add-on control device to demonstrate compliance, you must also establish each control device operating limit in 40 CFR part 63, subpart SS, that applies to you.

*Paragraph (b) does not apply as the Spunstrand facility does not use add-on controls to meet the emission standard.*

**Emission Factor, Percent Reduction, and Capture Efficiency Calculation Procedures for Continuous Lamination/Casting Operations**

*Sections 63.5865 – 63.5890 do not apply as the Spunstrand facility does not have continuous lamination/casting operations.*

**§ 63.5865 What data must I generate to demonstrate compliance with the standards for continuous lamination/casting operations?**

(a) For continuous lamination/casting affected sources complying with a percent reduction requirement, you must generate the data identified in Tables 10 and 11 to this subpart for each data requirement that applies to your facility.

(b) For continuous lamination/casting affected sources complying with a lbs/ton limit, you must generate the data identified in Tables 11 and 12 to this subpart for each data requirement that applies to your facility.

*Sections 63.5865 – 63.5890 do not apply as the Spunstrand facility does not have continuous lamination/casting operations.*

**§ 63.5870 How do I calculate annual uncontrolled and controlled organic HAP emissions from my wet-out area(s) and from my oven(s) for continuous lamination/casting operations?**

To calculate your annual uncontrolled and controlled organic HAP emissions from your wet-out areas and from your ovens, you must develop uncontrolled and controlled wet-out area and uncontrolled and controlled oven organic HAP emissions estimation equations or factors to apply to each formula applied on each line, determine how much of each formula for each end product is applied each year on each line, and assign uncontrolled and controlled wet-out area and uncontrolled and controlled oven organic HAP emissions estimation equations or factors to each formula. You must determine the overall capture efficiency using the procedures in §63.5850 to this subpart.

(a) To develop uncontrolled and controlled organic HAP emissions estimation equations and factors, you must, at a minimum, do the following, as specified in paragraphs (a)(1) through (6) of this section:

(1) Identify each end product and the thickness of each end product produced on the line. Separate end products into the following end product groupings, as applicable: corrosion-resistant gel coated end products, noncorrosion-resistant gel coated end products, corrosion-resistant nongel coated end products, and noncorrosion-resistant nongel coated end products. This step creates end product/thickness combinations.

(2) Identify each formula used on the line to produce each end product/thickness combination. Identify the amount of each such formula applied per year. Rank each formula used to produce each end product/thickness combination according to usage within each end product/thickness combination.

(3) For each end product/thickness combination being produced, select the formula with the highest usage rate for testing.

(4) If not already selected, also select the worst-case formula (likely to be associated with the formula with the highest organic HAP content, type of HAP, application of gel coat, thin product, low line speed, higher resin table temperature) amongst all formulae. (You may use the results of the worst-case formula test for all formulae if desired to limit the amount of testing required.)

(5) For each formula selected for testing, conduct at least one test (consisting of three runs). During the test, track information on organic HAP content and type of HAP, end product thickness, line speed, and resin temperature on the wet-out area table.

(6) Using the test results, develop uncontrolled and controlled organic HAP emissions estimation equations (or factors) or series of equations (or factors) that best fit the results for estimating uncontrolled and controlled organic HAP emissions, taking into account the organic HAP content and type of HAP, end product thickness, line speed, and resin temperature on the wet-out area table.

(b) In lieu of using the method specified in paragraph (a) of this section for developing uncontrolled and controlled organic HAP emissions estimation equations and factors, you may either method specified in paragraphs (b)(1) and (2) of this section, as applicable.

(1) For either uncontrolled or controlled organic HAP emissions estimates, you may use previously established, facility-specific organic HAP emissions equations or factors, provided they allow estimation of both wet-out area and oven organic HAP emissions, where necessary, and have been approved by your permitting authority. If a previously established equation or factor is specific to the wet-out area only, or to the oven only, then you must develop the corresponding uncontrolled or controlled equation or factor for the other organic HAP emissions source.

(2) For uncontrolled (controlled) organic HAP emissions estimates, you may use controlled (uncontrolled) organic HAP emissions estimates and control device destruction efficiency to calculate your uncontrolled (controlled) organic HAP emissions provided the control device destruction efficiency was calculated at the same time you collected the data to develop your facility's controlled (uncontrolled) organic HAP emissions estimation equations and factors.

(c) Assign to each formula an uncontrolled organic HAP emissions estimation equation or factor based on the end product/thickness combination for which that formula is used.

(d)(1) To calculate your annual uncontrolled organic HAP emissions from wet-out areas that do not have any capture and control and from wet-out areas that are captured by an enclosure but are vented to the atmosphere and not to a control device, multiply each formula's annual usage by its appropriate organic HAP emissions estimation equation or factor and sum the individual results.

(2) To calculate your annual uncontrolled organic HAP emissions that escape from the enclosure on the wet-out area, multiply each formula's annual usage by its appropriate uncontrolled organic HAP emissions estimation equation or factor, sum the individual results, and multiply the summation by 1 minus the percent capture (expressed as a fraction).

(3) To calculate your annual uncontrolled oven organic HAP emissions, multiply each formula's annual usage by its appropriate uncontrolled organic HAP emissions estimation equation or factor and sum the individual results.

(4) To calculate your annual controlled organic HAP emissions, multiply each formula's annual usage by its appropriate organic HAP emissions estimation equation or factor and sum the individual results to obtain total annual controlled organic HAP emissions.

(e) Where a facility is calculating both uncontrolled and controlled organic HAP emissions estimation equations and factors, you must test the same formulae. In addition, you must develop both sets of equations and factors from the same tests.

*Sections 63.5865 – 63.5890 do not apply as the Spunstrand facility does not have continuous lamination/casting operations.*

**§ 63.5875 How do I determine the capture efficiency of the enclosure on my wet-out area and the capture efficiency of my oven(s) for continuous lamination/casting operations?**

(a) The capture efficiency of a wet-out area enclosure is assumed to be 100 percent if it meets the design and operation requirements for a permanent total enclosure (PTE) specified in EPA Method 204 of appendix M to 40 CFR part 51. If a PTE does not exist, then a temporary total enclosure must be constructed and verified using EPA Method 204, and capture efficiency testing must be determined using EPA Methods 204B through E of appendix M to 40 CFR part 51.

(b) The capture efficiency of an oven is to be considered 100 percent, provided the oven is operated under negative pressure.

*Sections 63.5865 – 63.5890 do not apply as the Spunstrand facility does not have continuous lamination/casting operations.*

**§ 63.5880 How do I determine how much neat resin plus is applied to the line and how much neat gel coat plus is applied to the line for continuous lamination/casting operations?**

Use the following procedures to determine how much neat resin plus and neat gel coat plus is applied to the line each year.

(a) Track formula usage by end product/thickness combinations.

(b) Use in-house records to show usage. This may be either from automated systems or manual records.

(c) Record daily the usage of each formula/end product combination on each line. This is to be recorded at the end of each run (i.e., when a changeover in formula or product is made) and at the end of each shift.

(d) Sum the amounts from the daily records to calculate annual usage of each formula/end product combination by line.

*Sections 63.5865 – 63.5890 do not apply as the Spunstrand facility does not have continuous lamination/casting operations.*

**§ 63.5885 How do I calculate percent reduction to demonstrate compliance for continuous lamination/casting operations?**

You may calculate percent reduction using any of the methods in paragraphs (a) through (d) of this section.

(a) *Compliant line option.* If all of your wet-out areas have PTE that meet the requirements of EPA Method 204 of appendix M of 40 CFR part 51, and all of your wet-out area organic HAP emissions and oven organic HAP emissions are vented to an add-on control device, use Equation 1 of this section to demonstrate compliance. In all other situations, use Equation 2 of this section to demonstrate compliance.

$$PR = \frac{(\text{Inlet}) - (\text{Outlet})}{(\text{Inlet})} \times 100 \quad (\text{Eq. 1})$$

Where:

PR=percent reduction;

Inlet+HAP emissions entering the control device, lbs per year;

Outlet=HAP emissions existing the control device to the atmosphere, lbs per year.

$$PR = \frac{(WAE_{ci} + O_{ci}) - (WAE_{co} + O_{co})}{(WAE_{ci} + WAE_u + O_{ci} + O_u)} \times 100 \quad (\text{Eq. 2})$$

Where:

PR=percent reduction;

WAE<sub>ci</sub>=wet-out area organic HAP emissions, lbs per year, vented to a control device;

WAE<sub>u</sub>=wet-out area organic HAP emissions, lbs per year, not vented to a control device;

O<sub>u</sub>=oven organic HAP emissions, lbs per year, not vented to a control device;

O<sub>ci</sub>=oven organic HAP emissions, lbs per year, vented to a control device;

WAE<sub>co</sub>=wet-out area organic HAP emissions, lbs per year, from the control device outlet;

O<sub>co</sub>=oven organic HAP emissions, lbs per year, from the control device outlet.

(b) *Averaging option.* Use Equation 3 of this section to calculate percent reduction.

$$PR = \frac{\left( \sum_{i=1}^m WAE_{ci} + \sum_{j=1}^n O_{cj} \right) - \left( \sum_{i=1}^m WAE_{co} + \sum_{j=1}^n O_{co} \right)}{\left( \sum_{i=1}^m WAE_{ci} + \sum_{j=1}^n O_{cj} + \sum_{i=1}^m WAE_{ui} + \sum_{j=1}^n O_{uj} \right)} \times 100 \quad (\text{Eq. 3})$$

Where:

PR=percent reduction;

WAE<sub>ci</sub>=wet-out area organic HAP emissions from wet-out area i, lbs per year, sent to a control device;

WAE<sub>u</sub>=wet-out area organic HAP emissions from wet-out area i, lbs per year, not sent to a control device;

WAE<sub>co</sub>=wet-out area organic HAP emissions from wet-out area i, lbs per year, at the outlet of a control device;

O<sub>u</sub>=organic HAP emissions from oven j, lbs per year, not sent to a control device;

O<sub>ci</sub>=organic HAP emissions from oven j, lbs per year, sent to a control device;

O<sub>co</sub>=organic HAP emissions from oven j, lbs per year, at the outlet of the control device;

m=number of wet-out areas;

n=number of ovens.

(c) *Add-on control device option.* Use Equation 1 of this section to calculate percent reduction.

(d) *Combination option.* Use Equations 1 through 3 of this section, as applicable, to calculate percent reduction.

[70 FR 50127, Aug. 25, 2005]

*Sections 63.5865 – 63.5890 do not apply as the Spunstrand facility does not have continuous lamination/casting operations.*

**§ 63.5890 How do I calculate an organic HAP emissions factor to demonstrate compliance for continuous lamination/casting operations?**

(a) *Compliant line option.* Use Equation 1 of this section to calculate an organic HAP emissions factor in lbs/ton.

$$E = \frac{WAE_u + WAE_c + O_u + O_c}{(R + G)} \quad (\text{Eq. 1})$$

Where:

E=HAP emissions factor in lbs/ton of resin and gel coat

WAE<sub>u</sub>=uncontrolled wet-out area organic HAP emissions, lbs per year

WAE<sub>c</sub>=controlled wet-out area organic HAP emissions, lbs per year

O<sub>u</sub>=uncontrolled oven organic HAP emissions, lbs per year

O<sub>c</sub>=controlled oven organic HAP emissions, lbs per year

R=total usage of neat resin plus, tpy

G=total usage of neat gel coat plus, tpy

(b) *Averaging option.* Use Equation 2 of this section to demonstrate compliance.

$$E = \frac{\sum_{i=1}^m WAE_{ui} + \sum_{i=1}^o WAE_{ci} + \sum_{j=1}^n O_{uj} + \sum_{j=1}^p O_{cj}}{(R + G)} \quad (\text{Eq. 2})$$

Where:

E=HAP emissions factor in lbs/ton of resin and gel coat

WAE<sub>ui</sub>=uncontrolled organic HAP emissions from wet-out area i, lbs per year

WAE<sub>ci</sub>=controlled organic HAP emissions from wet-out area i, lbs per year

O<sub>uj</sub>=uncontrolled organic HAP emissions from oven j, lbs per year

O<sub>cj</sub>=controlled organic HAP emissions from oven j, lbs per year

i=number of wet-out areas

j=number of ovens

m=number of wet-out areas uncontrolled

n=number of ovens uncontrolled

o=number of wet-out areas controlled

p=number of ovens controlled

R=total usage of neat resin plus, tpy

G=total usage of neat gel coat plus, tpy

(c) *Combination option.* Use Equations 1 and 2 of this section, as applicable, to demonstrate compliance.

*Sections 63.5865 – 63.5890 do not apply as the Spunstrand facility does not have continuous lamination/casting operations.*

## **Continuous Compliance Requirements**

### **§ 63.5895 How do I monitor and collect data to demonstrate continuous compliance?**

(a) During production, you must collect and keep a record of data as indicated in 40 CFR part 63, subpart SS, if you are using an add-on control device.

*Section 63.5895(a) does not apply to the facility as they do not operate an add-on control device.*

(b) You must monitor and collect data as specified in paragraphs (b)(1) through (4) of this section.

(1) Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must conduct all monitoring in continuous operation (or collect data at all required intervals) at all times that the affected source is operating.

(2) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities for purposes to this subpart, including data averages and calculations, or fulfilling a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

(3) At all times, you must maintain necessary parts for routine repairs of the monitoring equipment.

(4) A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring equipment to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(c) You must collect and keep records of resin and gel coat use, organic HAP content, and operation where the resin is used if you are meeting any organic HAP emissions limits based on an organic HAP emissions limit in Tables 3 or 5 to this subpart. You must collect and keep records of resin and gel coat use, organic HAP content, and operation where the resin is used if you are meeting any organic HAP content limits in Table 7 to this subpart if you are averaging organic HAP contents. Resin use records may be based on purchase records if you can reasonably estimate how the resin is applied. The organic HAP content records may be based on MSDS or on resin specifications supplied by the resin supplier.

(d) Resin and gel coat use records are not required for the individual resins and gel coats that are demonstrated, as applied, to meet their applicable emission as defined in §63.5810(a). However, you must retain the records of resin and gel coat organic HAP content, and you must include the list of these resins and gel coats and identify their application methods in your semiannual compliance reports. If after you have initially demonstrated that a specific combination of an individual resin or gel coat, application method, and controls meets its applicable emission limit, and the resin or gel coat changes or the organic HAP content increases, or you change the application method or controls, then you again must demonstrate that the individual resin or gel coat meets its emission limit as specified in paragraph (a) of §63.5810. If any of the previously mentioned changes results in a situation where an individual resin or gel coat now exceeds its applicable emission limit in Table 3 or 5 of this subpart, you must begin collecting resin and gel coat use records and calculate compliance using one of the averaging options on a 12-month rolling average.

*Spunstrand acknowledges that the requirements of 63.5895 (b)-(d) apply to Spunstrand operations for the monitoring and collecting of data to demonstrate continuous compliance.*

(e) For each of your pultrusion machines, you must record all times that wet area enclosures doors or covers are open and there is resin present in the resin bath.

*Section 63.5895(e) does not apply to the facility as they do not operate pultrusion machines.*

[68 FR 19402, Apr. 21, 2003, as amended at 70 FR 50128, Aug. 25, 2005]

### **§ 63.5900 How do I demonstrate continuous compliance with the standards?**

(a) You must demonstrate continuous compliance with each standard in §63.5805 that applies to you according to the methods specified in paragraphs (a)(1) through (3) of this section.

(1) Compliance with organic HAP emissions limits for sources using add-on control devices is demonstrated following the procedures in 40 CFR part 63, subpart SS. Sources using add-on controls may also use continuous emissions monitors to demonstrate continuous compliance as an alternative to control parameter monitoring.

(2) Compliance with organic HAP emissions limits is demonstrated by maintaining an organic HAP emissions factor value less than or equal to the appropriate organic HAP emissions limit listed in Table 3 or 5 to this subpart, on a 12-month rolling average, and/or by including in each compliance report a statement that individual resins and gel coats, as applied, meet the appropriate organic HAP emissions limits, as discussed in §63.5895(d).

(3) Compliance with organic HAP content limits in Table 7 to this subpart is demonstrated by maintaining an average organic HAP content value less than or equal to the appropriate organic HAP contents listed in Table 7 to this subpart, on a 12-month rolling average, and/or by including in each compliance report a statement that resins and gel coats individually meet the appropriate organic HAP content limits in Table 7 to this subpart, as discussed in §63.5895(d).

(4) Compliance with the work practice standards in Table 4 to this subpart is demonstrated by performing the work practice required for your operation.

(b) You must report each deviation from each standard in §63.5805 that applies to you. The deviations must be reported according to the requirements in §63.5910.

(c) Except as provided in paragraph (d) of this section, during periods of startup, shutdown or malfunction, you must meet the organic HAP emissions limits and work practice standards that apply to you.

(d) When you use an add-on control device to meet standards in §63.5805, you are not required to meet those standards during periods of startup, shutdown, or malfunction, but you must operate your affected source to minimize emissions in accordance with §63.6(e)(1).

(e) Consistent with §§63.6(e) and 63.7(e)(1), deviations that occur during a period of malfunction for those affected sources and standards specified in paragraph (d) of this section are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with §63.6(e)(1). The Administrator will determine whether deviations that occur during a period of startup, shutdown, and malfunction are violations, according to the provisions in §63.6(e).

*Spunstrand acknowledges that the requirements of 63.5900 apply to Spunstrand operations for the demonstrate continuous compliance. Sections 63.5900(a)(1) and (d) do not apply as Spunstrand does not operate an add-on control.*

[68 FR 19402, Apr. 21, 2003, as amended at 70 FR 50128, Aug. 25, 2005; 71 FR 20466, Apr. 20, 2006]

## Notifications, Reports, and Records

### § 63.5905 What notifications must I submit and when?

(a) You must submit all of the notifications in Table 13 to this subpart that apply to you by the dates specified in Table 13 to this subpart. The notifications are described more fully in 40 CFR part 63, subpart A, referenced in Table 13 to this subpart.

(b) If you change any information submitted in any notification, you must submit the changes in writing to the Administrator within 15 calendar days after the change.

*Spunstrand acknowledges the applicability of the notification requirements of Table 13.*

### § 63.5910 What reports must I submit and when?

(a) You must submit each report in Table 14 to this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date specified in Table 14 to this subpart and according to paragraphs (b)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.5800 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.5800.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.5800.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting requirements pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to §70.6 (a)(3)(iii)(A) or §71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The compliance report must contain the information in paragraphs (c)(1) through (6) of this section:

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of the report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in §63.10(d)(5)(i).

(5) If there are no deviations from any organic HAP emissions limitations (emissions limit and operating limit) that apply to you, and there are no deviations from the requirements for work practice standards in Table 4 to this subpart, a statement that there were no deviations from the organic HAP emissions limitations or work practice standards during the reporting period.

(6) If there were no periods during which the continuous monitoring system (CMS), including a continuous emissions monitoring system (CEMS) and an operating parameter monitoring system were out of control, as specified in §63.8(c)(7), a statement that there were no periods during which the CMS was out of control during the reporting period.

(d) For each deviation from an organic HAP emissions limitation (i.e., emissions limit and operating limit) and for each deviation from the requirements for work practice standards that occurs at an affected source where you are not using a CMS to comply with the organic HAP emissions limitations or work practice standards in this subpart, the compliance report must contain the information in paragraphs (c)(1) through (4) of this section and in paragraphs (d)(1) and (2) of this section. This includes periods of startup, shutdown, and malfunction.

(1) The total operating time of each affected source during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from an organic HAP emissions limitation (i.e., emissions limit and operating limit) occurring at an affected source where you are using a CMS to comply with the organic HAP emissions limitation in this subpart, you must include the information in paragraphs (c)(1) through (4) of this section and in paragraphs (e)(1) through (12) of this section. This includes periods of startup, shutdown, and malfunction.

(1) The date and time that each malfunction started and stopped.

(2) The date and time that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out of control, including the information in §63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction, or during another period.

(5) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period and the total duration of CMS downtime as a percent of the total source operating time during that reporting period.

(8) An identification of each organic HAP that was monitored at the affected source.

(9) A brief description of the process units.

(10) A brief description of the CMS.

(11) The date of the latest CMS certification or audit.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

(f) You must report if you have exceeded the 100 tpy organic HAP emissions threshold if that exceedance would make your facility subject to §63.5805(a)(1) or (d). Include with this report any request for an exemption under §63.5805(e). If you receive an exemption under §63.5805(e) and subsequently exceed the 100 tpy organic HAP emissions threshold, you must report this exceedance as required in §63.5805(f).

(g) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by §70.6(a)(3)(iii)(A) or §71.6(a)(3)(iii)(A). If an affected source submits a compliance report pursuant to Table 14 to this subpart along with, or as part of, the semiannual monitoring report required by §70.6(a)(3)(iii)(A) or §71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any organic HAP emissions limitation (including any operating limit) or work practice requirement in this subpart, submission of the compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permitting authority.

(h) Submit compliance reports and startup, shutdown, and malfunction reports based on the requirements in table 14 to this subpart, and not based on the requirements in §63.999.

(i) Where multiple compliance options are available, you must state in your next compliance report if you have changed compliance options since your last compliance report.

*Spunstrand acknowledges the applicability of the reporting requirements of 63.5910(a),(b),(c)(1)-(5), (d), (g), (h), and (i). Paragraphs 63.5910 (c)(6), (e) and (f) do not apply as the facility does not operate a continuous monitoring system or add-on controls.*

[68 FR 19402, Apr. 21, 2003, as amended at 70 FR 50128, Aug. 25, 2005]

### **§ 63.5915 What records must I keep?**

(a) You must keep the records listed in paragraphs (a)(1) through (3) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirements in §63.10(b)(2)(xiv).

(2) The records in §63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests, design, and performance evaluations as required in §63.10(b)(2).

(b) If you use an add-on control device, you must keep all records required in 40 CFR part 63, subpart SS, to show continuous compliance with this subpart.

(c) You must keep all data, assumptions, and calculations used to determine organic HAP emissions factors or average organic HAP contents for operations listed in tables 3, 5, and 7 to this subpart.

(d) You must keep a certified statement that you are in compliance with the work practice requirements in Table 4 to this subpart, as applicable.

(e) For a new or existing continuous lamination/ casting operation, you must keep the records listed in paragraphs (e)(1) through (4) of this section, when complying with the percent reduction and/or lbs/ton requirements specified in paragraphs (a) and (c) through (d) of §63.5805.

(1) You must keep all data, assumptions, and calculations used to determine percent reduction and/or lbs/ton as applicable;

- (2) You must keep a brief description of the rationale for the assignment of an equation or factor to each formula;
- (3) When using facility-specific organic HAP emissions estimation equations or factors, you must keep all data, assumptions, and calculations used to derive the organic HAP emissions estimation equations and factors and identification and rationale for the worst-case formula; and
- (4) For all organic HAP emissions estimation equations and organic HAP emissions factors, you must keep documentation that the appropriate permitting authority has approved them.

*Spunstrand acknowledges the applicability of the recordkeeping requirements of 63.5915(a),(c) and (d). Paragraphs 63.5915 (b) and (e) do not apply as the facility does not operate add-on control devices or continuous lamination / casting operations..*

[68 FR 19402, Apr. 21, 2003, as amended at 70 FR 50129, Aug. 25, 2005]

### **§ 63.5920 In what form and how long must I keep my records?**

(a) You must maintain all applicable records in such a manner that they can be readily accessed and are suitable for inspection according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record onsite for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You can keep the records offsite for the remaining 3 years.

(d) You may keep records in hard copy or computer readable form including, but not limited to, paper, microfilm, computer floppy disk, magnetic tape, or microfiche.

*Spunstrand acknowledges the applicability of the recordkeeping requirements of 63.5920.*

### **Other Requirements and Information**

### **§ 63.5925 What parts of the General Provisions apply to me?**

Table 15 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you.

*Spunstrand acknowledges the applicability of the General Provisions of sections 63.1 through 63.15 as specified in Table 15.*

### **§ 63.5930 Who implements and enforces this subpart?**

(a) This subpart can be administered by us, the EPA, or a delegated authority such as your State, local, or tribal agency. If the EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to administer and enforce this subpart. You should contact your EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are not delegated.

(c) The authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (4) of this section:

- (1) Approval of alternatives to the organic HAP emissions standards in §63.5805 under §63.6(g).

- (2) Approval of major changes to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.
- (3) Approval of major changes to monitoring under §63.8(f) and as defined in §63.90.
- (4) Approval of major changes to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

*Spunstrand acknowledges the delegation of authority for implementation and enforcement of this subpart in accordance with 63.5930.*

#### **§ 63.5935 What definitions apply to this subpart?**

*Spunstrand acknowledges the definitions of this subpart in accordance with 63.5935, and used these definitions as part of this applicability determination.*

Terms used in this subpart are defined in the CAA, in 40 CFR 63.2, and in this section as follows:

*Atomized mechanical application* means application of resin or gel coat with spray equipment that separates the liquid into a fine mist. This fine mist may be created by forcing the liquid under high pressure through an elliptical orifice, bombarding a liquid stream with directed air jets, or a combination of these techniques.

*Bulk molding compound (BMC)* means a putty-like molding compound containing resin(s) in a form that is ready to mold. In addition to resins, BMC may contain catalysts, fillers, and reinforcements. Bulk molding compound can be used in compression molding and injection molding operations to manufacture reinforced plastic composites products.

*BMC manufacturing* means a process that involves the preparation of BMC.

*Centrifugal casting* means a process for fabricating cylindrical composites, such as pipes, in which composite materials are positioned inside a rotating hollow mandrel and held in place by centrifugal forces until the part is sufficiently cured to maintain its physical shape.

*Charge* means the amount of SMC or BMC that is placed into a compression or injection mold necessary to complete one mold cycle.

*Cleaning* means removal of composite materials, such as cured and uncured resin from equipment, finished surfaces, floors, hands of employees, or any other surfaces.

*Clear production gel coat* means an unpigmented, quick-setting resin used to improve the surface appearance and/or performance of composites. It can be used to form the surface layer of any composites other than those used for molds in tooling operations.

*Closed molding* means a grouping of processes for fabricating composites in a way that HAP-containing materials are not exposed to the atmosphere except during the material loading stage ( e.g., compression molding, injection molding, and resin transfer molding). Processes where the mold is covered with plastic (or equivalent material) prior to resin application, and the resin is injected into the covered mold are also considered closed molding.

*Composite* means a shaped and cured part produced by using composite materials.

*Composite materials* means the raw materials used to make composites. The raw materials include styrene containing resins. They may also include gel coat, monomer, catalyst, pigment, filler, and reinforcement.

*Compression molding* means a closed molding process for fabricating composites in which composite materials are placed inside matched dies that are used to cure the materials under heat and pressure without exposure to the atmosphere. The addition of mold paste or in-mold coating is considered part of the closed molding process. The composite materials used in this process are generally SMC or BMC.

*Compression/injection molding* means a grouping of processes that involves the use of compression molding and/or injection molding.

*Continuous casting* means a continuous process for fabricating composites in which composite materials are placed on an in-line conveyor belt to produce cast sheets that are cured in an oven.

*Continuous lamination* means a continuous process for fabricating composites in which composite materials are typically sandwiched between plastic films, pulled through compaction rollers, and cured in an oven. This process is generally used to produce flat or corrugated products on an in-line conveyor.

*Continuous lamination/casting* means a grouping of processes that involves the use of continuous lamination and/or continuous casting.

*Controlled emissions* means those organic HAP emissions that are vented from a control device to the atmosphere.

*Corrosion-resistant gel coat* means a gel coat used on a product made with a corrosion-resistant resin that has a corrosion-resistant end-use application.

*Corrosion-resistant end-use applications* means applications where the product is manufactured specifically for an application that requires a level of chemical inertness or resistance to chemical attack above that required for typical reinforced plastic composites products. These applications include, but are not limited to, chemical processing and storage; pulp and paper production; sewer and wastewater treatment; power generation; potable water transfer and storage; food and drug processing; pollution or odor control; metals production and plating; semiconductor manufacturing; petroleum production, refining, and storage; mining; textile production; nuclear materials storage; swimming pools; and cosmetic production, as well as end-use applications that require high strength resins.

*Corrosion-resistant industry standard* includes the following standards: ASME RTP-1 or Sect. X; ASTM D5364, D3299, D4097, D2996, D2997, D3262, D3517, D3754, D3840, D4024, D4160, D4161, D4162, D4184, D3982, or D3839; ANSI/AWWA C950; UL 215, 1316 or 1746, IAPMO PS-199, or written customer requirements for resistance to specified chemical environments.

*Corrosion-resistant product* means a product made with a corrosion-resistant resin and is manufactured to a corrosion-resistant industry standard, or a food contact industry standard, or is manufactured for corrosion-resistant end-use applications involving continuous or temporary chemical exposures.

*Corrosion-resistant resin* means a resin that either:

(1) Displays substantial retention of mechanical properties when undergoing ASTM C-581 coupon testing, where the resin is exposed for 6 months or more to one of the following materials: Material with a pH  $\geq$  12.0 or  $\leq$  3.0, oxidizing or reducing agents, organic solvents, or fuels or additives as defined in 40 CFR 79.2. In the coupon testing, the exposed resin needs to demonstrate a minimum of 50 percent retention of the relevant mechanical property compared to the same resin in unexposed condition. In addition, the exposed resin needs to demonstrate an increased retention of the relevant mechanical property of at least 20 percentage points when compared to a similarly exposed general-purpose resin. For example, if the general-purpose resin retains 45 percent of the relevant property when tested as specified above, then a corrosion-resistant resin needs to retain at least 65 percent (45 percent plus 20 percent) of its property. The general-purpose resin used in the test needs to have an average molecular weight of greater than 1,000, be formulated with a 1:2 ratio of maleic anhydride to phthalic anhydride and 100 percent diethylene glycol, and a styrene content between 43 to 48 percent; or

(2) Complies with industry standards that require specific exposure testing to corrosive media, such as UL 1316, UL 1746, or ASTM F-1216.

*Doctor box* means the box or trough on an SMC machine into which the liquid resin paste is delivered before it is metered onto the carrier film.

*Filament application* means an open molding process for fabricating composites in which reinforcements are fed through a resin bath and wound onto a rotating mandrel. The materials on the mandrel may be rolled out or worked by using nonmechanical tools prior to curing. Resin application to the reinforcement on the mandrel by means other than the resin bath, such as spray guns, pressure-fed rollers, flow coaters, or brushes is not considered filament application.

*Filled Resin* means that fillers have been added to a resin such that the amount of inert substances is at least 10 percent by weight of the total resin plus filler mixture. Filler putty made from a resin is considered a filled resin.

*Fillers* means inert substances dispersed throughout a resin, such as calcium carbonate, alumina trihydrate, hydrous aluminum silicate, mica, feldspar, wollastonite, silica, and talc. Materials that are not considered to be fillers are glass fibers or any type of reinforcement and microspheres.

*Fire retardant gel coat* means a gel coat used for products for which low-flame spread/low-smoke resin is used.

*Fluid impingement technology* means a spray gun that produces an expanding non-misting curtain of liquid by the impingement of low-pressure uninterrupted liquid streams.

*Food contact industry standard* means a standard related to food contact application contained in Food and Drug Administration's regulations at 21 CFR 177.2420.

*Gel Coat* means a quick-setting resin used to improve surface appearance and/or performance of composites. It can be used to form the surface layer of any composites other than those used for molds in tooling operations.

*Gel coat application* means a process where either clear production, pigmented production, white/off-white or tooling gel coat is applied.

*HAP-containing materials storage* means an ancillary process which involves keeping HAP-containing materials, such as resins, gel coats, catalysts, monomers, and cleaners, in containers or bulk storage tanks for any length of time. Containers may include small tanks, totes, vessels, and buckets.

*High Performance gel coat* means a gel coat used on products for which National Sanitation Foundation, United States Department of Agriculture, ASTM, durability, or other property testing is required.

*High strength gel coat* means a gel coat applied to a product that requires high strength resin.

*High strength resins* means polyester resins which have a casting tensile strength of 10,000 pounds per square inch or more and which are used for manufacturing products that have high strength requirements such as structural members and utility poles.

*Injection molding* means a closed molding process for fabricating composites in which composite materials are injected under pressure into a heated mold cavity that represents the exact shape of the product. The composite materials are cured in the heated mold cavity.

*Low Flame Spread/Low Smoke Products* means products that meet the following requirements. The products must meet both the applicable flame spread requirements and the applicable smoke requirements. Interior or exterior building application products must meet an ASTM E-84 Flame Spread Index of less than or equal to 25, and Smoke Developed Index of less than or equal to 450, or pass National Fire Protection Association 286 Room Corner Burn Test with no flash over and total smoke released not exceeding 1000 meters square. Mass transit application products must meet an ASTM E-162 Flame Spread Index of less than or equal to 35 and ASTM E662 Smoke Density Ds @ 1.5 minutes less than or equal to 100 and Ds @ 4 minutes less than to equal to 200. Duct application products must meet ASTM E084 Flame Spread Index less than or equal to 25 and Smoke Developed Index less than or equal to 50 on the interior and/or exterior of the duct.

*Manual resin application* means an open molding process for fabricating composites in which composite materials are applied to the mold by pouring or by using hands and nonmechanical tools, such as brushes and rollers. Materials are rolled out or worked by using nonmechanical tools prior to curing. The use of pressure-fed rollers and flow coaters to apply resin is not considered manual resin application.

*Mechanical resin application* means an open molding process for fabricating composites in which composite materials (except gel coat) are applied to the mold by using mechanical tools such as spray guns, pressure-fed rollers, and flow coaters. Materials are rolled out or worked by using nonmechanical tools prior to curing.

*Mixing* means the blending or agitation of any HAP-containing materials in vessels that are 5.00 gallons (18.9 liters) or larger, and includes the mixing of putties or polyputties. Mixing may involve the blending of resin, gel coat, filler, reinforcement, pigments, catalysts, monomers, and any other additives.

*Mold* means a cavity or matrix into or onto which the composite materials are placed and from which the product takes its form.

*Neat gel coat* means the resin as purchased for the supplier, but not including any inert fillers.

*Neat gel coat plus* means neat gel coat plus any organic HAP-containing materials that are added to the gel coat by the supplier or the facility, excluding catalysts and promoters. Neat gel coat plus does include any additions of styrene or methyl methacrylate monomer in any form, including in catalysts and promoters.

*Neat resin* means the resin as purchased from the supplier, but not including any inert fillers.

*Neat resin plus* means neat resin plus any organic HAP-containing materials that are added to the resin by the supplier or the facility. Neat resin plus does not include any added filler, reinforcements, catalysts, or promoters. Neat resin plus does include any additions of styrene or methyl methacrylate monomer in any form, including in catalysts and promoters.

*Nonatomized mechanical application* means the use of application tools other than brushes to apply resin and gel coat where the application tool has documentation provided by its manufacturer or user that this design of the application tool has been organic HAP emissions tested, and the test results showed that use of this application tool results in organic HAP emissions that are no greater than the organic HAP emissions predicted by the applicable nonatomized application equation(s) in Table 1 to this subpart. In addition, the device must be operated according to the manufacturer's directions, including instructions to prevent the operation of the device at excessive spray pressures. Examples of nonatomized application include flow coaters, pressure fed rollers, and fluid impingement spray guns.

*Noncorrosion-resistant resin* means any resin other than a corrosion-resistant resin or a tooling resin.

*Noncorrosion-resistant product* means any product other than a corrosion-resistant product or a mold.

*Non-routine manufacture* means that you manufacture parts to replace worn or damaged parts of a reinforced plastic composites product, or a product containing reinforced plastic composite parts, that was originally manufactured in another facility. For a part to qualify as non-routine manufacture, it must be used for repair or replacement, and the manufacturing schedule must be based on the current or anticipated repair needs of the reinforced plastic composites product, or a product containing reinforced plastic composite parts.

*Operation* means a specific process typically found at a reinforced plastic composites facility. Examples of operations are noncorrosion-resistant manual resin application, corrosion-resistant mechanical resin application, pigmented gel coat application, mixing and HAP-containing materials storage.

*Operation group* means a grouping of individual operations based primarily on mold type. Examples are open molding, closed molding, and centrifugal casting.

*Open molding* means a process for fabricating composites in a way that HAP-containing materials are exposed to the atmosphere. Open molding includes processes such as manual resin application, mechanical resin application, filament application, and gel coat application. Open molding also includes application of resins and gel coats to parts that have been removed from the open mold.

*Pigmented gel coat* means a gel coat that has a color, but does not contain 10 percent of more titanium dioxide by weight. It can be used to form the surface layer of any composites other than those used for molds in tooling operations.

*Polymer casting* means a process for fabricating composites in which composite materials are ejected from a casting machine or poured into an open, partially open, or closed mold and cured. After the composite materials are poured into the mold, they are not rolled out or worked while the mold is open, except for smoothing the material and/or vibrating the mold to remove bubbles. The composite materials may or may not include reinforcements. Products produced by the polymer casting process include cultured marble products and polymer concrete.

*Preform Injection* means a form of pultrusion where liquid resin is injected to saturate reinforcements in an enclosed system containing one or more chambers with openings only large enough to admit reinforcements. Resin, which drips out of the chamber(s) during the process, is collected in closed piping or covered troughs and then into a covered reservoir for recycle. Resin storage vessels, reservoirs, transfer systems, and collection systems are covered or shielded from the ambient air. Preform injection differs from direct die injection in that the injection chambers are not directly attached to the die.

*Prepreg materials* means reinforcing fabric received precoated with resin which is usually cured through the addition of heat.

*Pultrusion* means a continuous process for manufacturing composites that have a uniform cross-sectional shape. The process consists of pulling a fiber-reinforcing material through a resin impregnation chamber or bath and through a shaping die, where the resin is subsequently cured. There are several types of pultrusion equipment, such as open bath, resin injection, and direct die injection equipment.

*Repair* means application of resin or gel coat to a part to correct a defect, where the resin or gel coat application occurs after the part has gone through all the steps of its typical production process, or the application occurs outside the normal production area. For purposes of this subpart, rerouting a part back through the normal production line, or part of the normal production line, is not considered repair.

*Resin transfer molding* means a process for manufacturing composites whereby catalyzed resin is transferred or injected into a closed mold in which fiberglass reinforcement has been placed.

*Sheet molding compound (SMC)* means a ready-to-mold putty-like molding compound that contains resin(s) processed into sheet form. The molding compound is sandwiched between a top and a bottom film. In addition to resin(s), it may also contain catalysts, fillers, chemical thickeners, mold release agents, reinforcements, and other ingredients. Sheet molding compound can be used in compression molding to manufacture reinforced plastic composites products.

*Shrinkage controlled resin* means a resin that when promoted, catalyzed, and filled according to the resin manufacturer's recommendations demonstrates less than 0.3 percent linear shrinkage when tested according to ASTM D2566.

*SMC manufacturing* means a process which involves the preparation of SMC.

*Tooling gel coat* means a gel coat that is used to form the surface layer of molds. Tooling gel coats generally have high heat distortion temperatures, low shrinkage, high barcol hardness, and high dimensional stability.

*Tooling resin* means a resin that is used to produce molds. Tooling resins generally have high heat distortion temperatures, low shrinkage, high barcol hardness, and high dimensional stability.

*Uncontrolled oven organic HAP emissions* means those organic HAP emissions emitted from the oven through closed vent systems to the atmosphere and not to a control device. These organic HAP emissions do not include organic HAP emissions that may escape into the workplace through the opening of panels or doors on the ovens or other similar fugitive organic HAP emissions in the workplace.

*Uncontrolled wet-out area organic HAP emissions* means any or all of the following: Organic HAP emissions from wet-out areas that do not have any capture and control, organic HAP emissions that escape from wet-out area enclosures, and organic HAP emissions from wet-out areas that are captured by an enclosure but are vented to the atmosphere and not to an add-on control device.

*Unfilled* means that there has been no addition of fillers to a resin or that less than 10 percent of fillers by weight of the total resin plus filler mixture has been added.

*Vapor suppressant* means an additive, typically a wax, that migrates to the surface of the resin during curing and forms a barrier to seal in the styrene and reduce styrene emissions.

*Vapor-suppressed resin* means a resin containing a vapor suppressant added for the purpose of reducing styrene emissions during curing.

*White and off-white gel coat* means a gel coat that contains 10 percent of more titanium dioxide by weight.

[68 FR 19402, Apr. 21, 2003, as amended at 70 FR 50129, Aug. 25, 2005]

Table I to Subpart WWW of Part 63—Equations To Calculate Organic HAP Emissions Factors for Specific Open Molding and Centrifugal Casting Process Streams

Table I to Subpart WWW of Part 63—Equations To Calculate Organic HAP Emissions Factors for Specific Open Molding and Centrifugal Casting Process Streams

As specified in §63.5820, use the equations in the following table to calculate organic HAP emissions factors for specific open molding and centrifugal casting process streams:

If your operation type is a new or existing...	And you use...	With...	Use this organic HAP Emissions Factor (EF) Equation for materials with less than 33 percent organic HAP (19 percent organic HAP for atomized gel coat)	Use this organic HAP emissions Factor (EF) Equation for materials with 33 percent or more organic HAP (19 percent for nonatomized gel coat)
i. open molding operation	a. manual resin application	i. nonvapor-suppressed resin	$EF = 0.126 \times \%HAP \times 2000$	$EF = [(0.286 \times \%HAP) - 0.0529] \times 2000$
		ii. vapor-suppressed resin	$EF = 0.126 \times \%HAP \times 2000 \times [(1 - 0.5 \times VSE \text{ factor})]$	$EF = [(0.286 \times \%HAP) - 0.0529] \times 2000 \times [(1 - 0.5 \times VSE \text{ factor})]$
		iii. vacuum bagging/closed-mold curing with roll-out	$EF = 0.126 \times \%HAP \times 2000 \times 0.8$	$EF = [(0.286 \times \%HAP) - 0.0529] \times 2000 \times 0.8$
		iv. vacuum bagging/closed-mold curing without roll-out	$EF = [0.126 \times \%HAP \times 2000 \times 0.5]$	$EF = [(0.286 \times \%HAP) - 0.0529] \times 2000 \times 0.5$
	b. atomized mechanical resin application	i. nonvapor-suppressed resin	$EF = 0.169 \times \%HAP \times 2000$	$EF = [(0.714 \times \%HAP) - 0.18] \times 2000$
		ii. vapor-suppressed resin	$EF = 0.169 \times \%HAP \times 2000 \times [(1 - 0.45 \times VSE \text{ factor})]$	$EF = [(0.714 \times \%HAP) - 0.18] \times 2000 \times [(1 - 0.45 \times VSE \text{ factor})]$
		iii. vacuum bagging/closed-mold curing with roll-out	$EF = 0.169 \times \%HAP \times 2000 \times 0.85$	$EF = [(0.714 \times \%HAP) - 0.18] \times 2000 \times 0.85$
		iv. vacuum bagging/closed-mold curing without roll-out	$EF = 0.169 \times \%HAP \times 2000 \times 0.55$	$EF = [(0.714 \times \%HAP) - 0.18] \times 2000 \times 0.55$
	c. nonatomized mechanical resin application	i. nonvapor-suppressed resin	$EF = 0.107 \times \%HAP \times 2000$	$EF = [(0.157 \times \%HAP) - 0.0155] \times 2000$
		ii. vapor-suppressed resin	$EF = 0.107 \times \%HAP \times 2000 \times [(1 - 0.45 \times VSE \text{ factor})]$	$EF = [(0.157 \times \%HAP) - 0.0155] \times 2000 \times [(1 - 0.45 \times VSE \text{ factor})]$
		iii. closed-mold curing with roll-out	$EF = 0.107 \times \%HAP \times 2000 \times 0.85$	$EF = [(0.157 \times \%HAP) - 0.0155] \times 2000 \times 0.85$
		iv. vacuum bagging/closed-mold curing without roll-out	$EF = 0.107 \times \%HAP \times 2000 \times 0.55$	$EF = [(0.157 \times \%HAP) - 0.0155] \times 2000 \times 0.55$
d. atomized mechanical resin application with robotic or automated spray control	nonvapor-suppressed resin	$EF = 0.169 \times \%HAP \times 2000 \times 0.77$	$EF = 0.77 \times [(0.714 \times \%HAP) - 0.18] \times 2000$	
e. filament application	i. nonvapor-suppressed resin	$EF = 0.184 \times \%HAP \times 2000$	$EF = [(0.2746 \times \%HAP) - 0.0298] \times 2000$	
	ii. vapor-suppressed resin	$EF = 0.18 \times \%HAP \times 2000$	$EF = [(0.3746 \times \%HAP) - 0.0298] \times 2000 \times 0.65$	
f. atomized spray gel coat application	nonvapor-suppressed gel coat	$EF = 0.445 \times \%HAP \times 2000$	$EF = [(1.03546 \times \%HAP) - 0.195] \times 2000$	

[70 FR 50129, Aug. 26, 2005]

	g. nonatomized spray gel coat application	nonvapor-suppressed gel coat	$EF = 0.185 \times \%HAP \times 2000$	$EF = ((0.4506 \times \%HAP) - 0.0505) \times 2000$	
	h. atomized spray gel coat application using robotic or automated spray	nonvapor-suppressed gel coat	$EF = 0.495 \times \%HAP \times 2000 \times 0.75$	$EF = ((1.03646 \times \%HAP) - 0.1951) \times 2000 \times 0.75$	
2	centrifugal casting operations <sup>7</sup>	a. heated air blown through molds	vapor-suppressed resin	$EF = 0.558 \times (\%HAP) \times 2000$	$EF = 0.558 \times (\%HAP) \times 2000$
		b. vented molds, but air vented through the molds is not heated	nonvapor-suppressed resin	$EF = 0.026 \times (\%HAP) \times 2000$	$EF = 0.026 \times (\%HAP) \times 2000$

Footnotes to Table 1

<sup>1</sup> The equations in this table are intended for use in calculating emission factors to demonstrate compliance with the emission limits in subpart MMW. These equations may not be the most appropriate method to calculate emission estimates for other purposes. However, this does not preclude a facility from using the equations in this table to calculate emission factors for purposes other than rule compliance if these equations are the most accurate available.

<sup>2</sup> To obtain the organic HAP emissions factor value for an operation with an add on control device multiply the EF above by the add on control factor calculated using Equation 1 of 563.5810. The organic HAP emissions factors have units of lbs of organic HAP per ton of resin or gel coat applied.

<sup>3</sup> Percent HAP means total weight percent of organic HAP (styrene, methyl methacrylate, and any other organic HAP) in the resin or gel coat prior to the addition of fillers, catalyst, and promoters. Input the percent HAP as a decimal, i.e., 33 percent HAP should be input as 0.33, not 33.

<sup>4</sup> The VSE factor means the percent reduction in organic HAP emissions expressed as a decimal measured by the VSE test method of appendix A to this subpart.

<sup>5</sup> This equation is based on a organic HAP emissions factor equation developed for mechanical atomized controlled spray. It may only be used for automated or robotic spray systems with atomized spray. All spray operations using hand held spray guns must use the appropriate mechanical atomized or mechanical nonatomized organic HAP emissions factor equation. Automated or robotic spray systems using nonatomized spray should use the appropriate nonatomized mechanical resin application equation.

<sup>6</sup> Applies only to filament application using an open resin bath. If resin is applied manually or with a spray gun, use the appropriate manual or mechanical application organic HAP emissions factor equation.

<sup>7</sup> These equations are for centrifugal casting operations where the mold is vented during spinning. Centrifugal casting operations where the mold is completely sealed after resin injection are considered to be closed molding operations.

<sup>8</sup> If a centrifugal casting operation uses mechanical or manual resin application techniques to apply resin to an open centrifugal casting mold, use the appropriate open molding equation with covered cure and no rollout to determine an emission factor for operations prior to the closing of the centrifugal casting mold. If the closed centrifugal casting mold is vented during spinning, use the appropriate centrifugal casting equation to calculate an emission factor for the portion of the process where spinning and cure occur. If a centrifugal casting operation uses mechanical or manual resin application techniques to apply resin to an open centrifugal casting mold, and the mold is then closed and is not vented, treat the entire operation as open molding with covered cure and no rollout to determine emission factors.

**Table 2 to Subpart WWWW of Part 63—Compliance Dates for New and Existing Reinforced Plastic Composites Facilities**

As required in §§63.5800 and 63.5840 you must demonstrate compliance with the standards by the dates in the following table:

If your facility is . . .	And . . .	Then you must comply by this date...
1. <u>An existing source</u>	a. <u>Is a major source on or before the publication date of this subpart</u>	i. <u>April 21, 2006, or</u> ii. <u>You must accept and meet an enforceable HAP emissions limit below the major source threshold prior to April 21, 2006.</u>
2. An existing source that is an area source	Becomes a major source after the publication date of this subpart	3 years after becoming a major source or April 21, 2006, whichever is later.
3. An existing source, and emits less than 100 tpy of organic HAP from the combination of all centrifugal casting and continuous lamination/casting operations at the time of initial compliance with this subpart	Subsequently increases its actual organic HAP emissions to 100 tpy or more from these operations, which requires that the facility must now comply with the standards in §63.5805(b)	3 years of the date your semi-annual compliance report indicates your facility meets or exceeds the 100 tpy threshold.
4. A new source	Is a major source at startup	Upon startup or April 21, 2003, whichever is later.
5. A new source	Is an area source at startup and becomes a major source	Immediately upon becoming a major source.
6. A new source, and emits less than 100 tpy of organic HAP from the combination of all open molding, centrifugal casting, continuous lamination/casting, pultrusion, SMC and BMC manufacturing, and mixing operations at the time of initial compliance with this subpart	Subsequently increases its actual organic HAP emissions to 100 tpy or more from the combination of these operations, which requires that the facility must now meet the standards in §63.5805(d)	3 years from the date that your semi-annual compliance report indicates your facility meets or exceeds the 100 tpy threshold.

**Table 3 to Subpart WWWW of Part 63—Organic HAP Emissions Limits for Existing Open Molding Sources, New Open Molding Sources Emitting Less Than 100 TPY of HAP, and New and Existing Centrifugal Casting and Continuous Lamination/Casting Sources that Emit Less Than 100 TPY of HAP**

As specified in §63.5805, you must meet the following organic HAP emissions limits that apply to you:

If your operation type is . . .	And you use . . .	<sup>1</sup> Your organic HAP emissions limit is . . .
1. open molding— <u>corrosion-resistant and/or high strength (CR/HS)</u>	a. <u>mechanical resin application</u> b. <u>filament application</u> c. <u>manual resin application</u>	<u>113 lb/ton.</u> <u>171 lb/ton.</u> <u>123 lb/ton.</u>
2. open molding—non-CR/HS	a. mechanical resin application b. filament application c. manual resin application	88 lb/ton. 188 lb/ton. 87 lb/ton.
3. open molding—tooling	a. mechanical resin application b. manual resin application	254 lb/ton. 157 lb/ton.
4. open molding— <u>low-flame spread/low-smoke products</u>	a. <u>mechanical resin application</u> b. <u>filament application</u> c. <u>manual resin application</u>	<u>497 lb/ton.</u> <u>270 lb/ton.</u> <u>238 lb/ton.</u>
5. open molding—shrinkage controlled resins <sup>2</sup>	a. mechanical resin application b. filament application c. manual resin application	354 lb/ton. 215 lb/ton. 180 lb/ton.
6. open molding— <u>gel coat</u> <sup>3</sup>	a. <u>tooling gel coating</u> b. <u>white/off white pigmented gel coating</u> c. <u>all other pigmented gel coating</u> d. CR/HS or high performance gel coat e. fire retardant gel coat f. clear production gel coat	<u>440 lb/ton.</u> <u>267 lb/ton.</u> <u>377 lb/ton.</u> 605 lb/ton. 854 lb/ton. 522 lb/ton.
7. centrifugal casting—	a. resin application with	25 lb/ton. <sup>4</sup>

CR/HS	<p>the mold closed, and the mold is vented during spinning and cure</p> <p>b. resin application with the mold closed, and the mold is not vented during spinning and cure</p> <p>c. resin application with the mold open, and the mold is vented during spinning and cure</p> <p>d. resin application with the mold open, and the mold is not vented during spinning and cure</p>	<p>NA—this is considered to be a closed molding operation. 25 lb/ton.<sup>4</sup></p> <p>Use the appropriate open molding emission limit.<sup>5</sup></p>
8. centrifugal casting—non-CR/HS	<p>a. resin application with the mold closed, and the mold is vented during spinning and cure</p> <p>b. resin application with the mold closed, and mold is not vented during the spinning and cure</p> <p>c. resin application with the mold open, and the mold is vented during spinning and cure</p> <p>d. resin application with the mold open, and the mold is not vented during spinning and cure</p>	<p>20 lb/ton.<sup>4</sup></p> <p>NA—this is considered to be a closed molding operation. 20 lb/ton.<sup>4</sup></p> <p>Use the appropriate open molding emission limit.<sup>5</sup></p>
9. pultrusion <sup>6</sup>	N/A	reduce total organic HAP emissions by at least 60 weight percent.
10. continuous lamination/casting	N/A	reduce total organic HAP emissions by at least 58.5 weight percent or not exceed an organic HAP emissions limit of 15.7 lbs of organic HAP per ton of neat resin plus and neat gel coat plus.

<sup>1</sup>Organic HAP emissions limits for open molding and centrifugal casting are expressed as lb/ton. You must be at or below these values based on a 12-month rolling average.

<sup>2</sup>This emission limit applies regardless of whether the shrinkage controlled resin is used as a production resin or a tooling resin.

<sup>3</sup>If you only apply gel coat with manual application, for compliance purposes treat the gel coat as if it were applied using atomized spray guns to determine both emission limits and emission factors. If you use multiple application methods and any portion of a specific gel coat is applied using nonatomized spray, you may use the nonatomized spray gel coat equation to calculate an emission factor for the manually applied portion of that gel coat. Otherwise, use the atomized spray gel coat application equation to calculate emission factors.

<sup>4</sup>For compliance purposes, calculate your emission factor using only the appropriate centrifugal casting equation in item 2 of Table 1 to this subpart, or a site specific emission factor for after the mold is closed as discussed in §63.5796.

<sup>5</sup>Calculate your emission factor using the appropriate open molding covered cure emission factor in item 1 of Table 1 to this subpart, or a site specific emission factor as discussed in §63.5796.

<sup>6</sup>Pultrusion machines that produce parts that meet the following criteria: 1,000 or more reinforcements or the glass equivalent of 1,000 ends of 113 yield roving or more; and have a cross sectional area of 60 square inches or more are not subject to this requirement. Their requirement is the work practice of air flow management which is described in Table 4 to this subpart.

[70 FR 50131, Aug. 25, 2005]

**Table 4 to Subpart WWWW of Part 63—Work Practice Standards**

As specified in §63.5805, you must meet the work practice standards in the following table that apply to you:

For ...	You must ...
1. a new or existing closed molding operation using compression/injection molding	uncover, unwrap or expose only one charge per mold cycle per compression/injection molding machine. For machines with multiple molds, one charge means sufficient material to fill all molds for one cycle. For machines with robotic loaders, no more than one charge may be exposed prior to the loader. For machines fed by hoppers, sufficient material may be uncovered to fill the hopper. Hoppers must be closed when not adding materials. Materials may be uncovered to feed to slitting machines. Materials must be recovered after slitting.
2. <a href="#">a new or existing cleaning operation</a>	<a href="#">not use cleaning solvents that contain HAP, except that styrene may be used as a cleaner in closed systems, and organic HAP containing cleaners may be used to clean cured resin from application equipment. Application equipment includes any equipment that directly contacts resin.</a>
3. <a href="#">a new or existing materials HAP-containing materials storage operation</a>	<a href="#">keep containers that store HAP-containing materials closed or covered except during the addition or removal of materials. Bulk HAP-containing materials storage tanks may be vented as necessary for safety.</a>
4. an existing or new SMC manufacturing operation	close or cover the resin delivery system to the doctor box on each SMC manufacturing machine. The doctor box itself may be open.
5. an existing or new SMC manufacturing operation	use a nylon containing film to enclose SMC.
6. <a href="#">all mixing or BMC manufacturing operations<sup>1</sup></a>	<a href="#">use mixer covers with no visible gaps present in the mixer covers, except that gaps of up to 1 inch are permissible around mixer shafts and any required instrumentation.</a>
7. <a href="#">all mixing or BMC manufacturing operations<sup>1</sup></a>	<a href="#">close any mixer vents when actual mixing is occurring, except that venting is allowed during addition of materials, or as necessary prior to adding materials or opening the cover for safety.</a>

	<u>Vents routed to a 95 percent efficient control device are exempt from this requirement.</u>
<u>8. all mixing or BMC manufacturing operations<sup>1</sup></u>	<u>keep the mixer covers closed while actual mixing is occurring except when adding materials or changing covers to the mixing vessels.</u>
9. a new or existing pultrusion operation manufacturing parts that meet the following criteria: 1,000 or more reinforcements or the glass equivalent of 1,000 ends of 113 yield roving or more; and have a cross sectional area of 60 square inches or more that is not subject to the 95 percent organic HAP emission reduction requirement	<ul style="list-style-type: none"> <li>i. not allow vents from the building ventilation system, or local or portable fans to blow directly on or across the wet-out area(s),</li> <li>ii. not permit point suction of ambient air in the wet-out area(s) unless that air is directed to a control device,</li> <li>iii. use devices such as deflectors, baffles, and curtains when practical to reduce air flow velocity across the wet-out area(s),</li> <li>iv. direct any compressed air exhausts away from resin and wet-out area(s),</li> </ul>
	<ul style="list-style-type: none"> <li>v. convey resin collected from drip-off pans or other devices to reservoirs, tanks, or sumps via covered troughs, pipes, or other covered conveyance that shields the resin from the ambient air,</li> <li>vi. cover all reservoirs, tanks, sumps, or HAP-containing materials storage vessels except when they are being charged or filled, and</li> <li>vii. cover or shield from ambient air resin delivery systems to the wet-out area(s) from reservoirs, tanks, or sumps where practical.</li> </ul>

<sup>1</sup>Containers of 5 gallons or less may be open when active mixing is taking place, or during periods when they are in process (i.e., they are actively being used to apply resin). For polymer casting mixing operations, containers with a surface area of 500 square inches or less may be open while active mixing is taking place.

[70 FR 50133, Aug. 25, 2005]

**Table 5: Alternative Organic HAP Emissions Limits for Open Molding, Centrifugal Casting, and SMC Manufacturing Operations Where the Standards Are Based on a 95 Percent Reduction Requirement**

As specified in §63.5805, as an alternative to the 95 percent organic HAP emissions reductions requirement, you may meet the appropriate organic HAP emissions limits in the following table:

*Spunstrand, Inc. does not meet the requirements in §63.5805 for the use of Table 5 emission limits.*

<b>If your operation type is . . .</b>	<b>And you use . . .</b>	<b>Your organic HAP emissions limit is a<sup>1</sup>. . .</b>
1. Open molding—corrosion-resistant and/or high strength (CR/HS)	a. Mechanical resin application	6 lb/ton.
	b. Filament application	9 lb/ton.
	c. Manual resin application	7 lb/ton.
2. Open molding—non-CR/HS	a. mechanical resin application	13 lb/ton.
	b. Filament application	10 lb/ton.
	c. Manual resin application	5 lb/ton.
3. Open molding—tooling	a. Mechanical resin application	13 lb/ton.
	b. Manual resin application	8 lb/ton.
4. Open molding—low flame spread/low smoke products	a. Mechanical resin application	25 lb/ton.
	b. Filament application	14 lb/ton.
	c. Manual resin application	12 lb/ton.
5. Open molding—shrinkage controlled resins	a. Mechanical resin application	18 lb/ton.
	b. Filament application	11 lb/ton.
	c. Manual resin application	9 lb/ton.
6. Open molding—gel coat <sup>2</sup>	a. Tooling gel coating	22 lb/ton.
	b. White/off white pigmented gel coating	22 lb/ton.
	c. All other pigmented gel coating	19 lb/ton.
	d. CR/HS or high performance gel coat	31 lb/ton.
	e. Fire retardant gel coat	43 lb/ton.
	f. Clear production gel coat	27 lb/ton.

7. Centrifugal casting—CR/HS <sup>3,4</sup>	A vent system that moves heated air through the mold	27 lb/ton.
8. Centrifugal casting—non-CR/HS <sup>3,4</sup>	A vent system that moves heated air through the mold	21 lb/ton.
7. Centrifugal casting—CR/HS <sup>3,4</sup>	A vent system that moves ambient air through the mold	2 lb/ton.
8. Centrifugal casting—non-CR/HS <sup>3,4</sup>	A vent system that moves ambient air through the mold	1 lb/ton.
9. SMC Manufacturing	N/A	2.4 lb/ton.

<sup>1</sup>Organic HAP emissions limits for open molding and centrifugal casting expressed as lb/ton are calculated using the equations shown in Table 1 to this subpart. You must be at or below these values based on a 12-month rolling average.

<sup>2</sup>These limits are for spray application of gel coat. Manual gel coat application must be included as part of spray gel coat application for compliance purposes using the same organic HAP emissions factor equation and organic HAP emissions limit. If you only apply gel coat with manual application, treat the manually applied gel coat as if it were applied with atomized spray for compliance determinations.

<sup>3</sup>Centrifugal casting operations where the mold is not vented during spinning and cure are considered to be closed molding and are not subject to any emissions limit. Centrifugal casting operations where the mold is not vented during spinning and cure, and the resin is applied to the open centrifugal casting mold using mechanical or manual open molding resin application techniques are considered to be open molding operations and the appropriate open molding emission limits apply.

<sup>4</sup>Centrifugal casting operations where the mold is vented during spinning and the resin is applied to the open centrifugal casting mold using mechanical or manual open molding resin application techniques, use the appropriate centrifugal casting emission limit to determine compliance. Calculate your emission factor using the appropriate centrifugal casting emission factor in Table 1 to this subpart, or a site specific emission factor as discussed in §63.5796.

[68 FR 19402, Apr. 21, 2003, as amended at 70 FR 50133, Aug. 25, 2005]

**Table 6 to Subpart WWWW of Part 63—Basic Requirements for Performance Tests, Performance Evaluations, and Design Evaluations for New and Existing Sources Using Add-On Control Devices**

As required in §63.5850 you must conduct performance tests, performance evaluations, and design evaluation according to the requirements in the following table:

*The requirements of Table 6 do not apply as the Spunstrand facility does not use add-on controls to meet the emission standard.*

For . . .	You must . . .	Using . . .	According to the following requirements . . .
1. Each enclosure used to collect and route organic HAP emissions to an add-on control device that is a PTE	Meet the requirements for a PTE	EPA method 204 of appendix M of 40 CFR part 51	Enclosures that meet the requirements of EPA Method 204 of appendix M of 40 CFR part 51 for a PTE are assumed to have a capture efficiency of 100%. Note that the criteria that all access doors and windows that are not treated as natural draft openings shall be closed during routine operation of the process is not intended to require that these doors and windows be closed at all times. It means that doors and windows must be closed any time that you are not actually moving parts or equipment through them. Also, any styrene retained in hollow parts and liberated outside the PTE is not considered to be a violation of the EPA Method 204 criteria.
2. Each enclosure used to collect and route organic HAP emissions to an add-on control device that is not a PTE	a. Determine the capture efficiency of each enclosure used to capture organic HAP emissions sent to an add-on control device	i. EPA methods 204B through E of appendix M of 40 CFR part 51, or	(1) Enclosures that do not meet the requirements for a PTE must determine the capture efficiency by constructing a temporary total enclosure according to the requirements of EPA Method 204 of appendix M of 40 CFR part 51 and measuring the mass flow rates of the organic HAP in the exhaust streams going to the atmosphere and to the control device. Test runs for EPA Methods 204B through E of appendix M of 40 CFR part 51 must be at least 3 hours.
		ii. An alternative	(1) The alternative test method must

		test method that meets the requirements in 40 CFR part 51, appendix M	the data quality objectives and lower confidence limit approaches for alternative capture efficiency protocols requirements contained in 40 CFR part 63 subpart KK, appendix A.
3. Each control device used to comply with a percent reduction requirement, or an organic HAP emissions limit	Determine the control efficiency of each control device used to control organic HAP emissions	The test methods specified in §63.5850 to this subpart	Testing and evaluation requirements are contained in 40 CFR part 63, subpart SS, and §63.5850 to this subpart.
4. Determining organic HAP emission factors for any operation	Determine the mass organic HAP emissions rate	The test methods specified in §63.5850 to this subpart	Testing and evaluation requirements are contained in 40 CFR part 63, subpart SS, and §63.5850 to this subpart.

**Table 7 to Subpart WWWW of Part 63—Options Allowing Use of the Same Resin Across Different Operations That Use the Same Resin Type**

As specified in §63.5810(d), when electing to use the same resin(s) for multiple resin application methods, you may use any resin(s) with an organic HAP content less than or equal to the values shown in the following table, or any combination of resins whose weighted average organic HAP content based on a 12-month rolling average is less than or equal to the values shown in the following table:

*Spunstrand, Inc. acknowledges that options listed in Table 7 may be used to meet the standards for open molding under §63.5810(d).*

<b>If your facility has the following resin type and application method . . .</b>	<b>The highest resin weight is* * * percent organic HAP content, or weighted average weight percent organic HAP content, you can use for . . .</b>	<b>is . . .</b>
1. CR/HS resins, centrifugal casting <sup>1,2</sup>	a. CR/HS mechanical	<sup>3</sup> 48.0
	b. CR/HS filament application	48.0
	c. CR/HS manual	48.0
2. CR/HS resins, nonatomized mechanical	a. CR/HS filament application	46.4
	b. CR/HS manual	46.4
3. CR/HS resins, filament application	CR/HS manual	42.0
4. non-CR/HS resins, filament application	a. non-CR/HS mechanical	<sup>3</sup> 45.0
	b. non-CR/HS manual	45.0
	c. non-CR/HS centrifugal casting <sup>1,2</sup>	45.0
5. non-CR/HS resins, nonatomized mechanical	a. non-CR/HS manual	38.5
	b. non-CR/HS centrifugal casting <sup>1,2</sup>	38.5
6. non-CR/HS resins, centrifugal casting <sup>1,2</sup>	non-CR/HS manual	37.5
7. tooling resins, nonatomized mechanical	tooling manual	91.4
8. tooling resins, manual	tooling atomized mechanical	45.9

<sup>1</sup>If the centrifugal casting operation blows heated air through the molds, then 95 percent capture and control must be used if the facility wishes to use this compliance option.

<sup>2</sup>If the centrifugal casting molds are not vented, the facility may treat the centrifugal casting operations as if they were vented if they wish to use this compliance option.

<sup>3</sup>Nonatomized mechanical application must be used.

[70 FR 50133, Aug. 25, 2005]

**Table 8 to Subpart WWW of Part 63—Initial Compliance With Organic HAP Emissions Limits**

As specified in §63.5860(a), you must demonstrate initial compliance with organic HAP emissions limits as specified in the following table:

For . . .	That must meet the following organic HAP emissions limit . . .	You have demonstrated initial compliance if . . .
<p><u>1. open molding and centrifugal casting operations</u></p>	<p>a. <u>an organic HAP emissions limit shown in Tables 3 or 5 to this subpart, or an organic HAP content limit shown in Table 7 to this subpart</u></p>	<p>i. <u>you have met the appropriate organic HAP emissions limits for these operations as calculated using the procedures in §63.5810 on a 12-month rolling average 1 year after the appropriate compliance date, and/or</u>                      ii. <u>you demonstrate that any individual resins or gel coats not included in (i) above, as applied, meet their applicable emission limits, or</u>                      iii. <u>you demonstrate using the appropriate values in Table 7 to this subpart that the weighted average of all resins and gel coats for each resin type and application method meet the appropriate organic HAP contents.</u></p>
<p>2. open molding centrifugal casting, continuous lamination/casting, SMC and BMC manufacturing, and mixing operations</p>	<p>a. reduce total organic HAP emissions by at least 95 percent by weight</p>	<p>total organic HAP emissions, based on the results of the capture efficiency and destruction efficiency testing specified in Table 6 to this subpart, are reduced by at least 95 percent by weight.</p>
<p>3. continuous lamination/casting operations</p>	<p>a. reduce total organic HAP emissions, by at least 58.5 weight percent, or</p>	<p>total organic HAP emissions, based on the results of the capture efficiency and destruction efficiency in Table 6 to this subpart and the calculation procedures specified in §§63.5865 through 63.5890, are reduced by at least 58.5 percent by weight.</p>
	<p>b. not exceed an organic HAP emissions limit of 15.7 lbs of organic HAP per ton of neat resin plus and neat gel coat plus</p>	<p>total organic HAP emissions, based on the results of the capture efficiency and destruction efficiency testing specified in Table 6 to this subpart and the calculation procedures specified in §§63.5865 through 63.5890, do not exceed 15.7 lbs of organic HAP per ton of neat resin plus and neat gel coat plus.</p>
<p>4. continuous</p>	<p>a. reduce total organic</p>	<p>total organic HAP emissions, based on the</p>

lamination/casting operations	HAP emissions by at least 95 weight percent or	results of the capture efficiency and destruction efficiency testing specified in Table 6 to this subpart and the calculation procedures specified in §§63.5865 through 63.5890, are reduced by at least 95 percent by weight
	b. not exceed an organic HAP emissions limit of 1.47 lbs of organic HAP per ton of neat resin plus and neat gel coat plus	total organic HAP emissions, based on the results of the capture efficiency and destruction efficiency testing specified in Table 6 and the calculation procedures specified in §§63.5865 through 63.5890, do not exceed 1.47 lbs of organic HAP of per ton of neat resin plus and neat gel coat plus.
5. pultrusion operations	a. reduce total organic HAP emissions by at least 60 percent by weight	i. total organic HAP emissions, based on the results of the capture efficiency and add-on control device destruction efficiency testing specified in Table 6 to this subpart, are reduced by at least 60 percent by weight, and/or ii. as part of the notification of initial compliance status, the owner/operator submits a certified statement that all pultrusion lines not controlled with an add-on control device, but for which an emission reduction is being claimed, are using direct die injection, and/or wet-area enclosures that meet the criteria of §63.5830.
6. pultrusion operations	a. reduce total organic HAP emissions by at least 95 percent by weight	i. total organic HAP emissions, based on the results of the capture efficiency and add-on control device destruction efficiency testing specified in Table 6 to this subpart, are reduced by at least 95 percent by weight.

[70 FR 50134, Aug. 25, 2005]

**Table 9 to Subpart WWWW of Part 63—Initial Compliance With Work Practice Standards**

As specified in §63.5860(a), you must demonstrate initial compliance with work practice standards as specified in the following table:

For . . .	That must meet the following standards . . .	You have demonstrated initial compliance if . . .
1. a new or existing closed molding operation using compression/injection molding	uncover, unwrap or expose only one charge per mold cycle per compression/injection molding machine. For machines with multiple molds, one charge means sufficient material to fill all molds for one cycle. For machines with robotic loaders, no more than one charge may be exposed prior to the loader. For machines fed by hoppers, sufficient material may be uncovered to fill the hopper. Hoppers must be closed when not adding materials. Materials may be uncovered to feed to slitting machines. Materials must be recovered after slitting	the owner or operator submits a certified statement in the notice of compliance status that only one charge is uncovered, unwrapped, or exposed per mold cycle per compression/injection molding machine, or prior to the loader, hoppers are closed except when adding materials, and materials are recovered after slitting.
<u>2. a new or existing cleaning operation</u>	<u>not use cleaning solvents that contain HAP, except that styrene may be used in closed systems, and organic HAP containing materials may be used to clean cured resin from application equipment. Application equipment includes any equipment that directly contacts resin between storage and applying resin to the mold or reinforcement</u>	<u>the owner or operator submits a certified statement in the notice of compliance status that all cleaning materials, except styrene contained in closed systems, or materials used to clean cured resin from application equipment, contain no HAP.</u>
<u>3. a new or existing materials HAP-containing materials storage operation</u>	<u>keep containers that store HAP-containing materials closed or covered except during the addition or removal of materials. Bulk HAP-containing materials storage tanks may be vented as necessary for safety</u>	<u>the owner or operator submits a certified statement in the notice of compliance status that all HAP-containing storage containers are kept closed or covered except when adding or removing materials, and that any bulk storage tanks are</u>

		<u>vented only as necessary for safety.</u>
4. an existing or new SMC manufacturing operation	close or cover the resin delivery system to the doctor box on each SMC manufacturing machine. The doctor box itself may be open	the owner or operator submits a certified statement in the notice of compliance status that the resin delivery system is closed or covered.
5. an existing or new SMC manufacturing operation	use a nylon containing film to enclose SMC	the owner or operator submits a certified statement in the notice of compliance status that a nylon-containing film is used to enclose SMC.
6. an existing or new mixing or BMC manufacturing operation	use mixer covers with no visible gaps present in the mixer covers, except that gaps of up to 1 inch are permissible around mixer shafts and any required instrumentation	the owner or operator submits a certified statement in the notice of compliance status that mixer covers are closed during mixing except when adding materials to the mixers, and that gaps around mixer shafts and required instrumentation are less than 1 inch.
7. an existing mixing or BMC manufacturing operation	not actively vent mixers to the atmosphere while the mixing agitator is turning, except that venting is allowed during addition of materials, or as necessary prior to adding materials for safety	the owner or operator submits a certified statement in the notice of compliance status that mixers are not actively vented to the atmosphere when the agitator is turning except when adding materials or as necessary for safety.
<u>8. a new or existing mixing or BMC manufacturing operation</u>	<u>keep the mixer covers closed during mixing except when adding materials to the mixing vessels</u>	<u>the owner or operator submits a certified statement in the notice of compliance status that mixers closed except when adding materials to the mixing vessels.</u>
9. a new or existing pultrusion operation manufacturing parts that meet the following criteria: 1,000 or more reinforcements or the glass equivalent of 1,000 ends of 113 yield roving or more; and have a cross sectional area of 60 square	i. Not allow vents from the building ventilation system, or local or portable fans to blow directly on or across the wet-out area(s), ii. not permit point suction of ambient air in the wet-out area(s) unless that air is directed	the owner or operator submits a certified statement in the notice of compliance status that they have complied with all the requirements listed in 9.i through 9.vii.

<p>inches or more that is not subject to the 95 percent organic HAP emission reduction requirement</p>	<p>to a control device,</p> <ul style="list-style-type: none"> <li>iii. use devices such as deflectors, baffles, and curtains when practical to reduce air flow velocity across the wet-out area(s),</li> <li>iv. direct any compressed air exhausts away from resin and wet-out area(s),</li> <li>v. convey resin collected from drip-off pans or other devices to reservoirs, tanks, or sumps via covered troughs, pipes, or other covered conveyance that shields the resin from the ambient air,</li> <li>vi. clover all reservoirs, tanks, sumps, or HAP-containing materials storage vessels except when they are being charged or filled, and</li> <li>vii. cover or shield from ambient air resin delivery systems to the wet-out area(s) from reservoirs, tanks, or sumps where practical.</li> </ul>	
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[70 FR 50135, Aug. 25, 2005]

**Table 10 to Subpart WWWW of Part 63—Data Requirements for New and Existing Continuous Lamination Lines and Continuous Casting Lines Complying With a Percent Reduction Limit on a Per Line Basis**

As required in §63.5865(a), in order to comply with a percent reduction limit for continuous lamination lines and continuous casting lines you must determine the data in the following table:

*The requirements listed in Table 10 do not apply as the Spunstrand facility does not have continuous lamination/casting operations.*

For each line where the wet-out area . . .	And the oven . . .	You must determine . . .
1. Has an enclosure that is not a permanent total enclosure (PTE) and the captured organic HAP emissions are controlled by an add-on control device	a. Is uncontrolled	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual controlled wet-out area organic HAP emissions, iii. Annual uncontrolled oven organic HAP emissions, iv. The capture efficiency of the wet-out area enclosure,
		v. The destruction efficiency of the add-on control device, and vi. The amount of neat resin plus and neat gel coat plus applied.
2. Has an enclosure that is a PTE and the captured organic HAP emissions are controlled by an add-on control device	a. Is uncontrolled	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual controlled wet-out area organic HAP emissions, iii. Annual uncontrolled oven organic HAP emissions, iv. That the wet-out area enclosure meets the requirements of EPA Method 204 of appendix M to 40 CFR part 51 for a PTE, v. The destruction efficiency of the add-on control device, and vi. The amount of neat resin plus and neat gel coat plus applied.
3. Is uncontrolled	a. Is controlled by an add-on control device	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual uncontrolled oven organic HAP emissions, iii. Annual controlled oven organic HAP emissions, iv. The capture efficiency of the oven,

		<ul style="list-style-type: none"> <li>v. the destruction efficiency of the add-on control device, and</li> <li>vi. the amount of neat resin plus and neat gel coat plus applied.</li> </ul>
4. Has an enclosure that is not a PTE and the captured organic HAP emissions are controlled by an add-on control device	a. Is controlled by an add-on control device	<ul style="list-style-type: none"> <li>i. Annual uncontrolled wet-out area organic HAP emissions,</li> <li>ii. Annual controlled wet-out area organic HAP emissions,</li> <li>iii. Annual uncontrolled oven organic HAP emissions,</li> <li>iv. Annual controlled oven organic HAP emissions;</li> <li>v. The capture efficiency of the wet-out area enclosure,</li> <li>vi. Inlet organic HAP emissions to the add-on control device,</li> <li>vii. Outlet organic HAP emissions from the add-on control device, and</li> <li>viii. The amount of neat resin plus and neat gel coat plus applied.</li> </ul>
5. Has an enclosure that is a PTE and the captured organic HAP emissions are controlled by an add-on control device	a. Is controlled by an add-on control device	<ul style="list-style-type: none"> <li>i. That the wet-out area enclosure meets the requirements of EPA Method 204 of appendix M to 40 CFR part 51 for a PTE,</li> <li>ii. The capture efficiency of the oven, and</li> </ul>
		<ul style="list-style-type: none"> <li>iii. The destruction efficiency of the add-on control device.</li> </ul>

**Table 11 to Subpart WWWW of Part 63—Data Requirements for New and Existing Continuous Lamination and Continuous Casting Lines Complying With a Percent Reduction Limit or a Lbs/Ton Limit on an Averaging Basis**

As required in §63.5865, in order to comply with a percent reduction limit or a lbs/ton limit on an averaging basis for continuous lamination lines and continuous casting lines you must determine the data in the following table:

*The requirements of Table 11 do not apply as the Spunstrand facility does not have continuous lamination/casting operations.*

<b>For each . . .</b>	<b>That . . .</b>	<b>You must determine . . .</b>
1. Wet-out area	Is uncontrolled	Annual uncontrolled wet-out area organic HAP emissions.
2. Wet-out area	a. Has an enclosure that is not a PTE	i. The capture efficiency of the enclosure, and ii. Annual organic HAP emissions that escape the enclosure.
3. Wet-out area	Has an enclosure that is a PTE	That the enclosure meets the requirements of EPA Method 204 of appendix M to 40 CFR part 51 for a PTE.
4. Oven	Is uncontrolled	Annual uncontrolled oven organic HAP emissions.
5. Line	a. Is controlled or uncontrolled	i. The amount of neat resin plus applied, and ii. The amount of neat gel coat plus applied.
6. Add-on control device		i. Total annual inlet organic HAP emissions, and total annual outlet organic HAP emissions.

**Table 12 to Subpart WWWW of Part 63—Data Requirements for New and Existing Continuous Lamination Lines and Continuous Casting Lines Complying With a Lbs/Ton Organic HAP Emissions Limit on a Per Line Basis**

As required in §63.5865(b), in order to comply with a lbs/ton organic HAP emissions limit for continuous lamination lines and continuous casting lines you must determine the data in the following table:

*The requirements listed in Table 12 do not apply as the Spunstrand facility does not have continuous lamination/casting operations.*

For each line where the wet-out area . . .	And the oven . . .	You must determine . . .
1. Is uncontrolled	a. Is uncontrolled	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual uncontrolled oven organic HAP emissions, and iii. Annual neat resin plus and neat gel coat plus applied.
2. Has an enclosure that is not a PTE and the captured organic HAP emissions are controlled by an add-on control device	a. Is uncontrolled	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual controlled wet-out area organic HAP emissions, iii. Annual uncontrolled oven organic HAP emissions,
		iv. The capture efficiency of the wet-out area enclosure, v. The destruction efficiency of the add-on control device, and vi. The amount of neat resin plus and neat gel coat plus applied.
3. Has an enclosure that is a PTE, and the captured organic HAP emissions are controlled by an add-on control device	a. Is uncontrolled	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual controlled wet-out area organic HAP emissions, iii. Annual uncontrolled oven organic HAP emissions,
		iv. That the wet-out area enclosure meets the requirements of EPA Method 204 of appendix M to 40 CFR part 51 for a PTE, v. The destruction efficiency of the add-on control device, and vi. The amount of neat resin plus and neat gel coat plus applied.

4. Is uncontrolled	a. Is controlled by an add-on control device	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual uncontrolled oven organic HAP emissions, iii. Annual controlled oven organic HAP emissions,
		iv. The capture efficiency of the oven, v. The destruction efficiency of the add-on control device, and vi. The amount of neat resin plus and neat gel coat plus applied.
5. Has an enclosure that is not a PTE and the captured organic HAP emissions are controlled by an add-on control device	a. Is controlled by an add-on control device	i. Annual uncontrolled wet-out area organic HAP emissions, ii. Annual controlled wet-out area organic HAP emissions, iii. Annual uncontrolled oven organic HAP emissions,
		iv. Annual controlled oven organic HAP emissions, v. The capture efficiency of the wet-out area enclosure, vi. The capture efficiency of the oven,
		vii. The destruction efficiency of the add-on control device, and viii. The amount of neat resin plus and neat gel coat plus applied.
6. Has an enclosure that is a PTE, and the captured organic HAP emissions are controlled by add-on control device	a. Is controlled by an add-on control device	i. That the wet-out area enclosure meets the requirements of EPA Method 204 of appendix M to 40 CFR part 51 for a PTE, ii. The capture efficiency of the oven, iii. Inlet organic HAP emissions to the an add-on control device, and
		iv. Outlet organic HAP emissions from the add-on control device.

**Table 13 to Subpart WWWW of Part 63—Applicability and Timing of Notifications**

As required in §63.5905(a), you must determine the applicable notifications and submit them by the dates shown in the following table:

If your facility . . .	You must submit . . .	By this date . . .
1. <u>Is an existing source subject to this subpart</u>	<u>An Initial Notification containing the information specified in §63.9(b)(2)</u>	<u>No later than the dates specified in §63.9(b)(2).</u>
2. Is a new source subject to this subpart	The notifications specified in §63.9(b)(4) and (5)	No later than the dates specified §63.9(b)(4) and (5).
3. Qualifies for a compliance extension as specified in §63.9(c)	A request for a compliance extension as specified in §63.9(c)	No later than the dates specified in §63.6(i).
4. Is complying with organic HAP emissions limit averaging provisions	A Notification of Compliance Status as specified in §63.9(h)	No later than 1 year plus 30 days after your facility's compliance date.
5. Is complying with organic HAP content limits, application equipment requirements, or organic HAP emissions limit other than organic HAP emissions limit averaging	A Notification of Compliance Status as specified in §63.9(h)	No later than 30 calendar days after your facility's compliance date.
6. Is complying by using an add-on control device	a. A notification of intent to conduct a performance test as specified in §63.9(e)	No later than the date specified in §63.9(e).
	b. A notification of the date for the CMS performance evaluation as specified in §63.9(g)	The date of submission of notification of intent to conduct a performance test.
	c. A Notification of Compliance Status as specified in §63.9(h)	No later than 60 calendar days after the completion of the add-on control device performance test and CMS performance evaluation.

**Table 14 to Subpart WWWW of Part 63—Requirements for Reports**

As required in §63.5910(a), (b), (g), and (h), you must submit reports on the schedule shown in the following table:

*Spunstrand acknowledges the applicability of the reporting requirements of 63.5910(a), (b), (c), (d), (g), (h) and (i), and Table 14.*

You must submit a(n)	The report must contain . . .	You must submit the report . . .
1. Compliance report	a. A statement that there were no deviations during that reporting period if there were no deviations from any emission limitations (emission limit, operating limit, opacity limit, and visible emission limit) that apply to you and there were no deviations from the requirements for work practice standards in Table 4 to this subpart that apply to you. If there were no periods during which the CMS, including CEMS, and operating parameter monitoring systems, was out of control as specified in §63.8(c)(7), the report must also contain a statement that there were no periods during which the CMS was out of control during the reporting period	Semiannually according to the requirements in §63.5910(b).
	b. The information in §63.5910(d) if you have a deviation from any emission limitation (emission limit, operating limit, or work practice standard) during the reporting period. If there were periods during which the CMS, including CEMS, and operating parameter monitoring systems, was out of control, as specified in §63.8(c)(7), the report must contain the information in §63.5910(e)	Semiannually according to the requirements in §63.5910(b).
	c. The information in §63.10(d)(5)(i) if you had a startup, shutdown or malfunction during the reporting period, and you took actions consistent with your startup, shutdown, and malfunction plan	Semiannually according to the requirements in §63.5910(b).
2. An immediate startup,	a. Actions taken for the event	By fax or telephone within 2

<p>shutdown, and malfunction report if you had a startup, shutdown, or malfunction during the reporting period that is not consistent with your startup, shutdown, and malfunction plan</p>		<p>working days after starting actions inconsistent with the plan.</p>
	<p>b. The information in §63.10(d)(5)(ii)</p>	<p>By letter within 7 working days after the end of the event unless you have made alternative arrangements with the permitting authority. (§63.10(d)(5)(ii)).</p>

**Table 15 to Subpart WWWW of Part 63—Applicability of General Provisions (Subpart A) to Subpart WWWW of Part 63**

As specified in §63.5925, the parts of the General Provisions which apply to you are shown in the following table:

*Spunstrand acknowledges the applicability of the General Provisions of sections 63.1 through 63.15 as specified in Table 15.*

<b>The general provisions reference ...</b>	<b>That addresses ...</b>	<b>And applies to subpart WWWW of part 63 ..</b>	<b>Subject to the following additional information ...</b>
§63.1(a)(1)	General applicability of the general provisions	Yes	Additional terms defined in subpart WWWW of Part 63, when overlap between subparts A and WWWW of Part 63 of this part, subpart WWWW of Part 63 takes precedence.
§63.1(a)(2) through (4)	General applicability of the general provisions	Yes	
§63.1(a)(5)	Reserved	No	
§63.1(a)(6)	General applicability of the general provisions	Yes	
§63.1(a)(7) through (9)	Reserved	No	
§63.1(a)(10) through (14)	General applicability of the general provisions	Yes	
§63.1(b)(1)	Initial applicability determination	Yes	Subpart WWWW of Part 63 clarifies the applicability in §§63.5780 and 63.5785.
§63.1(b)(2)	Reserved	No.	
§63.1(b)(3)	Record of the applicability determination	Yes	
§63.1(c)(1)	Applicability of this part after a relevant standard has been set under this part	Yes	Subpart WWWW of Part 63 clarifies the applicability of each paragraph of subpart A to sources subject to subpart WWWW of Part 63.

§63.1(c)(2)	Title V operating permit requirement	Yes	All major affected sources are required to obtain a title V operating permit. Area sources are not subject to subpart WWWW of Part 63.
§63.1(c)(3) and (4)	Reserved	No	
§63.1(c)(5)	Notification requirements for an area source that increases HAP emissions to major source levels	Yes	
§63.1(d)	Reserved	No	
§63.1(e)	Applicability of permit program before a relevant standard has been set under this part	Yes	
§63.2	Definitions	Yes	Subpart WWWW of Part 63 defines terms in §63.5935. When overlap between subparts A and WWWW of Part 63 occurs, you must comply with the subpart WWWW of Part 63 definitions, which take precedence over the subpart A definitions.
§63.3	Units and abbreviations	Yes	Other units and abbreviations used in subpart WWWW of Part 63 are defined in subpart WWWW of Part 63.
§63.4	Prohibited activities and circumvention	Yes	§63.4(a)(3) through (5) is reserved and does not apply.
§63.5(a)(1) and (2)	Applicability of construction and reconstruction	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§63.5(b)(1)	Relevant standards for new sources upon construction	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§63.5(b)(2)	Reserved	No	
§63.5(b)(3)	New construction/reconstruction	Yes	Existing facilities do not become reconstructed under

			subpart WWWW of Part 63.
§63.5(b)(4)	Construction/reconstruction notification	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§63.5(b)(5)	Reserved	No	
§63.5(b)(6)	Equipment addition or process change	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§63.5(c)	Reserved	No	
§63.5(d)(1)	General application for approval of construction or reconstruction	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§63.5(d)(2)	Application for approval of construction	Yes	
§63.5(d)(3)	Application for approval of reconstruction	No	
§63.5(d)(4)	Additional information	Yes	
§63.5(e)(1) through (5)	Approval of construction or reconstruction	Yes	
§63.5(f)(1) and (2)	Approval of construction or reconstruction based on prior State preconstruction review	Yes	
§63.6(a)(1)	Applicability of compliance with standards and maintenance requirements	Yes	
§63.6(a)(2)	Applicability of area sources that increase HAP emissions to become major sources	Yes	
§63.6(b)(1) through (5)	Compliance dates for new and reconstructed sources	Yes	Subpart WWWW of Part 63 clarifies compliance dates in §63.5800.
§63.6(b)(6)	Reserved	No	
§63.6(b)(7)	Compliance dates for new operations or equipment that cause an area source to become a major source	Yes	New operations at an existing facility are not subject to new source standards.
§63.6(c)(1) and	Compliance dates for existing	Yes	Subpart WWWW of Part 63

(2)	sources		clarifies compliance dates in §63.5800.
§63.6(c)(3) and (4)	Reserved	No	
§63.6(c)(5)	Compliance dates for existing area sources that become major	Yes	Subpart WWWW of Part 63 clarifies compliance dates in §63.5800.
§63.6(d)	Reserved	No	
§63.6(e)(1) and (2)	Operation & maintenance requirements	Yes	
§63.6(e)(3)	Startup, shutdown, and malfunction plan and recordkeeping	Yes	Subpart WWWW of Part 63 requires a startup, shutdown, and malfunction plan only for sources using add-on controls.
§63.6(f)(1)	Compliance except during periods of startup, shutdown, and malfunction	No	Subpart WWWW of Part 63 requires compliance during periods of startup, shutdown, and malfunction, except startup, shutdown, and malfunctions for sources using add-on controls.
§63.6(f)(2) and (3)	Methods for determining compliance	Yes	
§63.6(g)(1) through (3)	Alternative standard	Yes	
§63.6(h)	Opacity and visible emission Standards	No	Subpart WWWW of Part 63 does not contain opacity or visible emission standards.
§63.6(i)(1) through (14)	Compliance extensions	Yes	
§63.6(i)(15)	Reserved	No	
§63.6(i)(16)	Compliance extensions	Yes	
§63.6(j)	Presidential compliance exemption	Yes	
§63.7(a)(1)	Applicability of performance testing requirements	Yes	
§63.7(a)(2)	Performance test dates	No	Subpart WWWW of Part 63 initial compliance

			requirements are in §63.5840.
§63.7(a)(3)	CAA Section 114 authority	Yes	
§63.7(b)(1)	Notification of performance test	Yes	
§63.7(b)(2)	Notification rescheduled performance test	Yes	
§63.7(c)	Quality assurance program, including test plan	Yes	Except that the test plan must be submitted with the notification of the performance test.
§63.7(d)	Performance testing facilities	Yes	
§63.7(e)	Conditions for conducting performance tests	Yes	Performance test requirements are contained in §63.5850. Additional requirements for conducting performance tests for continuous lamination/casting are included in §63.5870.
§63.7(f)	Use of alternative test method	Yes	
§63.7(g)	Performance test data analysis, recordkeeping, and reporting	Yes	
§63.7(h)	Waiver of performance tests	Yes	
§63.8(a)(1) and (2)	Applicability of monitoring requirements	Yes	
§63.8(a)(3)	Reserved	No	
§63.8(a)(4)	Monitoring requirements when using flares	Yes	
§63.8(b)(1)	Conduct of monitoring exceptions	Yes	
§63.8(b)(2) and (3)	Multiple effluents and multiple monitoring systems	Yes	
§63.8(c)(1)	Compliance with CMS operation and maintenance requirements	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.8(c)(2) and	Monitoring system installation	Yes	This section applies if you

(3)			elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.8(c)(4)	CMS requirements	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.8(c)(5)	Continuous Opacity Monitoring System (COMS) minimum procedures	No	Subpart WWWW of Part 63 does not contain opacity standards.
§63.8(c)(6) through (8)	CMS calibration and periods CMS is out of control	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.8(d)	CMS quality control program, including test plan and all previous versions	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.8(e)(1)	Performance evaluation of CMS	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.8(e)(2)	Notification of performance evaluation	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.8(e)(3) and (4)	CMS requirements/alternatives	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.8(e)(5)(i)	Reporting performance evaluation results	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.

§63.8(e)(5)(ii)	Results of COMS performance evaluation	No	Subpart WWWW of Part 63 does not contain opacity standards.
§63.8(f)(1) through (3)	Use of an alternative monitoring method	Yes	
§63.8(f)(4)	Request to use an alternative monitoring method	Yes	
§63.8(f)(5)	Approval of request to use an alternative monitoring method	Yes	
§63.8(f)(6)	Request for alternative to relative accuracy test and associated records	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.8(g)(1) through (5)	Data reduction	Yes	
§63.9(a)(1) through (4)	Notification requirements and general information	Yes	
§63.9(b)(1)	Initial notification applicability	Yes	
§63.9(b)(2)	Notification for affected source with initial startup before effective date of standard	Yes	
§63.9(b)(3)	Reserved	No	
§63.9(b)(4)(i)	Notification for a new or reconstructed major affected source with initial startup after effective date for which an application for approval of construction or reconstruction is required	Yes	
§63.9(b)(4)(ii) through (iv)	Reserved	No	
§63.9(b)(4)(v)	Notification for a new or reconstructed major affected source with initial startup after effective date for which an application for approval of construction or reconstruction is required	Yes	Existing facilities do not become reconstructed under subpart WWWW of Part 63.
§63.9(b)(5)	Notification that you are subject to this subpart for new or reconstructed	Yes	Existing facilities do not become reconstructed under

	affected source with initial startup after effective date and for which an application for approval of construction or reconstruction is not required		subpart WWWW of Part 63.
§63.9(c)	Request for compliance extension	Yes	
§63.9(d)	Notification of special compliance requirements for new source	Yes	
§63.9(e)	Notification of performance test	Yes	
§63.9(f)	Notification of opacity and visible emissions observations	No	Subpart WWWW of Part 63 does not contain opacity or visible emission standards.
§63.9(g)(1)	Additional notification requirements for sources using CMS	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.9(g)(2)	Notification of compliance with opacity emission standard	No	Subpart WWWW of Part 63 does not contain opacity emission standards.
§63.9(g)(3)	Notification that criterion to continue use of alternative to relative accuracy testing has been exceeded	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.9(h)(1) through (3)	Notification of compliance status	Yes	
§63.9(h)(4)	Reserved	No	
§63.9(h)(5) and (6)	Notification of compliance status	Yes	
§63.9(i)	Adjustment of submittal deadlines	Yes	
§63.9(j)	Change in information provided	Yes	
§63.10(a)	Applicability of recordkeeping and reporting	Yes	
§63.10(b)(1)	Records retention	Yes	
§63.10(b)(2)(i) through (v)	Records related to startup, shutdown, and malfunction	Yes	Only applies to facilities that use an add-on control device.

§63.10(b)(2)(vi) through (xi)	CMS records, data on performance tests, CMS performance evaluations, measurements necessary to determine conditions of performance tests, and performance evaluations	Yes	
§63.10(b)(2)(xii)	Record of waiver of recordkeeping and reporting	Yes	
§63.10(b)(2)(xiii)	Record for alternative to the relative accuracy test	Yes	
§63.10(b)(2)(xiv)	Records supporting initial notification and notification of compliance status	Yes	
§63.10(b)(3)	Records for applicability determinations	Yes	
§63.10(c)(1)	CMS records	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.10(c)(2) through (4)	Reserved	No	
§63.10(c)(5) through (8)	CMS records	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.10(c)(9)	Reserved	No	
§63.10(c)(10) through (15)	CMS records	Yes	This section applies if you elect to use a CMS to demonstrate continuous compliance with an emission limit.
§63.10(d)(1)	General reporting requirements	Yes	
§63.10(d)(2)	Report of performance test results	Yes	
§63.10(d)(3)	Reporting results of opacity or visible emission observations	No	Subpart WWWW of Part 63 does not contain opacity or visible emission standards.
§63.10(d)(4)	Progress reports as part of extension	Yes	

	of compliance		
§63.10(d)(5)	Startup, shutdown, and malfunction reports	Yes	Only applies if you use an add-on control device.
§63.10(e)(1) through (3)	Additional reporting requirements for CMS	Yes	This section applies if you have an add-on control device and elect to use a CEM to demonstrate continuous compliance with an emission limit.
§63.10(e)(4)	Reporting COMS data	No	Subpart WWWW of Part 63 does not contain opacity standards.
§63.10(f)	Waiver for recordkeeping or reporting	Yes	
§63.11	Control device requirements	Yes	Only applies if you elect to use a flare as a control device.
§63.12	State authority and delegations	Yes	
§63.13	Addresses of State air pollution control agencies and EPA Regional Offices	Yes	
§63.14	Incorporations by reference	Yes	
§63.15	Availability of information and confidentiality	Yes	

## Appendix A to Subpart WWWW of Part 63—Test Method for Determining Vapor Suppressant Effectiveness

*Spunstrand, Inc. does not use vapor suppressants to reduce HAP emissions. Thus Appendix A does not apply to the Spunstrand facility.*

### 1. Scope and Application

1.1 *Applicability.* If a facility is using vapor suppressants to reduce hazardous air pollutant (HAP) emissions, the organic HAP emission factor equations in Table 1 to this subpart require that the vapor suppressant effectiveness factor be determined. The vapor suppressant effectiveness factor is then used as one of the inputs into the appropriate organic HAP emission factor equation. The vapor suppressant effectiveness factor test is not intended to quantify overall volatile emissions from a resin, nor to be used as a stand-alone test for emissions determination. This test is designed to evaluate the performance of film forming vapor suppressant resin additives. The results of this test are used only in combination with the organic HAP emissions factor equations in Table 1 to this subpart to generate emission factors.

1.1.1 The open molding process consists of application of resin and reinforcements to the mold surface, followed by a manual rollout process to consolidate the laminate, and the curing stage where the laminate surface is not disturbed. Emission studies have shown that approximately 50 percent to 55 percent of the emissions occur while the resin is being applied to the mold. Vapor suppressants have little effect during this portion of the lamination process, but can have a significant effect during the curing stage. Therefore, if a suppressant is 100 percent effective, the overall emissions from the process would be reduced by 45 percent to 50 percent, representing the emissions generated during the curing stage. In actual practice, vapor suppressant effectiveness will be less than 100 percent and the test results determine the specific effectiveness in terms of the vapor suppressant effectiveness factor. This factor represents the effectiveness of a specific combination of suppressant additive and resin formulation.

1.1.2 A resin manufacturer may supply a molder with a vapor-suppressed resin, and employ this test to provide the molder with the vapor suppressant effectiveness factor for that combination of resin and vapor suppressant. The factor qualifies the effectiveness of the vapor suppressant when the resin is tested in the specific formulation supplied to the molder. The addition of fillers or other diluents by the molder may impact the effectiveness of the vapor suppressant. The formulation, including resin/glass ratio and filler content, used in the test should be similar to the formulation to be used in production. The premise of this method is to compare laminate samples made with vapor suppressant additive and made without the additive. The difference in emissions between the two yields the vapor suppressant effectiveness factor.

1.1.3 The method uses a mass balance determination to establish the relative loss of the volatile component from unsaturated polyester or vinyl ester resins, with and without vapor suppressant additives. The effectiveness of a specific vapor suppressant and resin mixture is determined by comparing the relative volatile weight losses from vapor suppressed and non-suppressed resins. The volatile species are not separately analyzed. While the species contained in the volatile component are not determined, an extended listing of potential monomer that may be contained in unsaturated polyester or vinyl ester resins is provided in Table 1.1. However, most polyester and vinyl ester resin formulations presently used by the composites industry only contain styrene monomer.

**Table 1.1—List of Monomers Potentially Present in Unsaturated Polyester/Vinyl Ester Resins**

Monomer	CAS No.
Styrene	100-42-5.
Vinyl toluene	25013-15-4.
Methyl methacrylate	80-62-6.
Alpha methyl styrene	98-83-9.
Para methyl styrene	Vinyl toluene isomer.
Chlorostyrene	1331-28-8.
Diallyl phthalate	131-17-9.

## 2. Summary of Method

2.1 Differences in specific resin and suppressant additive chemistry affect the performance of a vapor suppressant. The purpose of this method is to quantify the effectiveness of a specific combination of vapor suppressant and unsaturated polyester or vinyl ester resin as they are to be used in production. This comparative test quantifies the loss of volatiles from a fiberglass reinforced laminate during the roll-out and curing emission phases, for resins formulated with and without a suppressant additive. A criterion for this method is the testing of a non-vapor suppressed resin system and testing the same resin with a vapor suppressant. The two resins are as identical as possible with the exception of the addition of the suppressant to one. The exact formulation used for the test will be determined by the in-use production requirements. Each formulation of resin, glass, fillers, and additives is developed to meet particular customer and or performance specifications.

2.2 The result of this test is used as an input factor in the organic HAP emissions factor equations in Table 1 to this subpart, which allows these equations to predict emissions from a specific combination of resin and suppressant. This test does not provide an emission rate for the entire lamination process.

## 3. Definitions and Acronyms

### 3.1 Definitions

3.1.1 *Vapor suppressant.* An additive that inhibits the evaporation of volatile components in unsaturated polyester or vinyl ester resins.

3.1.2 *Unsaturated polyester resin.* A thermosetting resin commonly used in composites molding.

3.1.3 *Unsaturated vinyl ester resin.* A thermosetting resin used in composites molding for corrosion resistant and high performance applications.

3.1.4 *Laminate.* A combination of fiber reinforcement and a thermoset resin.

3.1.5 *Chopped strand mat.* Glass fiber reinforcement with random fiber orientation.

3.1.6 *Initiator.* A curing agent added to an unsaturated polyester or vinyl ester resin.

3.1.7 *Resin application roller.* A tool used to saturate and compact a wet laminate.

3.1.8 *Gel time.* The time from the addition of initiator to a resin to the state of resin gelation.

3.1.9 *Filled resin system.* A resin, which includes the addition of inert organic or inorganic materials to modify the resin properties, extend the volume and to lower the cost. Fillers include, but are not limited to; mineral particulates; microspheres; or organic particulates. This test is not intended to be used to determine the vapor suppressant effectiveness of a filler.

3.1.10 *Material safety data sheet.* Data supplied by the manufacturer of a chemical product, listing hazardous chemical components, safety precautions, and required personal protection equipment for a specific product.

3.1.11 *Tare(ed).* Reset a balance to zero after a container or object is placed on the balance; that is to subtract the weight of a container or object from the balance reading so as to weigh only the material placed in the container or on the object.

3.1.12 *Percent glass.* The specified glass fiber weight content in a laminate. It is usually determined by engineering requirements for the laminate.

### 3.2 Acronyms:

3.2.1 *VS*—vapor suppressed or vapor suppressant.

3.2.2 *NVS*—non-vapor suppressed.

3.2.3 *VSE*—vapor suppressant effectiveness.

3.2.4 *VSE Factor*—vapor suppressant effectiveness, factor used in the equations in Table 1 to this subpart.

3.2.5 *CSM*—chopped strand mat.

3.2.6 *MSDS*—material safety data sheet.

#### 4. Interferences

There are no identified interferences which affect the results of this test.

#### 5. Safety

Standard laboratory safety procedures should be used when conducting this test. Refer to specific MSDS for handling precautions.

#### 6. Equipment and Supplies

Note: Mention of trade names or specific products or suppliers does not constitute an endorsement by the Environmental Protection Agency.

##### 6.1 Required Equipment.

6.1.1 Balance enclosure.<sup>1</sup>

6.1.2 Two (2) laboratory balances—accurate to  $\pm 0.01$  g.<sup>2</sup>

6.1.3 Stop watch or balance data recording output to data logger with accuracy  $\pm 1$  second.<sup>3</sup>

6.1.4 Thermometer—accurate to  $\pm 2.0$  °F ( $\pm 1.0$  °C).<sup>4</sup>

6.1.5 A lipped pan large enough to hold the cut glass without coming into contact with the vertical sides, e.g. a pizza pan.<sup>5</sup>

6.1.6 Mylar film sufficient to cover the bottom of the pan.<sup>6</sup>

6.1.7 Tape to keep the Mylar from shifting in the bottom of the pan.<sup>7</sup>

6.1.8 Plastic tri-corner beakers of equivalent—250 ml to 400 ml capacity.<sup>8</sup>

6.1.9 Eye dropper or pipette.<sup>9</sup>

6.1.10 Disposable resin application roller, 3/16 inch; 3/4 inch; diameter  $\times$  3 inch; 6 inch; roller length.<sup>10</sup>

6.1.11 Hygrometer or psychrometer<sup>11</sup> accurate to  $\pm 5$  percent

6.1.12 Insulating board, (Teflon, cardboard, foam board etc.) to prevent the balance from becoming a heat sink.<sup>12</sup>

##### 6.2 Optional Equipment.

6.2.1 Laboratory balance—accurate to  $\pm 0.01$  g with digital output, such as an RS-232 bi-directional interface<sup>13</sup> for use with automatic data recording devices.

6.2.2 Computer with recording software configured to link to balance digital output. Must be programmed to record data at the minimum intervals required for manual data acquisition.

6.3 Supplies.

6.3.1 Chopped strand mat—1.5 oz/ft.<sup>2 14</sup>

### *7. Reagents and Standards*

7.1 *Initiator.* The initiator type, brand, and concentration will be specified by resin manufacturer, or as required by production operation.

7.2 Polyester or vinyl ester resin.

7.3 Vapor suppressant additive.

### *8. Sample Collection, Preservation, and Storage*

This test method involves the immediate recording of data during the roll out and curing phases of the lamination process during each test run. Samples are neither collected, preserved, nor stored.

### *9. Quality Control*

Careful attention to the prescribed test procedure, routing equipment calibration, and replicate testing are the quality control activities for this test method. Refer to the procedures in section 11. A minimum of six test runs of a resin system without a suppressant and six test runs of the same resin with a suppressant shall be performed for each resin and suppressant test combination.

### *10. Calibration and Standardization*

10.1 The laboratory balances, stopwatch, hygrometer and thermometer shall be maintained in a state of calibration prior to testing and thereafter on a scheduled basis as determined by the testing laboratory. This shall be accomplished by using certified calibration standards.

10.2 Calibration records shall be maintained for a period of 3 years.

### *11. Test Procedure*

11.1 Test Set-up.

11.1.1 The laboratory balance is located in an enclosure to prevent fluctuations in balance readings due to localized air movement. The front of enclosure is open to permit work activity, but positioned so that local airflow will not effect balance readings. The ambient temperature is determined by suspending the thermometer at a point inside the enclosure.

11.1.2 The bottom of the aluminum pan is covered with the Mylar film. The film is held in position with tape or by friction between the pan and the film.

11.1.3 The resin and pan are brought to room temperature. This test temperature must be between 70 °F and 80 °F. The testing temperature cannot vary more than  $\pm 2$  °F during the measurement of test runs. Temperature shall be recorded at the same time weight is recorded on suppressed and non-suppressed test data sheets, shown in Table 17.1.

11.1.4 The relative humidity may not change more than  $\pm 15$  percent during the test runs. This is determined by recording the relative humidity in the vicinity of the test chamber at the beginning and end of an individual test run. This data is recorded on the test data sheets shown in Table 17.1.

11.1.5 Two plies of nominal 1.5 oz/ft<sup>2</sup> chopped strand mat (CSM) are cut into a square or rectangle with the minimum surface area of 60 square inches ( *i.e.* a square with a side dimension of 7.75 inches).

11.1.6 The appropriate resin application roller is readily available.

## 11.2 Resin Gel Time/Initiator Percentage

11.2.1 Previous testing has indicated that resin gel time influences the emissions from composite production. The testing indicated that longer the gel times led to higher emissions. There are a number of factors that influence gel time including initiator type, initiator brand, initiator level, temperature and resin additives. Under actual usage conditions a molder will adjust the initiator to meet a gel time requirement. In this test procedure, the vapor suppressed and non-vapor suppressed resin systems will be adjusted to the same gel time by selecting the appropriate initiator level for each.

11.2.2 All test runs within a test will be processed in a manner that produces the same resin gel time  $\pm 2$  minutes. To facilitate the resin mixing procedure, master batches of resin and resin plus vapor suppressant of resin are prepared. These resin master batches will have all of the required ingredients except initiator; this includes filler for filled systems. The gel times for the tests are conducted using the master batch and adjustments to meet gel time requirements shall be made to the master batch before emission testing is conducted. Test temperatures must be maintained within the required range, during gel time testing. Further gel time testing is not required after the non-vapor suppressed and vapor suppressed master batches are established with gel times within  $\pm 2$  minutes. A sufficient quantity of each resin should be prepared to allow for additional test specimens in the event one or more test fails to meet the data acceptance criteria discussed in Section 11.5 and shown in Table 17.2.

11.2.3 The specific brand of initiator and the nominal percentage level recommended by the resin manufacturer will be indicated on the resin certificate of analysis<sup>15</sup>; or, if a unique gel time is required in a production laminate, initiator brand and percentage will be determined by that specific requirement.

### 11.2.4 Examples:

11.2.4.1 The resin for a test run is specified as having a 15-minute cup gel time at 77 °F using Brand X initiator at 1.5 percent by weight. The non-suppressed control resin has a 15-minute gel time. The suppressed resin has a gel time of 17-minutes. An initiator level of 1.5 percent would be selected for the both the non-suppressed and the suppressed test samples.

11.2.4.2 Based on a specific production requirement, a resin is processed in production using 2.25 percent of Brand Y initiator, which produces a 20-minute gel time. This initiator at level of 2.25 percent produces a 20 minute gel time for the non-suppressed control resin, but yields a 25-minute gel time for the suppressed resin sample. The suppressed resin is retested at 2.50 percent initiator and produces a 21-minute gel time. The initiator levels of 2.25 percent and 2.50 percent respectively would yield gel times within  $\pm 2$  minutes.

## 11.3 Test Run Procedure for Unfilled Resin (see the data sheet shown in Table 17.1).

11.3.1 The insulating board is placed on the balance.

11.3.2 The aluminum pan with attached Mylar film is placed on the balance, and the balance is tared (weight reading set to zero with the plate on the balance.)

11.3.3 Place two plies of 1.5 oz. CSM on the balance and record the weight (glass weight).

11.3.4 The resin beaker and stirring rod are put on the second balance and tared.

11.3.5 The required resin weight and initiator weight are calculated (refer to calculation formulas in 12.2).

11.3.6 The disposable resin application roller is placed on the edge of the plate.

- 11.3.7 The balance is tared, with the aluminum pan, Mylar film, glass mat, and resin application roller on the balance pan.
- 11.3.8 Resin is weighed into a beaker, as calculated, using the second balance. The mixing stick should be tared with the beaker weight.
- 11.3.9 Initiator is weighed into the resin, as calculated, using an eyedropper or a pipette, and the combination is mixed.
- 11.3.10 Initiated resin is poured on chopped strand mat in a pe-determined pattern (see Figure 11.6).
- 11.3.11 A stopwatch is started from zero.
- 11.3.12 The initial laminate weight is recorded.
- 11.3.13 The plate is removed from balance to enable roll-out of the laminate.
- 11.3.14 The wet laminate is rolled with the resin application roller to completely distribute the resin, saturate the chopped strand mat, and eliminate air voids. Roll-out time should be in the range of 2 to 3<sup>16</sup> minutes and vary less than  $\pm 10$  percent of the average time required for the complete set of six suppressed and six non-suppressed runs.
- 11.3.15 Record the rollout end time (time from start to completion of rollout).
- 11.3.16 Place the resin application roller on the edge of the plate when rollout is completed.
- 11.3.17 Place the plate back on the balance pan. Immediately record the weight.
- 11.3.18 For the first test in a series of six tests, weight is recorded every 5-minute interval (suppressed and non-suppressed). The end of the test occurs when three consecutive equal weights are recorded or a weight gain is observed (the last weight before the increased weight is the end of test weight). For the remaining five tests in the series, after the initial weights are taken, the next weight is recorded 30 minutes before the end of the test, as suggested by the results from the first test. It is likely that the time to reach the end point of a suppressed resin test will be shorter than the time required to complete a non-suppressed test. Therefore, the time to start taking data manually may be different for suppressed and non-suppressed resins.
- 11.4 Test Run Procedures for Filled Resin Systems<sup>17</sup> Note that the procedure for filled systems differs from the procedure for unfilled systems. With filled systems, resin is applied to one ply of the CSM and the second ply is placed on top of the resin.
- 11.4.1 The insulating board is placed on the balance.
- 11.4.2 The aluminum pan with attached Mylar film is placed on the balance, and the balance is tared (weight reading set to zero with the plate on the balance.)
- 11.4.3 Place two plies of 1.5 oz. CSM on the balance and record the weight (glass weight).
- 11.4.4 Remove the top ply of fiberglass and record its weight (weight of 1st layer of glass).
- 11.4.5 The required resin weight and initiator weight are calculated (refer to calculation formulas in 12.2). Calculate the weight of filled resin and initiator based on the 2 layers of fiberglass.
- 11.4.6 The resin beaker and stirring rod are put on the second balance and tared.
- 11.4.7 A disposable resin application roller is placed on the edge of the plate.
- 11.4.8 The balance is tared, with the aluminum pan, Mylar film, glass mat, and resin application roller on the balance pan.
- 11.4.9 Resin is weighed into the beaker, as calculated, using the second balance. The mixing stick should be tared with the beaker weight.

- 11.4.10 Initiator is weighed into the resin, as calculated, using an eyedropper or a pipette, and the combination is mixed.
- 11.4.11 Initiated resin is poured on the single ply of CSM in a pre-determined pattern. Refer to Figure 11.6.
- 11.4.12 A stopwatch is started from zero.
- 11.4.13 Record the weight of the resin and single ply of CSM ( $L_1$ ). The initial laminate weight equals  $L_1$  plus the weight of second glass layer.
- 11.4.14 Replace the second layer of fiberglass.
- 11.4.15 Remove the plate from the balance to allow roll-out of the laminate.
- 11.4.16 Roll the wet laminate with the resin application roller to completely distribute the resin, saturate the chopped strand mat, and eliminate air voids. Roll-out time should be in the range of 2 to 3<sup>16</sup> minutes and vary less than  $\pm 10$  percent of the average time required for the complete set of six suppressed and six non-suppressed runs.
- 11.4.17 Record the roll-out end time (time from start to completion of rollout).
- 11.4.18 Place the resin application roller on the edge of the plate when rollout is completed.
- 11.4.19 Place the plate back on the balance pan. The initial weight is recorded immediately.
- 11.4.20 For the first test run in a series of six, weight is recorded at every 5-minute interval (suppressed and non-suppressed). The end of the test occurs when three consecutive equal weights are recorded or a weight gain is observed (the last weight before the increased weight is the end of test weight). For the remaining five tests in the series, after the initial weights are taken, the next weight is recorded 30 minutes before the end of the test, as suggested by the results from the first test. It is likely that the time to reach the end point of a suppressed resin test will be shorter than the time required to complete a non-suppressed test. Therefore, the time to start taking data manually may be different for suppressed and non-suppressed resins.

#### 11.5 Data Acceptance Criteria:

- 11.5.1 A test set is designed as twelve individual test runs using the same resin, initiator, and gel time, six of the test runs use the resin non-vapor suppressed and the other six use it vapor suppressed.
- 11.5.2 If a test run falls outside any of the time, temperature, weight or humidity variation requirements, it must be discarded and run again.
- 11.5.3 The laminate roll out time for each individual test run must vary less than  $\pm 10$  percent of the average time required for the complete set of six suppressed and six non-suppressed runs.
- 11.5.4 Test temperature for each test run must be maintained within  $\pm 2$  °F and the average must be between 70° and 80 °F. Refer to 11.1.3.
- 11.5.5 The difference in the amount of resin for each run must be within  $\pm 10$  percent of the average weight for the complete set of six suppressed and six non-suppressed runs.
- 11.5.6 The relative humidity from each test run must be within  $\pm 15$  percent of the average humidity for the complete set of six suppressed and six non-suppressed tests. Refer to 11.1.4
- 11.5.7 The glass content for each test set must be within  $\pm 10$  percent of the average resin-to-/glass ratio for the complete set of six suppressed and six non-suppressed runs. Refer to 12.2).
- 11.5.8 The filler content for each test of a test set must be within  $\pm 5$  percent of the average filler content for the complete set of six suppressed and six non-suppressed runs. Refer to 12.2.

## 11.6 Resin Application Pour Pattern:

11.6.1 To facilitate the distribution of resin across the chopped strand mat, and to provide consistency from test to test, a uniform pour pattern should be used. A typical pour pattern is shown below:

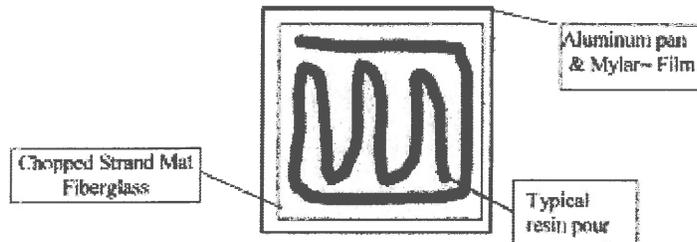


Figure 11.6 Resin Distribution Diagram

11.6.2 The resin is to be evenly distributed across the entire surface of the chopped strand mat using the resin application roller to achieve a wet look across the surface of the laminate. Pushing excess resin off the reinforcement and onto the Mylar sheet should be avoided. No resin is to be pushed more than 1/2 inch beyond the edge of the glass mat. If excess resin is pushed further from the glass mat, it will void the test run. As part of this process, typical visible air voids are to be eliminated by the rollout process. If the pour pattern is different from the above, it must be recorded and attached to test data sheet 17.1.

## 12. Data Analysis and Calculations

### 12.1 Data Analysis:

This test method requires a simple mass balance calculation, no special data analysis is necessary.

### 12.2 Calculations:

12.2.1 The target glass content (percent) for unfilled resin systems is determined from the specific production parameters being evaluated. In absence of any specific production requirements the target may be set at the tester's discretion.

12.2.2 Glass content determination (expressed as a per cent):

$$\% \text{ Glass} = \text{Glass wt(g)} / (\text{Glass wt(g)} + \text{Resin weight (g)})$$

12.2.3 Weight of resin required:

$$\text{Resin weight required} = (\text{Glass wt (g)} / \% \text{ glass}) - \text{Glass wt (g)}$$

12.2.4 Filled resin formulation determination for filled resin systems ( e.g. >30 percent filler by weight for a particulate filler, or >1 percent by weight for a lightweight filler, such as hollow microspheres):

$$\% \text{ Resin content} = \text{resin}$$

$$\text{weight(g)} / (\text{resin weight(g)} + \text{glass}$$

$$\text{weight(g)} + \text{filler weight(g)})$$

$$\% \text{ Glass content} = \text{glass}$$

weight(g)/(resin weight(g) + glass

weight(g) + filler weight(g))

Filler content = filler

weight(g)/(resin weight(g) + glass

weight(g) + filler weight(g))

12.2.5 Initiator weight determination:

Initiator weight (g) = Resin weight(g) × Initiator %

12.2.6 Emission weight loss determination:

Emissions weight loss (g) = Initial resin weight (g) - Final resin weight (g)

12.2.7 % Emission weight loss:

% Emission Weight Loss = (Emission weight loss (g) / Initial resin weight (g)) × 100

12.2.8 Average % Emission Weight Loss (assuming six test runs):

$$\text{Average \% Emission Weight Loss} = \frac{\sum_{i=1}^{N=6} (\% \text{ Emission Weight Loss}_i)}{6}$$

12.2.9 VSE Factor calculation:

VSE Factor = 1 - (Average % VS Emission Weight Loss / Average NVS Emission Weight Loss)

**Table 12.1—Example Calculation**

<b>Test #</b>	<b>% VS weight loss</b>	<b>% NVS weight loss</b>
1	6.87	10.86
2	6.76	11.23
3	5.80	12.02
4	5.34	11.70
5	6.11	11.91
6	6.61	10.63
<b>Average Weight Loss</b>	<b>6.25</b>	<b>11.39</b>
<b>VSE Factor</b>		<b>0.4</b>

VSE Factor = 0.45

VSE Factor is used as input into the appropriate equation in Table 1 to this subpart.

Example from Table 1 to this subpart:

Manual Resin Application, 35 percent HAP resin, VSE Factor of 0.45

HAP Emissions with vapor suppressants =  $((0.286 \times \%HAP) - 0.0529) \times 2000 \times (1 - (0.5 \times VSE \text{ factor}))$

HAP Emissions with vapor suppressants =  $((0.286 \times .35) - 0.0529) \times 2000 \times (1 - (0.5 \times .45))$

HAP Emissions with vapor suppressants = 73 pounds of HAP emissions per ton of resin.

### 13. Method Performance

#### 13.1 Bias:

The bias of this test method has not been determined.

#### 13.2 Precision Testing

13.2.1 Subsequent to the initial development of this test protocol by the Composites Fabricators Association, a series of tests were conducted in three different laboratory facilities. The purpose of this round robin testing was to verify the precision of the test method in various laboratories. Each laboratory received a sample of an orthophthalic polyester resin from the same production batch, containing 48 per cent styrene by weight. Each testing site was also provided with the same vapor suppressant additive. The suppressant manufacturer specified the percentage level of suppressant additive. The resin manufacturer specified the type and level of initiator required to produce a 20 minute gel time. The target glass content was 30 percent by weight.

13.2.2 Each laboratory independently conducted the VSE test according to this method. A summary of the results is included in Table 13.1.

**Table 13.1—Round Robin Testing Results**

	Test Lab 1		Test Lab 2		Test Lab 3	
	NVS	VS	NVS	S	NVS	VS
Average percent WT Loss	4.24	1.15	4.69	1.84	5.73	1.61
Standard Deviation	0.095	0.060	0.002	0.002	0.020	0.003
VSE Factor		0.730		0.607		0.720

13.3 Comparison to EPA Reference Methods This test has no corresponding EPA reference method.

### 14. Pollution Prevention

The sample size used in this method produces a negligible emission of HAP, and has an insignificant impact upon the atmosphere.

### 15. Waste Management

The spent and waste materials generated during this test are disposed according to required facility procedures, and waste management recommendations on the corresponding material safety data sheets.

## 16. References and footnotes

### 16.1 Footnotes:

<sup>1</sup> Balance Enclosure—The purpose of the balance enclosure is to prevent localized airflow from adversely affecting the laboratory balance. The enclosure may be a simple three-sided box with a top and an open face. The configuration of the enclosure is secondary to the purpose of providing a stable and steady balance reading, free from the effects of airflow, for accurate measurements. The enclosure can be fabricated locally. A typical enclosure is shown in Figure 17.1.

<sup>2</sup> Laboratory Balance—Ohaus Precision Standard Series P/N TS400D or equivalent—Paul N. Gardner Co. 316 NE 1st St. Pompano Beach, FL 33060 or other suppliers.

<sup>3</sup> Stop Watch—Local supply.

<sup>4</sup> Thermometer—Mercury thermometer—ASTM No. 21 C or equivalent; Digital thermometer—P/N TH-33033 or equivalent—Paul N. Gardner Co. 316 NE 1st St. Pompano Beach, FL 33060 or other suppliers.

<sup>5</sup> Aluminum Pan—Local supply.

<sup>6</sup> Mylar—Local supply.

<sup>7</sup> Double Sided Tape—3M Double Stick Tape or equivalent, local supply.

<sup>8</sup> Laboratory Beakers—250 to 400ml capacity—Local laboratory supply.

<sup>9</sup> Eye Dropper or Pipette—Local laboratory supply.

<sup>10</sup> Disposable Resin Application Roller Source—Wire Handle Roller P/N 205-050-300 or Plastic Handle Roller P/N 215-050-300 or equivalent; ES Manufacturing Inc., 2500 26st Ave. North, St. Petersburg, FL 33713, [www.esmfg.com](http://www.esmfg.com), or other source. Refer to Figure 17.3.

<sup>11</sup> Hygrometer or Psychrometer—Model# THWD-1, or equivalent—Part # 975765 by Amprobe Instrument, 630 Merrick Road, P.O. Box 329, Lynbrook, NY 11563, 516-593-5600

<sup>12</sup> Insulating Board (Teflon, cardboard, foam board etc.)—Local supply.

<sup>13</sup> Laboratory Balance With Digital Output—Ohaus Precision Standard Series P/N TS120S or equivalent—Paul N. Gardner Co. 316 NE 1st St. Pompano Beach, FL 33060 or other suppliers.

<sup>14</sup> Chopped Strand Mat—1.5 oz/ft<sup>2</sup> Sources: Owens Corning Fiberglas—Fiberglas M-723; PPG Industries—ABM HTX; Vetrotex America—M-127 or equivalent.

<sup>15</sup> Certificate of Analysis: Resin gel time, as recorded on the resin certificate of analysis, is measured using a laboratory standard gel time procedure. This procedure typically uses a 100 gram cup sample at 77 °F (25 °C), a specific type of initiator and a specified percentage.

<sup>16</sup> Roll-out times may vary with resin viscosity or resin additive. The important aspect of this step is to produce the same roll-out time for both the suppressed and non-suppressed samples.

<sup>17</sup> While this test can be used with filled resin systems, the test is not designed to determine the effect of the filler on emissions, but rather to measure the effect of the suppressant additive in the resin system. When evaluating a filled system both the non-vapor suppressed and vapor suppressed samples should be formulated with the same type and level of filler.

## 16.2 References

1. Phase 1—Baseline Study Hand Lay-up, CFA, 1996
2. CFA Vapor Suppressant Effectiveness Test Development, 4/3/98, correspondence with Dr. Madeleine Strum, EPA, OAQPS
3. CFA Vapor Suppressant Effectiveness Screening Tests, 4/4/98
4. Styrene Suppressant Systems Study, Reichhold Chemical, 11/30/98
5. Evaluation of the CFA's New Proposed Vapor Suppressant Effectiveness Test, Technical Service Request #: ED-01-98, BYK Chemie, 6/3/98
6. Second Evaluation of the CFA's New Proposed Vapor Suppressant Effectiveness Test, Technical Service Request #: ED-02-98, BYK Chemie, 1/26/99

## 17. Data Sheets and Figures

17.1 This data sheet, or a similar data sheet, is used to record the test data for filled, unfilled, suppressed and non-suppressed tests. If additional time is required, the data sheet may be extended.

Table 17.1 Test Data Sheet

Test Number			Test Type		
			VS ( )	NVS ( )	
Resin			Filled ( )	Unfilled ( )	
Initiator			Initiator, %		
Vapor Suppressant			VS, %		
Weight of 2 layers of glass, g		Weight of 1" glass layer, g		Weight of 2" glass layer, g	
Initial Resin Weight, (g)		Time (Min.)	Weight g	Temp °F	
Glass content, (%)		55			
Initial Temperature °F:		60			
Initial Humidity %		65			
Resin Initiator level, %		10			
Soak and time, (min.)		75			
Resin filler content, %		80			
Roll out time, (min.)		85			
Time, (min.)	Weight, g	Temp, °F	90		

0			95		
			100		
5			105		
10			110		
15			115		
20			120		
25			125		
30			130		
35			135		
40			140		
45			145		
50			150		
55			155		
Final Time, min.	Final Weight, g.	Final Temp, °F	Final Humidity, %		

17.2 Data Acceptance Criteria Worksheet:

The following worksheet is used to determine the quality of collected data ( i.e. insure the data collected all meets acceptance criteria)

Table 17.2—Data Acceptance Criteria Worksheet

Test No.	Temperature			Laminate roll out time, min	Relative humidity, %		Resin weight, (g)	Glass content, %	Resin distribution	Meets criteria Y/N
	Min	Max	Delta		Initial	Final				
1										
2										
3										
4										
5										
6										
7										
8										
9										

10										
11										
12										
Average										
Criteria	±2 °F	±10% of Average	±15 of Average	±15 of Average	±10% of Avg.	±10% of Avg.	< 1/2 inch off mat	All Y		

17.3 VSE Factor Calculation

Table 17.3—Calculations Worksheet

Vapor suppressed		Non-vapor suppressed	
Test #	% Weight loss	Test #	% Weight loss
Average Weight Loss			
VSE Factor			

VSE Factor = 1 - (% Average Weight Loss<sub>VS</sub> / % Average Weight Loss<sub>NVS</sub>)

17.4 Figures

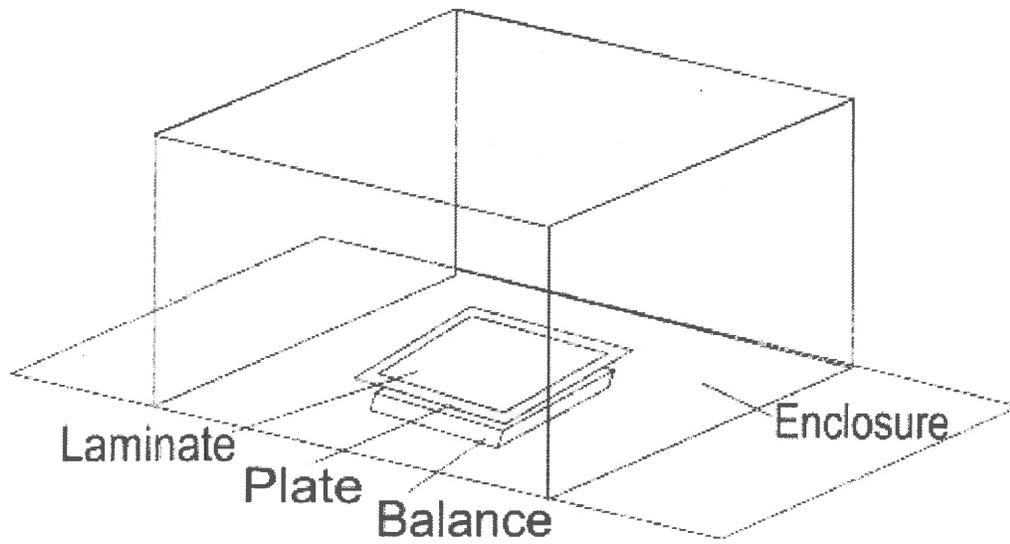
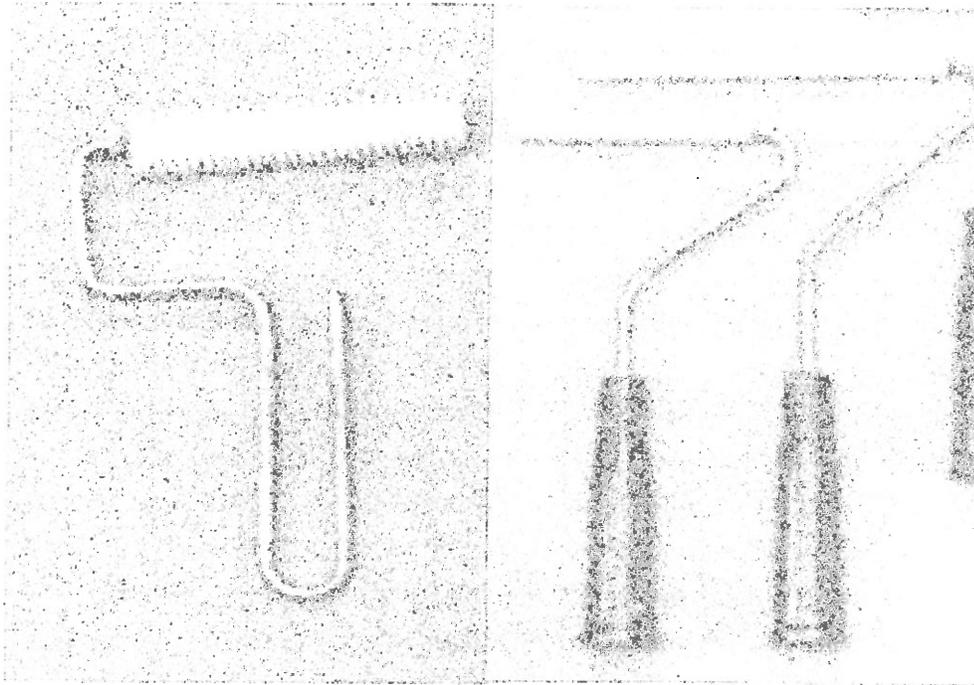


Figure 17.1. Typical Balance Enclosure



## FRP Rollers

The FRP rollers are used to support the FRP pipe during the curing process.

**APPENDIX D**  
**DETAILED REGULATORY REVIEW**  
**40 CFR 63 SUBPART DDDDD**

**40 CFR 63, Subpart DDDDD**  
**National Emission Standards for Hazardous Air Pollutants for Major Sources:**  
**Industrial, Commercial, and Institutional Boilers and Process Heaters**

Amendment(s) published March 21, 2011, in 76 FR 15664  
Effective Date(s): May 20, 2011

**§ 63.7480 What is the purpose of this subpart?**

This subpart establishes national emission limitations and work practice standards for hazardous air pollutants (HAP) emitted from industrial, commercial, and institutional boilers and process heaters located at major sources of HAP. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and work practice standards.

*The requirements of Subpart DDDDD are applicable to the Spunstrand facility because Spunstrand owns and operates seven boilers located at a major source of HAP emissions:*

<b># of Boilers</b>	<b>Make</b>	<b>Model</b>	<b>Size (BTU)</b>	<b>Manufacture Date</b>
5	Monitor Products, Inc.	MZ 20-40	142,000	1994
1	ITT Renzor	XL 105-3	81,900	1983
1	Renzor	usda 100	88,200	2007

**§ 63.7485 Am I subject to this subpart?**

You are subject to this subpart if you own or operate an industrial, commercial, or institutional boiler or process heater as defined in §63.7575 that is located at, or is part of, a major source of HAP, except as specified in §63.7491. For purposes of this subpart, a major source of HAP is as defined in §63.2, except that for oil and natural gas production facilities, a major source of HAP is as defined in §63.761 (subpart HH of this part, National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities).

*The requirements of Subpart DDDDD are applicable to the Spunstrand facility because Spunstrand owns and operates seven boilers located at a major source of HAP emissions.*

**§ 63.7490 What is the affected source of this subpart?**

(a) This subpart applies to new, reconstructed, and existing affected sources as described in paragraphs (a)(1) and (2) of this section.

(1) The affected source of this subpart is the collection at a major source of all existing industrial, commercial, and institutional boilers and process heaters within a subcategory as defined in §63.7575.

(2) The affected source of this subpart is each new or reconstructed industrial, commercial, or institutional boiler or process heater, as defined in §63.7575, located at a major source.

(b) A boiler or process heater is new if you commence construction of the boiler or process heater after June 4, 2010, and you meet the applicability criteria at the time you commence construction.

(c) A boiler or process heater is reconstructed if you meet the reconstruction criteria as defined in §63.2, you commence

reconstruction after June 4, 2010, and you meet the applicability criteria at the time you commence reconstruction.

(d) A boiler or process heater is existing if it is not new or reconstructed.

*The Spunstrand facility affected source includes seven boilers within a subcategory located at a major source.*

**§ 63.7491 Are any boilers or process heaters not subject to this subpart?**

The types of boilers and process heaters listed in paragraphs (a) through (m) of this section are not subject to this subpart.

- (a) An electric utility steam generating unit.
- (b) A recovery boiler or furnace covered by subpart MM of this part.
- (c) A boiler or process heater that is used specifically for research and development. This does not include units that provide heat or steam to a process at a research and development facility.
- (d) A hot water heater as defined in this subpart.
- (e) A refining kettle covered by subpart X of this part.
- (f) An ethylene cracking furnace covered by subpart YY of this part.
- (g) Blast furnace stoves as described in EPA-453/R-01-005 (incorporated by reference, see §63.14).
- (h) Any boiler or process heater that is part of the affected source subject to another subpart of this part (i.e., another National Emission Standards for Hazardous Air Pollutants in 40 CFR part 63).
- (i) Any boiler or process heater that is used as a control device to comply with another subpart of this part, provided that at least 50 percent of the heat input to the boiler is provided by the gas stream that is regulated under another subpart.
- (j) Temporary boilers as defined in this subpart.
- (k) Blast furnace gas fuel-fired boilers and process heaters as defined in this subpart.
- (l) Any boiler specifically listed as an affected source in any standard(s) established under section 129 of the Clean Air Act.
- (m) A boiler required to have a permit under section 3005 of the Solid Waste Disposal Act or covered by subpart EEE of this part (e.g., hazardous waste boilers).

*The Spunstrand boilers do not meet any of the above exemptions.*

**§ 63.7495 When do I have to comply with this subpart?**

- (a) If you have a new or reconstructed boiler or process heater, you must comply with this subpart by May 20, 2011 or upon startup of your boiler or process heater, whichever is later.
- (b) If you have an existing boiler or process heater, you must comply with this subpart no later than March 21, 2014.
- (c) If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP,

paragraphs (c)(1) and (2) of this section apply to you.

(1) Any new or reconstructed boiler or process heater at the existing source must be in compliance with this subpart upon startup.

(2) Any existing boiler or process heater at the existing source must be in compliance with this subpart within 3 years after the source becomes a major source.

(d) You must meet the notification requirements in §63.7545 according to the schedule in §63.7545 and in subpart A of this part. Some of the notifications must be submitted before you are required to comply with the emission limits and work practice standards in this subpart.

(e) If you own or operate an industrial, commercial, or institutional boiler or process heater and would be subject to this subpart except for the exemption in §63.7491(l) for commercial and industrial solid waste incineration units covered by part 60, subpart CCCC or subpart DDDD, and you cease combusting solid waste, you must be in compliance with this subpart on the effective date of the switch from waste to fuel.

*Spunstrand acknowledges the above compliance dates and understands that under 76 FR 28664, dated May 18, 2011, the effective dates of FRL 9272-8 76 FR 15608 (March 21, 2001 and FRL 973-4, 76 FR 15704 (March 21, 2011) are delayed until further notice.*

#### **Emission Limitations and Work Practice Standards**

#### **§ 63.7499 What are the subcategories of boilers and process heaters?**

The subcategories of boilers and process heaters, as defined in §63.7575 are:

- (a) Pulverized coal/solid fossil fuel units.
- (b) Stokers designed to burn coal/solid fossil fuel.
- (c) Fluidized bed units designed to burn coal/solid fossil fuel.
- (d) Stokers designed to burn biomass/bio-based solid.
- (e) Fluidized bed units designed to burn biomass/bio-based solid.
- (f) Suspension burners/Dutch Ovens designed to burn biomass/bio-based solid.
- (g) Fuel Cells designed to burn biomass/bio-based solid.
- (h) Hybrid suspension/grate burners designed to burn biomass/bio-based solid.
- (i) Units designed to burn solid fuel.
- (j) Units designed to burn liquid fuel.
- (k) Units designed to burn liquid fuel in non-continental States or territories.

(l) Units designed to burn natural gas, refinery gas or other gas 1 fuels.

(m) Units designed to burn gas 2 (other) gases.

(n) Metal process furnaces.

(o) Limited-use boilers and process heaters.

*The boilers at the Spunstrand facility fall under the subcategory (l) units designed to burn natural gas, refinery gas or other gas 1 fluids. The Spunstrand units burn natural gas.*

**§ 63.7500 What emission limitations, work practice standards, and operating limits must I meet?**

(a) You must meet the requirements in paragraphs (a)(1) through (3) of this section, except as provided in paragraphs (b) and (c) of this section. You must meet these requirements at all times.

(1) You must meet each emission limit and work practice standard in Tables 1 through 3, and 12 to this subpart that applies to your boiler or process heater, for each boiler or process heater at your source, except as provided under §63.7522. If your affected source is a new or reconstructed affected source that commenced construction or reconstruction after June 4, 2010, and before May 20, 2011, you may comply with the emission limits in Table 1 or 12 to this subpart until March 21, 2014. On and after March 21, 2014, you must comply with the emission limits in Table 1 to this subpart.

(2) You must meet each operating limit in Table 4 to this subpart that applies to your boiler or process heater. If you use a control device or combination of control devices not covered in Table 4 to this subpart, or you wish to establish and monitor an alternative operating limit and alternative monitoring parameters, you must apply to the EPA Administrator for approval of alternative monitoring under §63.8(f).

(3) At all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

(b) As provided in §63.6(g), EPA may approve use of an alternative to the work practice standards in this section.

(c) Limited-use boilers and process heaters must complete a biennial tune-up as specified in §63.7540. They are not subject to the emission limits in Tables 1 and 2 to this subpart, the annual tune-up requirement in Table 3 to this subpart, or the operating limits in Table 4 to this subpart. Major sources that have limited-use boilers and process heaters must complete an energy assessment as specified in Table 3 to this subpart if the source has other existing boilers subject to this subpart that are not limited-use boilers.

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, located at a major source, the boilers are not subject to the emission limits in Tables 1, 2, or 12, but are subject to Work Practice Standards #1 and #3 in Table 3.*

**§ 63.7501 How can I assert an affirmative defense if I exceed an emission limitations during a malfunction?**

In response to an action to enforce the emission limitations and operating limits set forth in §63.7500 you may assert an affirmative defense to a claim for civil penalties for exceeding such standards that are caused by malfunction, as defined at §63.2. Appropriate penalties may be assessed, however, if you fail to meet your burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(a) To establish the affirmative defense in any action to enforce such a limit, you must timely meet the notification requirements in paragraph (b) of this section, and must prove by a preponderance of evidence that:

(1) The excess emissions:

(i) Were caused by a sudden, infrequent, and unavoidable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner, and

(ii) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and

(iii) Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and

(iv) Were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(2) Repairs were made as expeditiously as possible when the applicable emission limitations were being exceeded. Off-shift and overtime labor were used, to the extent practicable to make these repairs; and

(3) The frequency, amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions; and

(4) If the excess emissions resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

(5) All possible steps were taken to minimize the impact of the excess emissions on ambient air quality, the environment and human health; and

(6) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices; and

(7) All of the actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs; and

(8) At all times, the facility was operated in a manner consistent with good practices for minimizing emissions; and

(9) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the excess emissions resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.

(b) *Notification.* The owner or operator of the facility experiencing an exceedance of its emission limit(s) during a malfunction shall notify the Administrator by telephone or facsimile (fax) transmission as soon as possible, but no later than 2 business days after the initial occurrence of the malfunction, if it wishes to avail itself of an affirmative defense to civil penalties for that malfunction. The owner or operator seeking to assert an affirmative defense shall also submit a written report to the Administrator within 45 days of the initial occurrence of the exceedance of the standard in §63.7500 to demonstrate, with all necessary supporting documentation, that it has met the requirements set forth in paragraph (a) of this section. The owner or operator may seek an extension of this deadline for up to 30 additional days by submitting a written request to the Administrator before the expiration of the 45 day period. Until a request for an extension has been approved by the Administrator, the owner or operator is subject to the requirement to submit such report within 45 days of the initial occurrence of the exceedance.

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, located at a major source, the boilers are not subject to the emission or operating limits in Tables 1, 2, 4 or 12, and thus the*

*requirements of 63.7501 are not applicable.*

## General Compliance Requirements

### § 63.7505 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limits and operating limits in this subpart. These limits apply to you at all times.

(b) [Reserved]

(c) You must demonstrate compliance with all applicable emission limits using performance testing, fuel analysis, or continuous monitoring systems (CMS), including a continuous emission monitoring system (CEMS) or continuous opacity monitoring system (COMS), where applicable. You may demonstrate compliance with the applicable emission limit for hydrogen chloride or mercury using fuel analysis if the emission rate calculated according to §63.7530(c) is less than the applicable emission limit. Otherwise, you must demonstrate compliance for hydrogen chloride or mercury using performance testing, if subject to an applicable emission limit listed in Table 1, 2, or 12 to this subpart.

(d) If you demonstrate compliance with any applicable emission limit through performance testing and subsequent compliance with operating limits (including the use of continuous parameter monitoring system), or with a CEMS, or COMS, you must develop a site-specific monitoring plan according to the requirements in paragraphs (d)(1) through (4) of this section for the use of any CEMS, COMS, or continuous parameter monitoring system. This requirement also applies to you if you petition the EPA Administrator for alternative monitoring parameters under §63.8(f).

(1) For each CMS required in this section (including CEMS, COMS, or continuous parameter monitoring system), you must develop, and submit to the delegated authority for approval upon request, a site-specific monitoring plan that addresses paragraphs (d)(1)(i) through (iii) of this section. You must submit this site-specific monitoring plan, if requested, at least 60 days before your initial performance evaluation of your CMS. This requirement to develop and submit a site specific monitoring plan does not apply to affected sources with existing monitoring plans that apply to CEMS and COMS prepared under appendix B to part 60 of this chapter and that meet the requirements of §63.7525.

(i) Installation of the CMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device);

(ii) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction systems; and

(iii) Performance evaluation procedures and acceptance criteria (e.g., calibrations).

(2) In your site-specific monitoring plan, you must also address paragraphs (d)(2)(i) through (iii) of this section.

(i) Ongoing operation and maintenance procedures in accordance with the general requirements of §63.8(c)(1)(ii), (c)(3), and (c)(4)(ii);

(ii) Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d); and

(iii) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §63.10(c) (as applicable in Table 10 to this subpart), (e)(1), and (e)(2)(i).

- (3) You must conduct a performance evaluation of each CMS in accordance with your site-specific monitoring plan.
- (4) You must operate and maintain the CMS in continuous operation according to the site-specific monitoring plan.

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, located at a major source, the boilers are not subject to the emission or operating limits in Tables 1, 2, 4 or 12, and thus the requirements of 63.7505 are not applicable.*

#### Testing, Fuel Analyses, and Initial Compliance Requirements

##### **§ 63.7510 What are my initial compliance requirements and by what date must I conduct them?**

- (a) For affected sources that elect to demonstrate compliance with any of the applicable emission limits in Tables 1 or 2 of this subpart through performance testing, your initial compliance requirements include conducting performance tests according to §63.7520 and Table 5 to this subpart, conducting a fuel analysis for each type of fuel burned in your boiler or process heater according to §63.7521 and Table 6 to this subpart, establishing operating limits according to §63.7530 and Table 7 to this subpart, and conducting CMS performance evaluations according to §63.7525. For affected sources that burn a single type of fuel, you are exempted from the compliance requirements of conducting a fuel analysis for each type of fuel burned in your boiler or process heater according to §63.7521 and Table 6 to this subpart. For purposes of this subpart, units that use a supplemental fuel only for startup, unit shutdown, and transient flame stability purposes still qualify as affected sources that burn a single type of fuel, and the supplemental fuel is not subject to the fuel analysis requirements under §63.7521 and Table 6 to this subpart.
- (b) For affected sources that elect to demonstrate compliance with the applicable emission limits in Tables 1 or 2 of this subpart for hydrogen chloride or mercury through fuel analysis, your initial compliance requirement is to conduct a fuel analysis for each type of fuel burned in your boiler or process heater according to §63.7521 and Table 6 to this subpart and establish operating limits according to §63.7530 and Table 8 to this subpart.
- (c) If your boiler or process heater is subject to a carbon monoxide limit, your initial compliance demonstration for carbon monoxide is to conduct a performance test for carbon monoxide according to Table 5 to this subpart. Your initial compliance demonstration for carbon monoxide also includes conducting a performance evaluation of your continuous oxygen monitor according to §63.7525(a).
- (d) If your boiler or process heater subject to a PM limit has a heat input capacity greater than 250 MMBtu per hour and combusts coal, biomass, or residual oil, your initial compliance demonstration for PM is to conduct a performance evaluation of your continuous emission monitoring system for PM according to §63.7525(b). Boilers and process heaters that use a continuous emission monitoring system for PM are exempt from the performance testing and operating limit requirements specified in paragraph (a) of this section.
- (e) For existing affected sources, you must demonstrate initial compliance, as specified in paragraphs (a) through (d) of this section, no later than 180 days after the compliance date that is specified for your source in §63.7495 and according to the applicable provisions in §63.7(a)(2) as cited in Table 10 to this subpart.
- (f) If your new or reconstructed affected source commenced construction or reconstruction after June 4, 2010, you must demonstrate initial compliance with the emission limits no later than November 16, 2011 or within 180 days after startup of the source, whichever is later. If you are demonstrating compliance with an emission limit in Table 12 to this subpart that is less stringent than (that is, higher than) the applicable emission limit in Table 1 to this subpart, you must demonstrate compliance with the applicable emission limit in Table 1 no later than September 17, 2014.
- (g) For affected sources that ceased burning solid waste consistent with §63.7495(e) and for which your initial compliance date has passed, you must demonstrate compliance within 60 days of the effective date of the waste-to-fuel switch. If you have not conducted your compliance demonstration for this subpart within the previous 12 months, you must complete all compliance

demonstrations for this subpart before you commence or recommence combustion of solid waste.

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour the boilers are not subject to the emission or operating limits of this subpart, and thus the initial compliance requirements of 63.7510 are not applicable.*

#### **§ 63.7515 When must I conduct subsequent performance tests, fuel analyses, or tune-ups?**

(a) You must conduct all applicable performance tests according to §63.7520 on an annual basis, except those for dioxin/furan emissions, unless you follow the requirements listed in paragraphs (b) through (e) of this section. Annual performance tests must be completed no more than 13 months after the previous performance test, unless you follow the requirements listed in paragraphs (b) through (e) of this section. Annual performance testing for dioxin/furan emissions is not required after the initial compliance demonstration.

(b) You can conduct performance tests less often for a given pollutant if your performance tests for the pollutant for at least 2 consecutive years show that your emissions are at or below 75 percent of the emission limit, and if there are no changes in the operation of the affected source or air pollution control equipment that could increase emissions. In this case, you do not have to conduct a performance test for that pollutant for the next 2 years. You must conduct a performance test during the third year and no more than 37 months after the previous performance test. If you elect to demonstrate compliance using emission averaging under §63.7522, you must continue to conduct performance tests annually.

(c) If your boiler or process heater continues to meet the emission limit for the pollutant, you may choose to conduct performance tests for the pollutant every third year if your emissions are at or below 75 percent of the emission limit, and if there are no changes in the operation of the affected source or air pollution control equipment that could increase emissions, but each such performance test must be conducted no more than 37 months after the previous performance test. If you elect to demonstrate compliance using emission averaging under §63.7522, you must continue to conduct performance tests annually. The requirement to test at maximum chloride input level is waived unless the stack test is conducted for HCl. The requirement to test at maximum Hg input level is waived unless the stack test is conducted for Hg.

(d) If a performance test shows emissions exceeded 75 percent of the emission limit for a pollutant, you must conduct annual performance tests for that pollutant until all performance tests over a consecutive 2-year period show compliance.

(e) If you are required to meet an applicable tune-up work practice standard, you must conduct an annual or biennial performance tune-up according to §63.7540(a)(10) and (a)(11), respectively. Each annual tune-up specified in §63.7540(a)(10) must be no more than 13 months after the previous tune-up. Each biennial tune-up specified in §63.7540(a)(11) must be conducted no more than 25 months after the previous tune-up.

(f) If you demonstrate compliance with the mercury or hydrogen chloride based on fuel analysis, you must conduct a monthly fuel analysis according to §63.7521 for each type of fuel burned that is subject to an emission limit in Table 1, 2, or 12 of this subpart. If you burn a new type of fuel, you must conduct a fuel analysis before burning the new type of fuel in your boiler or process heater. You must still meet all applicable continuous compliance requirements in §63.7540. If 12 consecutive monthly fuel analyses demonstrate compliance, you may request decreased fuel analysis frequency by applying to the EPA Administrator for approval of alternative monitoring under §63.8(f).

(g) You must report the results of performance tests and the associated initial fuel analyses within 90 days after the completion of the performance tests. This report must also verify that the operating limits for your affected source have not changed or provide documentation of revised operating parameters established according to §63.7530 and Table 7 to this subpart, as applicable. The reports for all subsequent performance tests must include all applicable information required in §63.7550.

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, located at a major source, the boilers are not subject to the emission limits of this subpart, nor performance testing or fuel*

*analyses. The boilers are subject to Work Practice Standards #1 (annual tune-up) and #3 (one-time energy assessment) of Table 3. Spunstrand acknowledges the applicability and tune up requirements outlined in 63.7515 (e).*

**§ 63.7520 What stack tests and procedures must I use?**

(a) You must conduct all performance tests according to §63.7(c), (d), (f), and (h). You must also develop a site-specific stack test plan according to the requirements in §63.7(c). You shall conduct all performance tests under such conditions as the Administrator specifies to you based on representative performance of the affected source for the period being tested. Upon request, you shall make available to the Administrator such records as may be necessary to determine the conditions of the performance tests.

(b) You must conduct each performance test according to the requirements in Table 5 to this subpart.

(c) You must conduct each performance test under the specific conditions listed in Tables 5 and 7 to this subpart. You must conduct performance tests at representative operating load conditions while burning the type of fuel or mixture of fuels that has the highest content of chlorine and mercury, and you must demonstrate initial compliance and establish your operating limits based on these performance tests. These requirements could result in the need to conduct more than one performance test. Following each performance test and until the next performance test, you must comply with the operating limit for operating load conditions specified in Table 4 to this subpart.

(d) You must conduct three separate test runs for each performance test required in this section, as specified in §63.7(e)(3). Each test run must comply with the minimum applicable sampling times or volumes specified in Tables 1, 2, and 12 to this subpart.

(e) To determine compliance with the emission limits, you must use the F-Factor methodology and equations in sections 12.2 and 12.3 of EPA Method 19 at 40 CFR part 60, appendix A-7 of this chapter to convert the measured particulate matter concentrations, the measured hydrogen chloride concentrations, and the measured mercury concentrations that result from the initial performance test to pounds per million Btu heat input emission rates using F-factors.

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, located at a major source, the boilers are not subject to the emission limits of this subpart, nor performance testing. Accordingly the requirements of 63.7520 do not apply.*

**§ 63.7521 What fuel analyses, fuel specification, and procedures must I use?**

(a) For solid, liquid, and gas 2 (other) fuels, you must conduct fuel analyses for chloride and mercury according to the procedures in paragraphs (b) through (e) of this section and Table 6 to this subpart, as applicable. You are not required to conduct fuel analyses for fuels used for only startup, unit shutdown, and transient flame stability purposes. You are required to conduct fuel analyses only for fuels and units that are subject to emission limits for mercury and hydrogen chloride in Tables 1, 2, or 12 to this subpart. Gaseous and liquid fuels are exempt from requirements in paragraphs (c) and (d) of this section and Table 6 of this subpart.

(b) You must develop and submit a site-specific fuel monitoring plan to the EPA Administrator for review and approval according to the following procedures and requirements in paragraphs (b)(1) and (2) of this section.

(1) You must submit the fuel analysis plan no later than 60 days before the date that you intend to conduct an initial compliance demonstration.

(2) You must include the information contained in paragraphs (b)(2)(i) through (vi) of this section in your fuel analysis plan.

(i) The identification of all fuel types anticipated to be burned in each boiler or process heater.

- (ii) For each fuel type, the notification of whether you or a fuel supplier will be conducting the fuel analysis.
  - (iii) For each fuel type, a detailed description of the sample location and specific procedures to be used for collecting and preparing the composite samples if your procedures are different from paragraph (c) or (d) of this section. Samples should be collected at a location that most accurately represents the fuel type, where possible, at a point prior to mixing with other dissimilar fuel types.
  - (iv) For each fuel type, the analytical methods from Table 6, with the expected minimum detection levels, to be used for the measurement of chlorine or mercury.
  - (v) If you request to use an alternative analytical method other than those required by Table 6 to this subpart, you must also include a detailed description of the methods and procedures that you are proposing to use. Methods in Table 6 shall be used until the requested alternative is approved.
  - (vi) If you will be using fuel analysis from a fuel supplier in lieu of site-specific sampling and analysis, the fuel supplier must use the analytical methods required by Table 6 to this subpart.
- (c) At a minimum, you must obtain three composite fuel samples for each fuel type according to the procedures in paragraph (c)(1) or (2) of this section.
- (1) If sampling from a belt (or screw) feeder, collect fuel samples according to paragraphs (c)(1)(i) and (ii) of this section.
- (i) Stop the belt and withdraw a 6-inch wide sample from the full cross-section of the stopped belt to obtain a minimum two pounds of sample. You must collect all the material (fines and coarse) in the full cross-section. You must transfer the sample to a clean plastic bag.
  - (ii) Each composite sample will consist of a minimum of three samples collected at approximately equal 1-hour intervals during the testing period.
- (2) If sampling from a fuel pile or truck, you must collect fuel samples according to paragraphs (c)(2)(i) through (iii) of this section.
- (i) For each composite sample, you must select a minimum of five sampling locations uniformly spaced over the surface of the pile.
  - (ii) At each sampling site, you must dig into the pile to a depth of 18 inches. You must insert a clean flat square shovel into the hole and withdraw a sample, making sure that large pieces do not fall off during sampling.
  - (iii) You must transfer all samples to a clean plastic bag for further processing.
- (d) You must prepare each composite sample according to the procedures in paragraphs (d)(1) through (7) of this section.
- (1) You must thoroughly mix and pour the entire composite sample over a clean plastic sheet.
  - (2) You must break sample pieces larger than 3 inches into smaller sizes.
  - (3) You must make a pie shape with the entire composite sample and subdivide it into four equal parts.
  - (4) You must separate one of the quarter samples as the first subset.
  - (5) If this subset is too large for grinding, you must repeat the procedure in paragraph (d)(3) of this section with the quarter

sample and obtain a one-quarter subset from this sample.

(6) You must grind the sample in a mill.

(7) You must use the procedure in paragraph (d)(3) of this section to obtain a one-quarter subsample for analysis. If the quarter sample is too large, subdivide it further using the same procedure.

(e) You must determine the concentration of pollutants in the fuel (mercury and/or chlorine) in units of pounds per million Btu of each composite sample for each fuel type according to the procedures in Table 6 to this subpart.

(f) To demonstrate that a gaseous fuel other than natural gas or refinery gas qualifies as an other gas 1 fuel, as defined in §63.7575, you must conduct a fuel specification analyses for hydrogen sulfide and mercury according to the procedures in paragraphs (g) through (i) of this section and Table 6 to this subpart, as applicable. You are not required to conduct the fuel specification analyses in paragraphs (g) through (i) of this section for gaseous fuels other than natural gas or refinery gas that are complying with the limits for units designed to burn gas 2 (other) fuels.

(g) You must develop and submit a site-specific fuel analysis plan for other gas 1 fuels to the EPA Administrator for review and approval according to the following procedures and requirements in paragraphs (g)(1) and (2) of this section.

(1) You must submit the fuel analysis plan no later than 60 days before the date that you intend to conduct an initial compliance demonstration.

(2) You must include the information contained in paragraphs (g)(2)(i) through (vi) of this section in your fuel analysis plan.

(i) The identification of all gaseous fuel types other than natural gas or refinery gas anticipated to be burned in each boiler or process heater.

(ii) For each fuel type, the notification of whether you or a fuel supplier will be conducting the fuel specification analysis.

(iii) For each fuel type, a detailed description of the sample location and specific procedures to be used for collecting and preparing the samples if your procedures are different from the sampling methods contained in Table 6. Samples should be collected at a location that most accurately represents the fuel type, where possible, at a point prior to mixing with other dissimilar fuel types. If multiple boilers or process heaters are fueled by a common fuel stream it is permissible to conduct a single gas specification at the common point of gas distribution.

(iv) For each fuel type, the analytical methods from Table 6, with the expected minimum detection levels, to be used for the measurement of hydrogen sulfide and mercury.

(v) If you request to use an alternative analytical method other than those required by Table 6 to this subpart, you must also include a detailed description of the methods and procedures that you are proposing to use. Methods in Table 6 shall be used until the requested alternative is approved.

(vi) If you will be using fuel analysis from a fuel supplier in lieu of site-specific sampling and analysis, the fuel supplier must use the analytical methods required by Table 6 to this subpart.

(h) You must obtain a single fuel sample for each other gas 1 fuel type according to the sampling procedures listed in Table 6 for fuel specification of gaseous fuels.

(i) You must determine the concentration in the fuel of mercury, in units of microgram per cubic meter, and of hydrogen sulfide, in units of parts per million, by volume, dry basis, of each sample for each gas 1 fuel type according to the procedures in Table 6

to this subpart.

*Spunstrand uses only natural gas fuel, and the Spunstrand boilers are not subject to the emission limits in this subpart. Accordingly, the fuel analysis, fuel specification and procedures in the section 63.7521 do not apply.*

**§ 63.7522 Can I use emissions averaging to comply with this subpart?**

(a) As an alternative to meeting the requirements of §63.7500 for particulate matter, hydrogen chloride, or mercury on a boiler or process heater-specific basis, if you have more than one existing boiler or process heater in any subcategory located at your facility, you may demonstrate compliance by emissions averaging, if your averaged emissions are not more than 90 percent of the applicable emission limit, according to the procedures in this section. You may not include new boilers or process heaters in an emissions average.

(b) For a group of two or more existing boilers or process heaters in the same subcategory that each vent to a separate stack, you may average particulate matter, hydrogen chloride, or mercury emissions among existing units to demonstrate compliance with the limits in Table 2 to this subpart if you satisfy the requirements in paragraphs (c), (d), (e), (f), and (g) of this section.

(c) For each existing boiler or process heater in the averaging group, the emission rate achieved during the initial compliance test for the HAP being averaged must not exceed the emission level that was being achieved on May 20, 2011 or the control technology employed during the initial compliance test must not be less effective for the HAP being averaged than the control technology employed on May 20, 2011.

(d) The averaged emissions rate from the existing boilers and process heaters participating in the emissions averaging option must be in compliance with the limits in Table 2 to this subpart at all times following the compliance date specified in §63.7495.

(e) You must demonstrate initial compliance according to paragraph (e)(1) or (2) of this section using the maximum rated heat input capacity or maximum steam generation capacity of each unit and the results of the initial performance tests or fuel analysis.

(1) You must use Equation 1 of this section to demonstrate that the particulate matter, hydrogen chloride, or mercury emissions from all existing units participating in the emissions averaging option for that pollutant do not exceed the emission limits in Table 2 to this subpart.

$$AveWeightedEmissions = 1.1 \times \sum_{i=1}^n (Er \times Hm) \div \sum_{i=1}^n Hm \quad (\text{Eq. 1})$$

Where:

AveWeightedEmissions = Average weighted emissions for particulate matter, hydrogen chloride, or mercury, in units of pounds per million Btu of heat input.

Er = Emission rate (as determined during the initial compliance demonstration) of particulate matter, hydrogen chloride, or mercury from unit, i, in units of pounds per million Btu of heat input. Determine the emission rate for particulate matter, hydrogen chloride, or mercury by performance testing according to Table 5 to this subpart, or by fuel analysis for hydrogen chloride or mercury using the applicable equation in §63.7530(c).

Hm = Maximum rated heat input capacity of unit, i, in units of million Btu per hour.

n = Number of units participating in the emissions averaging option.

1.1 = Required discount factor.

(2) If you are not capable of determining the maximum rated heat input capacity of one or more boilers that generate steam, y

may use Equation 2 of this section as an alternative to using Equation 1 of this section to demonstrate that the particulate matter, hydrogen chloride, or mercury emissions from all existing units participating in the emissions averaging option do not exceed the emission limits for that pollutant in Table 2 to this subpart.

$$\text{AveWeightedEmissions} = 1.1 \times \sum_{i=1}^n (Er \times Sm \times Cfi) + \sum_{i=1}^n (Sm \times Cfi) \quad (\text{Eq. 2})$$

Where:

AveWeightedEmissions = Average weighted emission level for PM, hydrogen chloride, or mercury, in units of pounds per million Btu of heat input.

Er = Emission rate (as determined during the most recent compliance demonstration) of particulate matter, hydrogen chloride, or mercury from unit, i, in units of pounds per million Btu of heat input. Determine the emission rate for particulate matter, hydrogen chloride, or mercury by performance testing according to Table 5 to this subpart, or by fuel analysis for hydrogen chloride or mercury using the applicable equation in §63.7530(c).

Sm = Maximum steam generation capacity by unit, i, in units of pounds.

Cfi = Conversion factor, calculated from the most recent compliance test, in units of million Btu of heat input per pounds of steam generated for unit, i.

1.1 = Required discount factor.

(f) After the initial compliance demonstration described in paragraph (e) of this section, you must demonstrate compliance on a monthly basis determined at the end of every month (12 times per year) according to paragraphs (f)(1) through (3) of this section. The first monthly period begins on the compliance date specified in §63.7495.

(1) For each calendar month, you must use Equation 3 of this section to calculate the average weighted emission rate for that month using the actual heat input for each existing unit participating in the emissions averaging option.

$$\text{AveWeightedEmissions} = 1.1 \times \sum_{i=1}^n (Er \times Hh) + \sum_{i=1}^n Hh \quad (\text{Eq. 3})$$

Where:

AveWeightedEmissions = Average weighted emission level for particulate matter, hydrogen chloride, or mercury, in units of pounds per million Btu of heat input, for that calendar month.

Er = Emission rate (as determined during the most recent compliance demonstration) of particulate matter, hydrogen chloride, or mercury from unit, i, in units of pounds per million Btu of heat input. Determine the emission rate for particulate matter, hydrogen chloride, or mercury by performance testing according to Table 5 to this subpart, or by fuel analysis for hydrogen chloride or mercury using the applicable equation in §63.7530(c).

Hh = The heat input for that calendar month to unit, i, in units of million Btu.

n = Number of units participating in the emissions averaging option.

1.1 = Required discount factor.

(2) If you are not capable of monitoring heat input, you may use Equation 4 of this section as an alternative to using Equation 3 of this section to calculate the average weighted emission rate using the actual steam generation from the boilers participating in

the emissions averaging option.

$$\text{AveWeightedEmissions} = 1.1 \times \sum_{i=1}^k (Er \times Sa \times Cfi) + \sum_{i=1}^k (Sa \times Cfi) \quad (\text{Eq. 4})$$

Where:

AveWeightedEmissions = average weighted emission level for PM, hydrogen chloride, or mercury, in units of pounds per million Btu of heat input for that calendar month.

Er = Emission rate (as determined during the most recent compliance demonstration of particulate matter, hydrogen chloride, or mercury from unit, i, in units of pounds per million Btu of heat input. Determine the emission rate for particulate matter, hydrogen chloride, or mercury by performance testing according to Table 5 to this subpart, or by fuel analysis for hydrogen chloride or mercury using the applicable equation in §63.7530(c).

Sa = Actual steam generation for that calendar month by boiler, i, in units of pounds.

Cfi = Conversion factor, as calculated during the most recent compliance test, in units of million Btu of heat input per pounds of steam generated for boiler, i.

1.1 = Required discount factor.

(3) Until 12 monthly weighted average emission rates have been accumulated, calculate and report only the average weighted emission rate determined under paragraph (f)(1) or (2) of this section for each calendar month. After 12 monthly weighted average emission rates have been accumulated, for each subsequent calendar month, use Equation 5 of this section to calculate the 12-month rolling average of the monthly weighted average emission rates for the current calendar month and the previous 11 calendar months.

$$E_{avg} = \sum_{i=1}^{12} ERI + 12 \quad (\text{Eq. 5})$$

Where:

Eavg = 12-month rolling average emission rate, (pounds per million Btu heat input)

ERi = Monthly weighted average, for calendar month "i" (pounds per million Btu heat input), as calculated by paragraph (f)(1) or (2) of this section.

(g) You must develop, and submit to the applicable delegated authority for review and approval, an implementation plan for emission averaging according to the following procedures and requirements in paragraphs (g)(1) through (4) of this section.

(1) You must submit the implementation plan no later than 180 days before the date that the facility intends to demonstrate compliance using the emission averaging option.

(2) You must include the information contained in paragraphs (g)(2)(i) through (vii) of this section in your implementation plan for all emission sources included in an emissions average:

(i) The identification of all existing boilers and process heaters in the averaging group, including for each either the applicable HAP emission level or the control technology installed as of May 20, 2011 and the date on which you are requesting emission averaging to commence;

- (ii) The process parameter (heat input or steam generated) that will be monitored for each averaging group;
  - (iii) The specific control technology or pollution prevention measure to be used for each emission boiler or process heater in the averaging group and the date of its installation or application. If the pollution prevention measure reduces or eliminates emissions from multiple boilers or process heaters, the owner or operator must identify each boiler or process heater;
  - (iv) The test plan for the measurement of particulate matter, hydrogen chloride, or mercury emissions in accordance with the requirements in §63.7520;
  - (v) The operating parameters to be monitored for each control system or device consistent with §63.7500 and Table 4, and a description of how the operating limits will be determined;
  - (vi) If you request to monitor an alternative operating parameter pursuant to §63.7525, you must also include:
    - (A) A description of the parameter(s) to be monitored and an explanation of the criteria used to select the parameter(s); and
    - (B) A description of the methods and procedures that will be used to demonstrate that the parameter indicates proper operation of the control device; the frequency and content of monitoring, reporting, and recordkeeping requirements; and a demonstration, to the satisfaction of the applicable delegated authority, that the proposed monitoring frequency is sufficient to represent control device operating conditions; and
  - (vii) A demonstration that compliance with each of the applicable emission limit(s) will be achieved under representative operating load conditions. Following each compliance demonstration and until the next compliance demonstration, you must comply with the operating limit for operating load conditions specified in Table 4 to this subpart.
- (3) The delegated authority shall review and approve or disapprove the plan according to the following criteria:
- (i) Whether the content of the plan includes all of the information specified in paragraph (g)(2) of this section; and
  - (ii) Whether the plan presents sufficient information to determine that compliance will be achieved and maintained.
- (4) The applicable delegated authority shall not approve an emission averaging implementation plan containing any of the following provisions:
- (i) Any averaging between emissions of differing pollutants or between differing sources; or
  - (ii) The inclusion of any emission source other than an existing unit in the same subcategory.
- (h) For a group of two or more existing affected units, each of which vents through a single common stack, you may average particulate matter, hydrogen chloride, or mercury emissions to demonstrate compliance with the limits for that pollutant in Table 2 to this subpart if you satisfy the requirements in paragraph (i) or (j) of this section.
- (i) For a group of two or more existing units in the same subcategory, each of which vents through a common emissions control system to a common stack, that does not receive emissions from units in other subcategories or categories, you may treat such averaging group as a single existing unit for purposes of this subpart and comply with the requirements of this subpart as if the group were a single unit.
- (j) For all other groups of units subject to the common stack requirements of paragraph (h) of this section, including situations where the exhaust of affected units are each individually controlled and then sent to a common stack, the owner or operator may elect to:

(1) Conduct performance tests according to procedures specified in §63.7520 in the common stack if affected units from other subcategories vent to the common stack. The emission limits that the group must comply with are determined by the use of Equation 6 of this section.

$$E_n = \sum_{i=1}^n (EL_i \times H_i) + \sum_{i=1}^n H_i \quad (\text{Eq. 6})$$

Where:

$E_n$  = HAP emission limit, pounds per million British thermal units (lb/MMBtu), parts per million (ppm), or nanograms per dry standard cubic meter (ng/dscm).

$EL_i$  = Appropriate emission limit from Table 2 to this subpart for unit  $i$ , in units of lb/MMBtu, ppm or ng/dscm.

$H_i$  = Heat input from unit  $i$ , MMBtu.

(2) Conduct performance tests according to procedures specified in §63.7520 in the common stack. If affected units and non-affected units vent to the common stack, the non-affected units must be shut down or vented to a different stack during the performance test unless the facility determines to demonstrate compliance with the non-affected units venting to the stack; and

(3) Meet the applicable operating limit specified in §63.7540 and Table 8 to this subpart for each emissions control system (except that, if each unit venting to the common stack has an applicable opacity operating limit, then a single continuous opacity monitoring system may be located in the common stack instead of in each duct to the common stack).

(k) The common stack of a group of two or more existing boilers or process heaters in the same subcategory subject to paragraph (h) of this section may be treated as a separate stack for purposes of paragraph (b) of this section and included in an emissions averaging group subject to paragraph (b) of this section.

*Spunstrand boilers are not subject to the emission limits in this subpart, and are thus not subject to the emission averaging requirements in 63.7522.*

### § 63.7525 What are my monitoring, installation, operation, and maintenance requirements?

(a) If your boiler or process heater is subject to a carbon monoxide emission limit in Table 1, 2, or 12 to this subpart, you must install, operate, and maintain a continuous oxygen monitor according to the procedures in paragraphs (a)(1) through (6) of this section by the compliance date specified in §63.7495. The oxygen level shall be monitored at the outlet of the boiler or process heater.

(1) Each CEMS for oxygen ( $O_2$ CEMS) must be installed, operated, and maintained according to the applicable procedures under Performance Specification 3 at 40 CFR part 60, appendix B, and according to the site-specific monitoring plan developed according to §63.7505(d).

(2) You must conduct a performance evaluation of each  $O_2$ CEMS according to the requirements in §63.8(e) and according to Performance Specification 3 at 40 CFR part 60, appendix B.

(3) Each  $O_2$ CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(4) The  $O_2$ CEMS data must be reduced as specified in §63.8(g)(2).

(5) You must calculate and record 12-hour block average concentrations for each operating day.

(6) For purposes of calculating data averages, you must use all the data collected during all periods in assessing compliance, excluding data collected during periods when the monitoring system malfunctions or is out of control, during associated repairs, and during required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments). Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. Any period for which the monitoring system malfunctions or is out of control and data are not available for a required calculation constitutes a deviation from the monitoring requirements. Periods when data are unavailable because of required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments) do not constitute monitoring deviations.

(b) If your boiler or process heater has a heat input capacity of greater than 250 MMBtu per hour and combusts coal, biomass, or residual oil, you must install, certify, maintain, and operate a CEMS measuring PM emissions discharged to the atmosphere and record the output of the system as specified in paragraphs (b)(1) through (5) of this section.

(1) Each CEMS shall be installed, certified, operated, and maintained according to the requirements in §63.7540(a)(9).

(2) For a new unit, the initial performance evaluation shall be completed no later than November 16, 2011 or 180 days after the date of initial startup, whichever is later. For an existing unit, the initial performance evaluation shall be completed no later than September 17, 2014.

(3) Compliance with the applicable emissions limit shall be determined based on the 30-day rolling average of the hourly arithmetic average emissions concentrations using the continuous monitoring system outlet data. The 30-day rolling arithmetic average emission concentration shall be calculated using EPA Reference Method 19 at 40 CFR part 60, appendix A-7.

(4) Collect CEMS hourly averages for all operating hours on a 30-day rolling average basis. Collect at least four CMS data values representing the four 15-minute periods in an hour, or at least two 15-minute data values during an hour when CMS calibration, quality assurance, or maintenance activities are being performed.

(5) The 1-hour arithmetic averages required shall be expressed in lb/MMBtu and shall be used to calculate the boiler operating day daily arithmetic average emissions.

(c) If you have an applicable opacity operating limit in this rule, and are not otherwise required to install and operate a PM CEMS or a bag leak detection system, you must install, operate, certify and maintain each COMS according to the procedures in paragraphs (c)(1) through (7) of this section by the compliance date specified in §63.7495.

(1) Each COMS must be installed, operated, and maintained according to Performance Specification 1 at appendix B to part 60 of this chapter.

(2) You must conduct a performance evaluation of each COMS according to the requirements in §63.8(e) and according to Performance Specification 1 at appendix B to part 60 of this chapter.

(3) As specified in §63.8(c)(4)(i), each COMS must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(4) The COMS data must be reduced as specified in §63.8(g)(2).

(5) You must include in your site-specific monitoring plan procedures and acceptance criteria for operating and maintaining each COMS according to the requirements in §63.8(d). At a minimum, the monitoring plan must include a daily calibration drift assessment, a quarterly performance audit, and an annual zero alignment audit of each COMS.

(6) You must operate and maintain each COMS according to the requirements in the monitoring plan and the requirements of §63.8(e). You must identify periods the COMS is out of control including any periods that the COMS fails to pass a daily calibration drift assessment, a quarterly performance audit, or an annual zero alignment audit. Any 6-minute period for which the

monitoring system is out of control and data are not available for a required calculation constitutes a deviation from the monitoring requirements.

(7) You must determine and record all the 6-minute averages (and daily block averages as applicable) collected for periods during which the COMS is not out of control.

(d) If you have an operating limit that requires the use of a CMS, you must install, operate, and maintain each continuous parameter monitoring system according to the procedures in paragraphs (d)(1) through (5) of this section by the compliance date specified in §63.7495.

(1) The continuous parameter monitoring system must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four successive cycles of operation to have a valid hour of data.

(2) Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must conduct all monitoring in continuous operation at all times that the unit is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(3) For purposes of calculating data averages, you must not use data recorded during monitoring malfunctions, associated repairs, out of control periods, or required quality assurance or control activities. You must use all the data collected during all other periods in assessing compliance. Any 15-minute period for which the monitoring system is out-of-control and data are not available for a required calculation constitutes a deviation from the monitoring requirements.

(4) You must determine the 4-hour block average of all recorded readings, except as provided in paragraph (d)(3) of this section.

(5) You must record the results of each inspection, calibration, and validation check.

(e) If you have an operating limit that requires the use of a flow monitoring system, you must meet the requirements in paragraphs (d) and (e)(1) through (4) of this section.

(1) You must install the flow sensor and other necessary equipment in a position that provides a representative flow.

(2) You must use a flow sensor with a measurement sensitivity of no greater than 2 percent of the expected flow rate.

(3) You must minimize the effects of swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(4) You must conduct a flow monitoring system performance evaluation in accordance with your monitoring plan at the time of each performance test but no less frequently than annually.

(f) If you have an operating limit that requires the use of a pressure monitoring system, you must meet the requirements in paragraphs (d) and (f)(1) through (6) of this section.

(1) Install the pressure sensor(s) in a position that provides a representative measurement of the pressure (e.g., PM scrubber pressure drop).

(2) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(3) Use a pressure sensor with a minimum tolerance of 1.27 centimeters of water or a minimum tolerance of 1 percent of the

pressure monitoring system operating range, whichever is less.

(4) Perform checks at least once each process operating day to ensure pressure measurements are not obstructed ( e.g. , check for pressure tap pluggage daily).

(5) Conduct a performance evaluation of the pressure monitoring system in accordance with your monitoring plan at the time of each performance test but no less frequently than annually.

(6) If at any time the measured pressure exceeds the manufacturer's specified maximum operating pressure range, conduct a performance evaluation of the pressure monitoring system in accordance with your monitoring plan and confirm that the pressure monitoring system continues to meet the performance requirements in you monitoring plan. Alternatively, install and verify the operation of a new pressure sensor.

(g) If you have an operating limit that requires a pH monitoring system, you must meet the requirements in paragraphs (d) and (g)(1) through (4) of this section.

(1) Install the pH sensor in a position that provides a representative measurement of scrubber effluent pH.

(2) Ensure the sample is properly mixed and representative of the fluid to be measured.

(3) Conduct a performance evaluation of the pH monitoring system in accordance with your monitoring plan at least once each process operating day.

(4) Conduct a performance evaluation (including a two-point calibration with one of the two buffer solutions having a pH within 1 of the pH of the operating limit) of the pH monitoring system in accordance with your monitoring plan at the time of each performance test but no less frequently than quarterly.

(h) If you have an operating limit that requires a secondary electric power monitoring system for an electrostatic precipitator (ESP) operated with a wet scrubber, you must meet the requirements in paragraphs (h)(1) and (2) of this section.

(1) Install sensors to measure (secondary) voltage and current to the precipitator collection plates.

(2) Conduct a performance evaluation of the electric power monitoring system in accordance with your monitoring plan at the time of each performance test but no less frequently than annually.

(i) If you have an operating limit that requires the use of a monitoring system to measure sorbent injection rate (e.g., weigh belt, weigh hopper, or hopper flow measurement device), you must meet the requirements in paragraphs (d) and (i)(1) through (2) of this section.

(1) Install the system in a position(s) that provides a representative measurement of the total sorbent injection rate.

(2) Conduct a performance evaluation of the sorbent injection rate monitoring system in accordance with your monitoring plan at the time of each performance test but no less frequently than annually.

(j) If you are not required to use a PM CEMS and elect to use a fabric filter bag leak detection system to comply with the requirements of this subpart, you must install, calibrate, maintain, and continuously operate the bag leak detection system as specified in paragraphs (j)(1) through (7) of this section.

(1) You must install a bag leak detection sensor(s) in a position(s) that will be representative of the relative or absolute particulate matter loadings for each exhaust stack, roof vent, or compartment ( e.g., for a positive pressure fabric filter) of the

fabric filter.

(2) Conduct a performance evaluation of the bag leak detection system in accordance with your monitoring plan and consistent with the guidance provided in EPA-454/R-98-015 (incorporated by reference, *see* §63.14).

(3) Use a bag leak detection system certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of 10 milligrams per actual cubic meter or less.

(4) Use a bag leak detection system equipped with a device to record continuously the output signal from the sensor.

(5) Use a bag leak detection system equipped with a system that will alert when an increase in relative particulate matter emissions over a preset level is detected. The alarm must be located where it can be easily heard or seen by plant operating personnel.

(7) Where multiple bag leak detectors are required, the system's instrumentation and alarm may be shared among detectors.

(k) For each unit that meets the definition of limited-use boiler or process heater, you must monitor and record the operating hours per year for that unit.

*The Spunstrand boilers are not subject to emission or operating limits in this subpart. Thus the monitoring, installation, operation, and maintenance requirements in 63.7525 do not apply.*

**§ 63.7530 How do I demonstrate initial compliance with the emission limitations, fuel specifications and work practice standards?**

(a) You must demonstrate initial compliance with each emission limit that applies to you by conducting initial performance tests and fuel analyses and establishing operating limits, as applicable, according to §63.7520, paragraphs (b) and (c) of this section, and Tables 5 and 7 to this subpart. If applicable, you must also install, and operate, maintain all applicable CMS (including CEMS, COMS, and continuous parameter monitoring systems) according to §63.7525.

(b) If you demonstrate compliance through performance testing, you must establish each site-specific operating limit in Table 4 to this subpart that applies to you according to the requirements in §63.7520, Table 7 to this subpart, and paragraph (b)(3) of this section, as applicable. You must also conduct fuel analyses according to §63.7521 and establish maximum fuel pollutant input levels according to paragraphs (b)(1) and (2) of this section, as applicable. As specified in §63.7510(a), if your affected source burns a single type of fuel (excluding supplemental fuels used for unit startup, shutdown, or transient flame stabilization), you are not required to perform the initial fuel analysis for each type of fuel burned in your boiler or process heater. However, if you switch fuel(s) and cannot show that the new fuel(s) do (does) not increase the chlorine or mercury input into the unit through the results of fuel analysis, then you must repeat the performance test to demonstrate compliance while burning the new fuel(s).

(1) You must establish the maximum chlorine fuel input (C<sub>input</sub>) during the initial fuel analysis according to the procedures in paragraphs (b)(1)(i) through (iii) of this section.

(i) You must determine the fuel type or fuel mixture that you could burn in your boiler or process heater that has the highest content of chlorine.

(ii) During the fuel analysis for hydrogen chloride, you must determine the fraction of the total heat input for each fuel type burned (Q<sub>i</sub>) based on the fuel mixture that has the highest content of chlorine, and the average chlorine concentration of each fuel type burned (C<sub>i</sub>).

(iii) You must establish a maximum chlorine input level using Equation 7 of this section.

$$C_{input} = \sum_{i=1}^n (C_i \times Q_i) \quad (\text{Eq. 7})$$

Where:

$C_{input}$  = Maximum amount of chlorine entering the boiler or process heater through fuels burned in units of pounds per million Btu.

$C_i$  = Arithmetic average concentration of chlorine in fuel type,  $i$ , analyzed according to §63.7521, in units of pounds per million Btu.

$Q_i$  = Fraction of total heat input from fuel type,  $i$ , based on the fuel mixture that has the highest content of chlorine. If you do not burn multiple fuel types during the performance testing, it is not necessary to determine the value of this term. Insert a value of "1" for  $Q_i$ .

$n$  = Number of different fuel types burned in your boiler or process heater for the mixture that has the highest content of chlorine.

(2) You must establish the maximum mercury fuel input level ( $Mercury_{input}$ ) during the initial fuel analysis using the procedures in paragraphs (b)(2)(i) through (iii) of this section.

(i) You must determine the fuel type or fuel mixture that you could burn in your boiler or process heater that has the highest content of mercury.

(ii) During the compliance demonstration for mercury, you must determine the fraction of total heat input for each fuel burned ( $Q_i$ ) based on the fuel mixture that has the highest content of mercury, and the average mercury concentration of each fuel type burned ( $HG_i$ ).

(iii) You must establish a maximum mercury input level using Equation 8 of this section.

$$Mercury_{input} = \sum_{i=1}^n (HG_i \times Q_i) \quad (\text{Eq. 8})$$

Where:

$Mercury_{input}$  = Maximum amount of mercury entering the boiler or process heater through fuels burned in units of pounds per million Btu.

$HG_i$  = Arithmetic average concentration of mercury in fuel type,  $i$ , analyzed according to §63.7521, in units of pounds per million Btu.

$Q_i$  = Fraction of total heat input from fuel type,  $i$ , based on the fuel mixture that has the highest mercury content. If you do not burn multiple fuel types during the performance test, it is not necessary to determine the value of this term. Insert a value of "1" for  $Q_i$ .

$n$  = Number of different fuel types burned in your boiler or process heater for the mixture that has the highest content of mercury.

(3) You must establish parameter operating limits according to paragraphs (b)(3)(i) through (iv) of this section.

(i) For a wet scrubber, you must establish the minimum scrubber effluent pH, liquid flowrate, and pressure drop as defined in §63.7575, as your operating limits during the three-run performance test. If you use a wet scrubber and you conduct separate

performance tests for particulate matter, hydrogen chloride, and mercury emissions, you must establish one set of minimum scrubber effluent pH, liquid flowrate, and pressure drop operating limits. The minimum scrubber effluent pH operating limit must be established during the hydrogen chloride performance test. If you conduct multiple performance tests, you must set the minimum liquid flowrate and pressure drop operating limits at the highest minimum values established during the performance tests.

(ii) For an electrostatic precipitator operated with a wet scrubber, you must establish the minimum voltage and secondary amperage (or total power input), as defined in §63.7575, as your operating limits during the three-run performance test. (These operating limits do not apply to electrostatic precipitators that are operated as dry controls without a wet scrubber.)

(iii) For a dry scrubber, you must establish the minimum sorbent injection rate for each sorbent, as defined in §63.7575, as your operating limit during the three-run performance test.

(iv) For activated carbon injection, you must establish the minimum activated carbon injection rate, as defined in §63.7575, as your operating limit during the three-run performance test.

(v) The operating limit for boilers or process heaters with fabric filters that demonstrate continuous compliance through bag leak detection systems is that a bag leak detection system be installed according to the requirements in §63.7525, and that each fabric filter must be operated such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a 6-month period.

(c) If you elect to demonstrate compliance with an applicable emission limit through fuel analysis, you must conduct fuel analyses according to §63.7521 and follow the procedures in paragraphs (c)(1) through (4) of this section.

(1) If you burn more than one fuel type, you must determine the fuel mixture you could burn in your boiler or process heater that would result in the maximum emission rates of the pollutants that you elect to demonstrate compliance through fuel analysis.

(2) You must determine the 90th percentile confidence level fuel pollutant concentration of the composite samples analyzed for each fuel type using the one-sided z-statistic test described in Equation 9 of this section.

$$P90 = \text{mean} + (SD \times t) \quad (\text{Eq. 9})$$

Where:

P90 = 90th percentile confidence level pollutant concentration, in pounds per million Btu.

Mean = Arithmetic average of the fuel pollutant concentration in the fuel samples analyzed according to §63.7521, in units of pounds per million Btu.

SD = Standard deviation of the pollutant concentration in the fuel samples analyzed according to §63.7521, in units of pounds per million Btu.

T = t distribution critical value for 90th percentile (0.1) probability for the appropriate degrees of freedom (number of samples minus one) as obtained from a Distribution Critical Value Table.

(3) To demonstrate compliance with the applicable emission limit for hydrogen chloride, the hydrogen chloride emission rate that you calculate for your boiler or process heater using Equation 10 of this section must not exceed the applicable emission limit for hydrogen chloride.

$$HCl = \sum_{i=1}^n (C_{i90} \times Q_i \times 1.028) \quad (\text{Eq. 10})$$

Where:

HCl = Hydrogen chloride emission rate from the boiler or process heater in units of pounds per million Btu.

C<sub>i90</sub> = 90th percentile confidence level concentration of chlorine in fuel type, i, in units of pounds per million Btu as calculated according to Equation 9 of this section.

Q<sub>i</sub> = Fraction of total heat input from fuel type, i, based on the fuel mixture that has the highest content of chlorine. If you do not burn multiple fuel types, it is not necessary to determine the value of this term. Insert a value of "1" for Q<sub>i</sub>.

n = Number of different fuel types burned in your boiler or process heater for the mixture that has the highest content of chlorine.

1.028 = Molecular weight ratio of hydrogen chloride to chlorine.

(4) To demonstrate compliance with the applicable emission limit for mercury, the mercury emission rate that you calculate for your boiler or process heater using Equation 11 of this section must not exceed the applicable emission limit for mercury.

$$\text{Mercury} = \sum_{i=1}^n (\text{Hg}_{i90} \times Q_i) \quad (\text{Eq. 11})$$

Where:

Mercury = Mercury emission rate from the boiler or process heater in units of pounds per million Btu.

Hg<sub>i90</sub> = 90th percentile confidence level concentration of mercury in fuel, i, in units of pounds per million Btu as calculated according to Equation 9 of this section.

Q<sub>i</sub> = Fraction of total heat input from fuel type, i, based on the fuel mixture that has the highest mercury content. If you do not burn multiple fuel types, it is not necessary to determine the value of this term. Insert a value of "1" for Q<sub>i</sub>.

n = Number of different fuel types burned in your boiler or process heater for the mixture that has the highest mercury content.

*The Spunstrand boilers are not subject to specific emission limits in this subpart, thus compliance demonstration by initial performance tests, fuel analyses, and operating permits under 63.7530(a)-(c) is not required.*

(d) If you own or operate an existing unit with a heat input capacity of less than 10 million Btu per hour, you must submit a signed statement in the Notification of Compliance Status report that indicates that you conducted a tune-up of the unit.

*Spunstrand acknowledges that the Notification of Compliance Status report must include a signed statement that indicates tune-ups of the affected units were conducted.*

(e) You must include with the Notification of Compliance Status a signed certification that the energy assessment was completed according to Table 3 to this subpart and is an accurate depiction of your facility.

*Spunstrand acknowledges that the Notification of Compliance Status report must include a signed certification that an energy assessment was completed according to the requirements of Table 3.*

(f) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration

according to the requirements in §63.7545(e).

*The Spunstrand boilers are not subject to specific emission limits in this subpart, nor initial compliance demonstration under 63.7510, thus the requirements of 63.7530 (f) are not applicable.*

(g) If you elect to demonstrate that a gaseous fuel meets the specifications of an other gas 1 fuel as defined in §63.7575, you must conduct an initial fuel specification analyses according to §63.7521(f) through (i). If the mercury and hydrogen sulfide constituents in the gaseous fuels will never exceed the specifications included in the definition, you will include a signed certification with the Notification of Compliance Status that the initial fuel specification test meets the gas specifications outlined in the definition of other gas 1 fuels. If your gas constituents could vary above the specifications, you will conduct monthly testing according to the procedures in §63.7521(f) through (i) and §63.7540(c) and maintain records of the results of the testing as outlined in §63.7555(g).

*The Spunstrand boilers use only natural gas, and thus 63.7530(g) is not applicable.*

(h) If you own or operate a unit subject emission limits in Tables 1, 2, or 12 of this subpart, you must minimize the unit's startup and shutdown periods following the manufacturer's recommended procedures, if available. If manufacturer's recommended procedures are not available, you must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available. You must submit a signed statement in the Notification of Compliance Status report that indicates that you conducted startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a unit of similar design if manufacturer's recommended procedures are not available.

*The Spunstrand boilers are not subject to specific emission limits in this subpart, thus 63.7530(h) is not applicable.*

**§ 63.7533 Can I use emission credits earned from implementation of energy conservation measures to comply with this subpart?**

(a) If you elect to comply with the alternative equivalent steam output-based emission limits, instead of the heat input-based limits, listed in Tables 1 and 2 of this subpart and you want to take credit for implementing energy conservation measures identified in an energy assessment, you may demonstrate compliance using emission reduction credits according to the procedures in this section. Owners or operators using this compliance approach must establish an emissions benchmark, calculate and document the emission credits, develop an Implementation Plan, comply with the general reporting requirements, and apply the emission credit according to the procedures in paragraphs (b) through (f) of this section.

(b) For each existing affected boiler for which you intend to apply emissions credits, establish a benchmark from which emission reduction credits may be generated by determining the actual annual fuel heat input to the affected boiler before initiation of an energy conservation activity to reduce energy demand ( *i.e.*, fuel usage) according to paragraphs (b)(1) through (4) of this section. The benchmark shall be expressed in trillion Btu per year heat input.

(1) The benchmark from which emission credits may be generated shall be determined by using the most representative, accurate, and reliable process available for the source. The benchmark shall be established for a one-year period before the date that an energy demand reduction occurs, unless it can be demonstrated that a different time period is more representative of historical operations.

(2) Determine the starting point from which to measure progress. Inventory all fuel purchased and generated on-site (off-gases, residues) in physical units (MMBtu, million cubic feet, etc.).

(3) Document all uses of energy from the affected boiler. Use the most recent data available.

(4) Collect non-energy related facility and operational data to normalize, if necessary, the benchmark to current operations, such as building size, operating hours, etc. Use actual, not estimated, use data, if possible and data that are current and timely.

(c) Emissions credits can be generated if the energy conservation measures were implemented after January 14, 2011 and if sufficient information is available to determine the appropriate value of credits.

(1) The following emission points cannot be used to generate emissions averaging credits:

(i) Energy conservation measures implemented on or before January 14, 2011, unless the level of energy demand reduction is increased after January 14, 2011, in which case credit will be allowed only for change in demand reduction achieved after January 14, 2011.

(ii) Emission credits on shut-down boilers. Boilers that are shut down cannot be used to generate credits.

(2) For all points included in calculating emissions credits, the owner or operator shall:

(i) Calculate annual credits for all energy demand points. Use Equation 12 to calculate credits. Energy conservation measures that meet the criteria of paragraph (c)(1) of this section shall not be included, except as specified in paragraph (c)(1)(i) of this section.

(3) Credits are generated by the difference between the benchmark that is established for each affected boiler, and the actual energy demand reductions from energy conservation measures implemented after January 14, 2011. Credits shall be calculated using Equation 12 of this section as follows:

(i) The overall equation for calculating credits is:

$$\text{Credits} = \sum_{j=1}^n EIS_{\text{factual}} - EI_{\text{baseline}} \quad (\text{Eq. 12})$$

Where:

Credits = Energy Input Savings for all energy conservation measures implemented for an affected boiler, million Btu per year.

$EIS_{\text{factual}}$  = Energy Input Savings for each energy conservation measure implemented for an affected boiler, million Btu per year.

$EI_{\text{baseline}}$  = Energy Input for the affected boiler, million Btu.

n = Number of energy conservation measures included in the emissions credit for the affected boiler.

(d) The owner or operator shall develop and submit for approval an Implementation Plan containing all of the information required in this paragraph for all boilers to be included in an emissions credit approach. The Implementation Plan shall identify all existing affected boilers to be included in applying the emissions credits. The Implementation Plan shall include a description of the energy conservation measures implemented and the energy savings generated from each measure and an explanation of the criteria used for determining that savings. You must submit the implementation plan for emission credits to the applicable delegated authority for review and approval no later than 180 days before the date on which the facility intends to demonstrate compliance using the emission credit approach.

(e) The emissions rate from each existing boiler participating in the emissions credit option must be in compliance with the limits in Table 2 to this subpart at all times following the compliance date specified in §63.7495.

(f) You must demonstrate initial compliance according to paragraph (f)(1) or (2) of this section.

(1) You must use Equation 13 of this section to demonstrate that the emissions from the affected boiler participating in the

emissions credit compliance approach do not exceed the emission limits in Table 2 to this subpart.

Where:

$E_{adj}$  = Emission level adjusted applying the emission credits earned, lb per million Btu steam output for the affected boiler.

$E_m$  = Emissions measured during the performance test, lb per million Btu steam output for the affected boiler.

EC = Emission credits from equation 12 for the affected boiler.

*The Spunstrand boilers are not subject to specific emission limits in this subpart, and thus Spunstrand does not intend to use emission credits as outlined in 63.7533.*

### Continuous Compliance Requirements

#### § 63.7535 How do I monitor and collect data to demonstrate continuous compliance?

(a) You must monitor and collect data according to this section and the site-specific monitoring plan required by §63.7505(d).

(b) You must operate the monitoring system and collect data at all required intervals at all times that the affected source is operating, except for periods of monitoring system malfunctions or out of control periods ( see §63.8(c)(7) of this part), and required monitoring system quality assurance or control activities, including, as applicable, calibration checks and required zero and span adjustments. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. You are required to effect monitoring system repairs in response to monitoring system malfunctions or out-of-control periods and to return the monitoring system to operation as expeditiously as practicable.

(c) You may not use data recorded during monitoring system malfunctions or out-of-control periods, repairs associated with monitoring system malfunctions or out-of-control periods, or required monitoring system quality assurance or control activities in data averages and calculations used to report emissions or operating levels. You must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

(d) Except for periods of monitoring system malfunctions or out-of-control periods, repairs associated with monitoring system malfunctions or out-of-control periods, and required monitoring system quality assurance or quality control activities including, as applicable, calibration checks and required zero and span adjustments, failure to collect required data is a deviation of the monitoring requirements.

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, located at a major source, the boilers are not subject to specific emission limits in this subpart, no monitoring systems are required, and thus 63.7535 is not applicable.*

#### § 63.7540 How do I demonstrate continuous compliance with the emission limitations, fuel specifications and work practice standards?

(a) You must demonstrate continuous compliance with each emission limit, operating limit, and work practice standard in Tables 1 through 3 to this subpart that applies to you according to the methods specified in Table 8 to this subpart and paragraphs (a)(1) through (11) of this section.

(1) Following the date on which the initial compliance demonstration is completed or is required to be completed under §§63.7 and 63.7510, whichever date comes first, operation above the established maximum or below the established minimum operating limits shall constitute a deviation of established operating limits listed in Table 4 of this subpart except during performance t

conducted to determine compliance with the emission limits or to establish new operating limits. Operating limits must be confirmed or reestablished during performance tests.

(2) As specified in §63.7550(c), you must keep records of the type and amount of all fuels burned in each boiler or process heater during the reporting period to demonstrate that all fuel types and mixtures of fuels burned would either result in lower emissions of hydrogen chloride and mercury than the applicable emission limit for each pollutant (if you demonstrate compliance through fuel analysis), or result in lower fuel input of chlorine and mercury than the maximum values calculated during the last performance test (if you demonstrate compliance through performance testing).

(3) If you demonstrate compliance with an applicable hydrogen chloride emission limit through fuel analysis and you plan to burn a new type of fuel, you must recalculate the hydrogen chloride emission rate using Equation 9 of §63.7530 according to paragraphs (a)(3)(i) through (iii) of this section.

(i) You must determine the chlorine concentration for any new fuel type in units of pounds per million Btu, based on supplier data or your own fuel analysis, according to the provisions in your site-specific fuel analysis plan developed according to §63.7521(b).

(ii) You must determine the new mixture of fuels that will have the highest content of chlorine.

(iii) Recalculate the hydrogen chloride emission rate from your boiler or process heater under these new conditions using Equation 10 of §63.7530. The recalculated hydrogen chloride emission rate must be less than the applicable emission limit.

(4) If you demonstrate compliance with an applicable hydrogen chloride emission limit through performance testing and you plan to burn a new type of fuel or a new mixture of fuels, you must recalculate the maximum chlorine input using Equation 7 of §63.7530. If the results of recalculating the maximum chlorine input using Equation 7 of §63.7530 are greater than the maximum chlorine input level established during the previous performance test, then you must conduct a new performance test within 60 days of burning the new fuel type or fuel mixture according to the procedures in §63.7520 to demonstrate that the hydrogen chloride emissions do not exceed the emission limit. You must also establish new operating limits based on this performance test according to the procedures in §63.7530(b).

(5) If you demonstrate compliance with an applicable mercury emission limit through fuel analysis, and you plan to burn a new type of fuel, you must recalculate the mercury emission rate using Equation 11 of §63.7530 according to the procedures specified in paragraphs (a)(5)(i) through (iii) of this section.

(i) You must determine the mercury concentration for any new fuel type in units of pounds per million Btu, based on supplier data or your own fuel analysis, according to the provisions in your site-specific fuel analysis plan developed according to §63.7521(b).

(ii) You must determine the new mixture of fuels that will have the highest content of mercury.

(iii) Recalculate the mercury emission rate from your boiler or process heater under these new conditions using Equation 11 of §63.7530. The recalculated mercury emission rate must be less than the applicable emission limit.

(6) If you demonstrate compliance with an applicable mercury emission limit through performance testing, and you plan to burn a new type of fuel or a new mixture of fuels, you must recalculate the maximum mercury input using Equation 8 of §63.7530. If the results of recalculating the maximum mercury input using Equation 8 of §63.7530 are higher than the maximum mercury input level established during the previous performance test, then you must conduct a new performance test within 60 days of burning the new fuel type or fuel mixture according to the procedures in §63.7520 to demonstrate that the mercury emissions do not exceed the emission limit. You must also establish new operating limits based on this performance test according to the procedures in §63.7530(b).

(7) If your unit is controlled with a fabric filter, and you demonstrate continuous compliance using a bag leak detection system,

you must initiate corrective action within 1 hour of a bag leak detection system alarm and complete corrective actions as soon as practical, and operate and maintain the fabric filter system such that the alarm does not sound more than 5 percent of the operating time during a 6-month period. You must also keep records of the date, time, and duration of each alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken. You must also record the percent of the operating time during each 6-month period that the alarm sounds. In calculating this operating time percentage, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm shall be counted as a minimum of 1 hour. If you take longer than 1 hour to initiate corrective action, the alarm time shall be counted as the actual amount of time taken to initiate corrective action.

(8) [Reserved]

(9) The owner or operator of an affected source using a CEMS measuring PM emissions to meet requirements of this subpart shall install, certify, operate, and maintain the PM CEMS as specified in paragraphs (a)(9)(i) through (a)(9)(iv) of this section.

(i) The owner or operator shall conduct a performance evaluation of the PM CEMS according to the applicable requirements of §60.13, and Performance Specification 11 at 40 CFR part 60, appendix B of this chapter.

(ii) During each PM correlation testing run of the CEMS required by Performance Specification 11 at 40 CFR part 60, appendix B of this chapter, PM and oxygen (or carbon dioxide) data shall be collected concurrently (or within a 30-to 60-minute period) by both the CEMS and conducting performance tests using Method 5 or 5B at 40 CFR part 60, appendix A-3 or Method 17 at 40 CFR part 60, appendix A-6 of this chapter.

(iii) Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with Procedure 2 at 40 CFR part 60, appendix F of this chapter. Relative Response Audits must be performed annually and Response Correlation Audits must be performed every 3 years.

(iv) After December 31, 2011, within 60 days after the date of completing each CEMS relative accuracy test audit or performance test conducted to demonstrate compliance with this subpart, you must submit the relative accuracy test audit data and performance test data to EPA by successfully submitting the data electronically into EPA's Central Data Exchange by using the Electronic Reporting Tool (see [http://www.epa.gov/ttn/chieff/ert/ert\\_tool.html/](http://www.epa.gov/ttn/chieff/ert/ert_tool.html/)).

(10) If your boiler or process heater is in either the natural gas, refinery gas, other gas 1, or Metal Process Furnace subcategories and has a heat input capacity of 10 million Btu per hour or greater, you must conduct a tune-up of the boiler or process heater annually to demonstrate continuous compliance as specified in paragraphs (a)(10)(i) through (a)(10)(vi) of this section. This requirement does not apply to limited-use boilers and process heaters, as defined in §63.7575.

(i) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (you may delay the burner inspection until the next scheduled unit shutdown, but you must inspect each burner at least once every 36 months);

(ii) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;

(iii) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly;

(iv) Optimize total emissions of carbon monoxide. This optimization should be consistent with the manufacturer's specifications, if available;

(v) Measure the concentrations in the effluent stream of carbon monoxide in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made); and

(vi) Maintain on-site and submit, if requested by the Administrator, an annual report containing the information in paragraphs (a)(10)(vi)(A) through (C) of this section.

(A) The concentrations of carbon monoxide in the effluent stream in parts per million by volume, and oxygen in volume percent, measured before and after the adjustments of the boiler;

(B) A description of any corrective actions taken as a part of the combustion adjustment; and

(C) The type and amount of fuel used over the 12 months prior to the annual adjustment, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit.

(11) If your boiler or process heater has a heat input capacity of less than 10 million Btu per hour, or meets the definition of limited-use boiler or process heater in §63.7575, you must conduct a biennial tune-up of the boiler or process heater as specified in paragraphs (a)(10)(i) through (a)(10)(vi) of this section to demonstrate continuous compliance.

(12) If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup.

(b) You must report each instance in which you did not meet each emission limit and operating limit in Tables 1 through 4 to this subpart that apply to you. These instances are deviations from the emission limits in this subpart. These deviations must be reported according to the requirements in §63.7550.

*As the Spunstrand boilers have a heat input capacity of less than 10 MMBtu/hr and are subject to a work practice standard in Table 3, Spunstrand acknowledges that continuous compliance must be demonstrated according to 63.7540(a)(10), (11), (12), and (b). Sections 63.7540(a)(1)-(9) are not applicable.*

(c) If you elected to demonstrate that the unit meets the specifications for hydrogen sulfide and mercury for the other gas 1 subcategory and you cannot submit a signed certification under §63.7545(g) because the constituents could exceed the specifications, you must conduct monthly fuel specification testing of the gaseous fuels, according to the procedures in §63.7521(f) through (i).

*Spunstrand does not fall under the other gas 1 category and thus is not subject to this paragraph.*

#### **§ 63.7541 How do I demonstrate continuous compliance under the emissions averaging provision?**

(a) Following the compliance date, the owner or operator must demonstrate compliance with this subpart on a continuous basis by meeting the requirements of paragraphs (a)(1) through (5) of this section.

(1) For each calendar month, demonstrate compliance with the average weighted emissions limit for the existing units participating in the emissions averaging option as determined in §63.7522(f) and (g).

(2) You must maintain the applicable opacity limit according to paragraphs (a)(2)(i) and (ii) of this section.

(i) For each existing unit participating in the emissions averaging option that is equipped with a dry control system and not vented to a common stack, maintain opacity at or below the applicable limit.

(ii) For each group of units participating in the emissions averaging option where each unit in the group is equipped with a dry control system and vented to a common stack that does not receive emissions from non-affected units, maintain opacity at or below the applicable limit at the common stack.

(3) For each existing unit participating in the emissions averaging option that is equipped with a wet scrubber, maintain the 3-

hour average parameter values at or below the operating limits established during the most recent performance test.

(4) For each existing unit participating in the emissions averaging option that has an approved alternative operating plan, maintain the 3-hour average parameter values at or below the operating limits established in the most recent performance test.

(5) For each existing unit participating in the emissions averaging option venting to a common stack configuration containing affected units from other subcategories, maintain the appropriate operating limit for each unit as specified in Table 4 to this subpart that applies.

(b) Any instance where the owner or operator fails to comply with the continuous monitoring requirements in paragraphs (a)(1) through (5) of this section is a deviation.

*Spunstrand boilers are not subject to specific emission limits in this subpart, and are thus not subject to the emission averaging requirements in 63.7522.*

#### **Notification, Reports, and Records**

##### **§ 63.7545 What notifications must I submit and when?**

(a) You must submit to the delegated authority all of the notifications in §63.7(b) and (c), §63.8(e), (f)(4) and (6), and §63.9(b) through (h) that apply to you by the dates specified.

(b) As specified in §63.9(b)(2), if you startup your affected source before May 20, 2011, you must submit an Initial Notification not later than 120 days after May 20, 2011.

*Spunstrand acknowledges the applicability and notification requirements of 63.7545(a) and (b).*

(c) As specified in §63.9(b)(4) and (b)(5), if you startup your new or reconstructed affected source on or after May 20, 2011, you must submit an Initial Notification not later than 15 days after the actual date of startup of the affected source.

(d) If you are required to conduct a performance test you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin.

(e) If you are required to conduct an initial compliance demonstration as specified in §63.7530(a), you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii). For the initial compliance demonstration for each affected source, you must submit the Notification of Compliance Status, including all performance test results and fuel analyses, before the close of business on the 60th day following the completion of all performance test and/or other initial compliance demonstrations for the affected source according to §63.10(d)(2). The Notification of Compliance Status report must contain all the information specified in paragraphs (e)(1) through (8), as applicable.

(1) A description of the affected unit(s) including identification of which subcategory the unit is in, the design heat input capacity of the unit, a description of the add-on controls used on the unit, description of the fuel(s) burned, including whether the fuel(s) were determined by you or EPA through a petition process to be a non-waste under §241.3, whether the fuel(s) were processed from discarded non-hazardous secondary materials within the meaning of §241.3, and justification for the selection of fuel(s) burned during the compliance demonstration.

(2) Summary of the results of all performance tests and fuel analyses, and calculations conducted to demonstrate initial compliance including all established operating limits.

(3) A summary of the maximum carbon monoxide emission levels recorded during the performance test to show that you have

met any applicable emission standard in Table 1, 2, or 12 to this subpart.

(4) Identification of whether you plan to demonstrate compliance with each applicable emission limit through performance testing or fuel analysis.

(5) Identification of whether you plan to demonstrate compliance by emissions averaging and identification of whether you plan to demonstrate compliance by using emission credits through energy conservation:

(i) If you plan to demonstrate compliance by emission averaging, report the emission level that was being achieved or the control technology employed on May 20, 2011.

(6) A signed certification that you have met all applicable emission limits and work practice standards.

(7) If you had a deviation from any emission limit, work practice standard, or operating limit, you must also submit a description of the deviation, the duration of the deviation, and the corrective action taken in the Notification of Compliance Status report.

(8) In addition to the information required in §63.9(h)(2), your notification of compliance status must include the following certification(s) of compliance, as applicable, and signed by a responsible official:

(i) "This facility complies with the requirements in §63.7540(a)(10) to conduct an annual or biennial tune-up, as applicable, of each unit."

(ii) "This facility has had an energy assessment performed according to §63.7530(e)."

(iii) Except for units that qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act, include the following: "No secondary materials that are solid waste were combusted in any affected unit."

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, the boilers are not subject to specific emission limits in this subpart, nor the notification requirements of 63.7545(c)-(e).*

(f) If you operate a unit designed to burn natural gas, refinery gas, or other gas 1 fuels that is subject to this subpart, and you intend to use a fuel other than natural gas, refinery gas, or other gas 1 fuel to fire the affected unit during a period of natural gas curtailment or supply interruption, as defined in §63.7575, you must submit a notification of alternative fuel use within 48 hours of the declaration of each period of natural gas curtailment or supply interruption, as defined in §63.7575. The notification must include the information specified in paragraphs (f)(1) through (5) of this section.

(1) Company name and address.

(2) Identification of the affected unit.

(3) Reason you are unable to use natural gas or equivalent fuel, including the date when the natural gas curtailment was declared or the natural gas supply interruption began.

(4) Type of alternative fuel that you intend to use.

(5) Dates when the alternative fuel use is expected to begin and end.

*Spunstrand acknowledges that if a fuel other than natural gas, refinery gas, or other gas 1 fuel is used during a period of natural gas curtailment or supply interruption, notification must be submitted in accordance with this section.*

(g) If you intend to commence or recommence combustion of solid waste, you must provide 30 days prior notice of the date

upon which you will commence or recommence combustion of solid waste. The notification must identify:

- (1) The name of the owner or operator of the affected source, the location of the source, the boiler(s) or process heater(s) that will commence burning solid waste, and the date of the notice.
- (2) The currently applicable subcategory under this subpart.
- (3) The date on which you became subject to the currently applicable emission limits.
- (4) The date upon which you will commence combusting solid waste.

*Spunstrand does not combust solid waste..*

(h) If you intend to switch fuels, and this fuel switch may result in the applicability of a different subcategory, you must provide 30 days prior notice of the date upon which you will switch fuels. The notification must identify:

- (1) The name of the owner or operator of the affected source, the location of the source, the boiler(s) that will switch fuels, and the date of the notice.
- (2) The currently applicable subcategory under this subpart.
- (3) The date on which you became subject to the currently applicable standards.
- (4) The date upon which you will commence the fuel switch.

*Spunstrand acknowledges that notification must be submitted in accordance with this section if switching to a fuel that may result in the applicability of a different subcategory.*

### **§ 63.7550 What reports must I submit and when?**

(a) You must submit each report in Table 9 to this subpart that applies to you.

(b) Unless the EPA Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 9 to this subpart and according to the requirements in paragraphs (b)(1) through (5) of this section. For units that are subject only to a requirement to conduct an annual or biennial tune-up according to §63.7540(a)(10) or (a)(11), respectively, and not subject to emission limits or operating limits, you may submit only an annual or biennial compliance report, as applicable, as specified in paragraphs (b)(1) through (5) of this section, instead of a semi-annual compliance report.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.7495 and ending on June 30 or December 31, whichever date is the first date that occurs at least 180 days (or 1 or 2 year, as applicable, if submitting an annual or biennial compliance report) after the compliance date that is specified for your source in §63.7495.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.7495. The first annual or biennial compliance report must be postmarked no later than January 31.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Annual and biennial compliance reports must cover the

applicable one or two year periods from January 1 to December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period. Annual and biennial compliance reports must be postmarked no later than January 31.

(5) For each affected source that is subject to permitting regulations pursuant to part 70 or part 71 of this chapter, and if the delegated authority has established dates for submitting semiannual reports pursuant to §70.6(a)(3)(iii)(A) or §71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the delegated authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The compliance report must contain the information required in paragraphs (c)(1) through (13) of this section.

(1) Company name and address.

(2) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) The total fuel use by each affected source subject to an emission limit, for each calendar month within the semiannual (or annual or biennial) reporting period, including, but not limited to, a description of the fuel, whether the fuel has received a non-waste determination by EPA or your basis for concluding that the fuel is not a waste, and the total fuel usage amount with units of measure.

(5) A summary of the results of the annual performance tests for affected sources subject to an emission limit, a summary of any fuel analyses associated with performance tests, and documentation of any operating limits that were reestablished during this test, if applicable. If you are conducting performance tests once every 3 years consistent with §63.7515(b) or (c), the date of the last 2 performance tests, a comparison of the emission level you achieved in the last 2 performance tests to the 75 percent emission limit threshold required in §63.7515(b) or (c), and a statement as to whether there have been any operational changes since the last performance test that could increase emissions.

(6) A signed statement indicating that you burned no new types of fuel in an affected source subject to an emission limit. Or, if you did burn a new type of fuel and are subject to a hydrogen chloride emission limit, you must submit the calculation of chlorine input, using Equation 5 of §63.7530, that demonstrates that your source is still within its maximum chlorine input level established during the previous performance testing (for sources that demonstrate compliance through performance testing) or you must submit the calculation of hydrogen chloride emission rate using Equation 10 of §63.7530 that demonstrates that your source is still meeting the emission limit for hydrogen chloride emissions (for boilers or process heaters that demonstrate compliance through fuel analysis). If you burned a new type of fuel and are subject to a mercury emission limit, you must submit the calculation of mercury input, using Equation 8 of §63.7530, that demonstrates that your source is still within its maximum mercury input level established during the previous performance testing (for sources that demonstrate compliance through performance testing), or you must submit the calculation of mercury emission rate using Equation 11 of §63.7530 that demonstrates that your source is still meeting the emission limit for mercury emissions (for boilers or process heaters that demonstrate compliance through fuel analysis).

(7) If you wish to burn a new type of fuel in an affected source subject to an emission limit and you cannot demonstrate compliance with the maximum chlorine input operating limit using Equation 7 of §63.7530 or the maximum mercury input operating limit using Equation 8 of §63.7530, you must include in the compliance report a statement indicating the intent to conduct a new performance test within 60 days of starting to burn the new fuel.

(8) A summary of any monthly fuel analyses conducted to demonstrate compliance according to §§63.7521 and 63.7530 for affected sources subject to emission limits, and any fuel specification analyses conducted according to §63.7521(f) and

§63.7530(g).

(9) If there are no deviations from any emission limits or operating limits in this subpart that apply to you, a statement that there were no deviations from the emission limits or operating limits during the reporting period.

(10) If there were no deviations from the monitoring requirements including no periods during which the CMSs, including CEMS, COMS, and continuous parameter monitoring systems, were out of control as specified in §63.8(c)(7), a statement that there were no deviations and no periods during which the CMS were out of control during the reporting period.

(11) If a malfunction occurred during the reporting period, the report must include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by you during a malfunction of a boiler, process heater, or associated air pollution control device or CMS to minimize emissions in accordance with §63.7500(a)(3), including actions taken to correct the malfunction.

(12) Include the date of the most recent tune-up for each unit subject to only the requirement to conduct an annual or biennial tune-up according to §63.7540(a)(10) or (a)(11), respectively. Include the date of the most recent burner inspection if it was not done annually or biennially and was delayed until the next scheduled unit shutdown.

(13) If you plan to demonstrate compliance by emission averaging, certify the emission level achieved or the control technology employed is no less stringent than the level or control technology contained in the notification of compliance status in §63.7545(e)(5)(i).

*Spunstrand acknowledges the applicability and reporting requirements of 63.7550(a) - (c).*

(d) For each deviation from an emission limit or operating limit in this subpart that occurs at an affected source where you are not using a CMS to comply with that emission limit or operating limit, the compliance report must additionally contain the information required in paragraphs (d)(1) through (4) of this section.

(1) The total operating time of each affected source during the reporting period.

(2) A description of the deviation and which emission limit or operating limit from which you deviated.

(3) Information on the number, duration, and cause of deviations (including unknown cause), as applicable, and the corrective action taken.

(4) A copy of the test report if the annual performance test showed a deviation from the emission limits.

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, the boilers are not subject to specific emission or operating limits in this subpart, and thus are not subject to the requirements of 63.7550(d).*

(e) For each deviation from an emission limit, operating limit, and monitoring requirement in this subpart occurring at an affected source where you are using a CMS to comply with that emission limit or operating limit, you must include the information required in paragraphs (e)(1) through (12) of this section. This includes any deviations from your site-specific monitoring plan as required in §63.7505(d).

(1) The date and time that each deviation started and stopped and description of the nature of the deviation ( *i.e.*, what you deviated from).

(2) The date and time that each CMS was inoperative, except for zero (low-level) and high-level checks.

- (3) The date, time, and duration that each CMS was out of control, including the information in §63.8(c)(8).
- (4) The date and time that each deviation started and stopped.
- (5) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.
- (6) An analysis of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.
- (7) A summary of the total duration of CMS's downtime during the reporting period and the total duration of CMS downtime as a percent of the total source operating time during that reporting period.
- (8) An identification of each parameter that was monitored at the affected source for which there was a deviation.
- (9) A brief description of the source for which there was a deviation.
- (10) A brief description of each CMS for which there was a deviation.
- (11) The date of the latest CMS certification or audit for the system for which there was a deviation.
- (12) A description of any changes in CMSs, processes, or controls since the last reporting period for the source for which there was a deviation.

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, located at a major source, the boilers are not subject to specific emission or operating limits in this subpart, and thus not subject to 63.7550(e).*

(f) Each affected source that has obtained a Title V operating permit pursuant to part 70 or part 71 of this chapter must report all deviations as defined in this subpart in the semiannual monitoring report required by §70.6(a)(3)(iii)(A) or §71.6(a)(3)(iii)(A). If an affected source submits a compliance report pursuant to Table 9 to this subpart along with, or as part of, the semiannual monitoring report required by §70.6(a)(3)(iii)(A) or §71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any emission limit, operating limit, or work practice requirement in this subpart, submission of the compliance report satisfies any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the delegated authority.

*Spunstrand acknowledges the applicability and reporting requirements of 63.7550(f).*

(g) [Reserved]

(h) As of January 1, 2012 and within 60 days after the date of completing each performance test, as defined in §63.2, conducted to demonstrate compliance with this subpart, you must submit relative accuracy test audit ( *i.e.* , reference method) data and performance test ( *i.e.* , compliance test) data, except opacity data, electronically to EPA's Central Data Exchange (CDX) by using the Electronic Reporting Tool (ERT) (see [http://www.epa.gov/ttn/chief/ert/ert\\_tool.html/](http://www.epa.gov/ttn/chief/ert/ert_tool.html/)) or other compatible electronic spreadsheet. Only data collected using test methods compatible with ERT are subject to this requirement to be submitted electronically into EPA's WebFIRE database.

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, located at a major source, the boilers are not subject to specific emission or operating limits in this subpart, and thus not subject*

*to performance testing or the requirements of 63.7550(h).*

**§ 63.7555 What records must I keep?**

(a) You must keep records according to paragraphs (a)(1) and (2) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report that you submitted, according to the requirements in §63.10(b)(2)(xiv).

(2) Records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in §63.10(b)(2)(viii).

*Spunstrand acknowledges the applicability and record keeping requirements of 63.7555(a).*

(b) For each CEMS, COMS, and continuous monitoring system you must keep records according to paragraphs (b)(1) through (5) of this section.

(1) Records described in §63.10(b)(2)(vii) through (xi).

(2) Monitoring data for continuous opacity monitoring system during a performance evaluation as required in §63.6(h)(7)(i) and (ii).

(3) Previous (*i.e.*, superseded) versions of the performance evaluation plan as required in §63.8(d)(3).

(4) Request for alternatives to relative accuracy test for CEMS as required in §63.8(f)(6)(i).

(5) Records of the date and time that each deviation started and stopped.

(c) You must keep the records required in Table 8 to this subpart including records of all monitoring data and calculated averages for applicable operating limits, such as opacity, pressure drop, pH, and operating load, to show continuous compliance with each emission limit and operating limit that applies to you.

(d) For each boiler or process heater subject to an emission limit in Table 1, 2 or 12 to this subpart, you must also keep the applicable records in paragraphs (d)(1) through (8) of this section.

(1) You must keep records of monthly fuel use by each boiler or process heater, including the type(s) of fuel and amount(s) used.

(2) If you combust non-hazardous secondary materials that have been determined not to be solid waste pursuant to §41.3(b)(1), you must keep a record which documents how the secondary material meets each of the legitimacy criteria. If you combust a fuel that has been processed from a discarded non-hazardous secondary material pursuant to §241.3(b)(4), you must keep records as to how the operations that produced the fuel satisfies the definition of processing in §241.2. If the fuel received a non-waste determination pursuant to the petition process submitted under §241.3(c), you must keep a record that documents how the fuel satisfies the requirements of the petition process.

(3) You must keep records of monthly hours of operation by each boiler or process heater that meets the definition of limited-use boiler or process heater.

(4) A copy of all calculations and supporting documentation of maximum chlorine fuel input, using Equation 7 of §63.7530, that were done to demonstrate continuous compliance with the hydrogen chloride emission limit, for sources that demonstrate compliance through performance testing. For sources that demonstrate compliance through fuel analysis, a copy of all

calculations and supporting documentation of hydrogen chloride emission rates, using Equation 10 of §63.7530, that were done to demonstrate compliance with the hydrogen chloride emission limit. Supporting documentation should include results of any fuel analyses and basis for the estimates of maximum chlorine fuel input or hydrogen chloride emission rates. You can use the results from one fuel analysis for multiple boilers and process heaters provided they are all burning the same fuel type. However, you must calculate chlorine fuel input, or hydrogen chloride emission rate, for each boiler and process heater.

(5) A copy of all calculations and supporting documentation of maximum mercury fuel input, using Equation 8 of §63.7530, that were done to demonstrate continuous compliance with the mercury emission limit for sources that demonstrate compliance through performance testing. For sources that demonstrate compliance through fuel analysis, a copy of all calculations and supporting documentation of mercury emission rates, using Equation 11 of §63.7530, that were done to demonstrate compliance with the mercury emission limit. Supporting documentation should include results of any fuel analyses and basis for the estimates of maximum mercury fuel input or mercury emission rates. You can use the results from one fuel analysis for multiple boilers and process heaters provided they are all burning the same fuel type. However, you must calculate mercury fuel input, or mercury emission rates, for each boiler and process heater.

(6) If, consistent with §63.7515(b) and (c), you choose to stack test less frequently than annually, you must keep annual records that document that your emissions in the previous stack test(s) were less than 75 percent of the applicable emission limit, and document that there was no change in source operations including fuel composition and operation of air pollution control equipment that would cause emissions of the relevant pollutant to increase within the past year.

(7) Records of the occurrence and duration of each malfunction of the boiler or process heater, or of the associated air pollution control and monitoring equipment.

(8) Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in §63.7500(a)(3), including corrective actions to restore the malfunctioning boiler or process heater, air pollution control, or monitoring equipment to its normal or usual manner of operation.

(e) If you elect to average emissions consistent with §63.7522, you must additionally keep a copy of the emission averaging implementation plan required in §63.7522(g), all calculations required under §63.7522, including monthly records of heat input or steam generation, as applicable, and monitoring records consistent with §63.7541.

(f) If you elect to use emission credits from energy conservation measures to demonstrate compliance according to §63.7533, you must keep a copy of the Implementation Plan required in §63.7533(d) and copies of all data and calculations used to establish credits according to §63.7533(b), (c), and (f).

(g) If you elected to demonstrate that the unit meets the specifications for hydrogen sulfide and mercury for the other gas 1 subcategory and you cannot submit a signed certification under §63.7545(g) because the constituents could exceed the specifications, you must maintain monthly records of the calculations and results of the fuel specifications for mercury and hydrogen sulfide in Table 6.

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, the boilers are not subject to specific emission or operating limits in this subpart, thus the requirements of 63.7555(b)-(g) are not applicable*

(h) If you operate a unit designed to burn natural gas, refinery gas, or other gas 1 fuel that is subject to this subpart, and you use an alternative fuel other than natural gas, refinery gas, or other gas 1 fuel, you must keep records of the total hours per calendar year that alternative fuel is burned.

*Spunstrand acknowledges the applicability and recordkeeping requirements of 63.7555(a) if an alternative fuel other than natural gas, refinery gas, or other gas 1 fuel is used.*

#### § 63.7560 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review, according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site, or they must be accessible from on site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You can keep the records off site for the remaining 3 years.

#### **Other Requirements and Information**

#### **§ 63.7565 What parts of the General Provisions apply to me?**

Table 10 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you.

*Spunstrand acknowledges the applicability of the General Provisions as shown in Table 10 of this subpart.*

#### **§ 63.7570 Who implements and enforces this subpart?**

(a) This subpart can be implemented and enforced by EPA, or a delegated authority such as your State, local, or tribal agency. If the EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency (as well as EPA) has the authority to implement and enforce this subpart. You should contact your EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities listed in paragraphs (b)(1) through (5) of this section are retained by the EPA Administrator and are not transferred to the State, local, or tribal agency, however, EPA retains oversight of this subpart and can take enforcement actions, as appropriate.

(1) Approval of alternatives to the non-opacity emission limits and work practice standards in §63.7500(a) and (b) under §63.6(g).

(2) Approval of alternative opacity emission limits in §63.7500(a) under §63.6(h)(9).

(3) Approval of major change to test methods in Table 5 to this subpart under §63.7(e)(2)(ii) and (f) and as defined in §63.90, and alternative analytical methods requested under §63.7521(b)(2).

(4) Approval of major change to monitoring under §63.8(f) and as defined in §63.90, and approval of alternative operating parameters under §63.7500(a)(2) and §63.7522(g)(2).

(5) Approval of major change to recordkeeping and reporting under §63.10(e) and as defined in §63.90.

*Spunstrand acknowledges the implementation and enforcement authority outlined in 63.7570, above.*

#### **§ 63.7575 What definitions apply to this subpart?**

*Spunstrand acknowledges the definitions contained in 63.7575, below, and used these definitions as part of this regulatory determination.*

Terms used in this subpart are defined in the Clean Air Act, in §63.2 (the General Provisions), and in this section as follows:

*Affirmative defense* means, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

*Annual heat input* means the heat input for the 12 months preceding the compliance demonstration.

*Bag leak detection system* means a group of instruments that are capable of monitoring particulate matter loadings in the exhaust of a fabric filter ( *i.e.*, baghouse) in order to detect bag failures. A bag leak detection system includes, but is not limited to, an instrument that operates on electrodynamic, triboelectric, light scattering, light transmittance, or other principle to monitor relative particulate matter loadings.

*Benchmarking* means a process of comparison against standard or average.

*Biomass or bio-based solid fuel* means any biomass-based solid fuel that is not a solid waste. This includes, but is not limited to, wood residue; wood products ( *e.g.*, trees, tree stumps, tree limbs, bark, lumber, sawdust, sander dust, chips, scraps, slabs, millings, and shavings); animal manure, including litter and other bedding materials; vegetative agricultural and silvicultural materials, such as logging residues (slash), nut and grain hulls and chaff ( *e.g.*, almond, walnut, peanut, rice, and wheat), bagasse, orchard prunings, corn stalks, coffee bean hulls and grounds. This definition of biomass is not intended to suggest that these materials are or are not solid waste.

*Blast furnace gas fuel-fired boiler or process heater* means an industrial/commercial/institutional boiler or process heater that receives 90 percent or more of its total annual gas volume from blast furnace gas.

*Boiler* means an enclosed device using controlled flame combustion and having the primary purpose of recovering thermal energy in the form of steam or hot water. Controlled flame combustion refers to a steady-state, or near steady-state, process wherein fuel and/or oxidizer feed rates are controlled. A device combusting solid waste, as defined in §241.3, is not a boiler unless the device is exempt from the definition of a solid waste incineration unit as provided in section 129(g)(1) of the Clean Air Act. Waste heat boilers are excluded from this definition.

*Boiler system* means the boiler and associated components, such as, the feed water system, the combustion air system, the fuel system (including burners), blowdown system, combustion control system, and energy consuming systems.

*Calendar year* means the period between January 1 and December 31, inclusive, for a given year.

*Coal* means all solid fuels classifiable as anthracite, bituminous, sub-bituminous, or lignite by ASTM D388 (incorporated by reference, see §63.14), coal refuse, and petroleum coke. For the purposes of this subpart, this definition of “coal” includes synthetic fuels derived from coal for creating useful heat, including but not limited to, solvent-refined coal, coal-oil mixtures, and coal-water mixtures. Coal derived gases are excluded from this definition.

*Coal refuse* means any by-product of coal mining or coal cleaning operations with an ash content greater than 50 percent (by weight) and a heating value less than 13,900 kilojoules per kilogram (6,000 Btu per pound) on a dry basis.

*Commercial/institutional boiler* means a boiler used in commercial establishments or institutional establishments such as medical centers, research centers, institutions of higher education, hotels, and laundries to provide steam and/or hot water.

*Common stack* means the exhaust of emissions from two or more affected units through a single flue. Affected units with a common stack may each have separate air pollution control systems located before the common stack, or may have a single air pollution control system located after the exhausts come together in a single flue.

*Cost-effective energy conservation measure* means a measure that is implemented to improve the energy efficiency of the boiler

or facility that has a payback (return of investment) period of 2 years or less.

*Deviation.*

(1) *Deviation* means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(i) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limit, operating limit, or work practice standard; or

(ii) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit.

(2) A deviation is not always a violation. The determination of whether a deviation constitutes a violation of the standard is up to the discretion of the entity responsible for enforcement of the standards.

*Dioxins/furans* means tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans.

*Distillate oil* means fuel oils, including recycled oils, that comply with the specifications for fuel oil numbers 1 and 2, as defined by ASTM D396 (incorporated by reference, see §63.14).

*Dry scrubber* means an add-on air pollution control system that injects dry alkaline sorbent (dry injection) or sprays an alkaline sorbent (spray dryer) to react with and neutralize acid gas in the exhaust stream forming a dry powder material. Sorbent injection systems in fluidized bed boilers and process heaters are included in this definition. A dry scrubber is a dry control system.

*Dutch oven* means a unit having a refractory-walled cell connected to a conventional boiler setting. Fuel materials are introduced through an opening in the roof of the Dutch oven and burn in a pile on its floor.

*Electric utility steam generating unit* means a fossil fuel-fired combustion unit of more than 25 megawatts that serves a generator that produces electricity for sale. A fossil fuel-fired unit that cogenerates steam and electricity and supplies more than one-third of its potential electric output capacity and more than 25 megawatts electrical output to any utility power distribution system for sale is considered an electric utility steam generating unit.

*Electrostatic precipitator (ESP)* means an add-on air pollution control device used to capture particulate matter by charging the particles using an electrostatic field, collecting the particles using a grounded collecting surface, and transporting the particles into a hopper. An electrostatic precipitator is usually a dry control system.

*Emission credit* means emission reductions above those required by this subpart. Emission credits generated may be used to comply with the emissions limits. Credits may come from pollution prevention projects that result in reduced fuel use by affected units. Shutdowns cannot be used to generate credits.

*Energy assessment* means the following only as this term is used in Table 3 to this subpart.

(1) Energy assessment for facilities with affected boilers and process heaters using less than 0.3 trillion Btu per year heat input will be one day in length maximum. The boiler system and energy use system accounting for at least 50 percent of the energy output will be evaluated to identify energy savings opportunities, within the limit of performing a one-day energy assessment.

(2) The Energy assessment for facilities with affected boilers and process heaters using 0.3 to 1.0 trillion Btu per year will be 3 days in length maximum. The boiler system and any energy use system accounting for at least 33 percent of the energy output will be evaluated to identify energy savings opportunities, within the limit of performing a 3-day energy assessment.

(3) In the Energy assessment for facilities with affected boilers and process heaters using greater than 1.0 trillion Btu per year

the boiler system and any energy use system accounting for at least 20 percent of the energy output will be evaluated to identify energy savings opportunities.

*Energy management practices* means the set of practices and procedures designed to manage energy use that are demonstrated by the facility's energy policies, a facility energy manager and other staffing responsibilities, energy performance measurement and tracking methods, an energy saving goal, action plans, operating procedures, internal reporting requirements, and periodic review intervals used at the facility.

*Energy use system* includes, but is not limited to, process heating; compressed air systems; machine drive (motors, pumps, fans); process cooling; facility heating, ventilation, and air-conditioning systems; hot heater systems; building envelop; and lighting.

*Equivalent* means the following only as this term is used in Table 6 to this subpart:

(1) An equivalent sample collection procedure means a published voluntary consensus standard or practice (VCS) or EPA method that includes collection of a minimum of three composite fuel samples, with each composite consisting of a minimum of three increments collected at approximately equal intervals over the test period.

(2) An equivalent sample compositing procedure means a published VCS or EPA method to systematically mix and obtain a representative subsample (part) of the composite sample.

(3) An equivalent sample preparation procedure means a published VCS or EPA method that: Clearly states that the standard, practice or method is appropriate for the pollutant and the fuel matrix; or is cited as an appropriate sample preparation standard, practice or method for the pollutant in the chosen VCS or EPA determinative or analytical method.

(4) An equivalent procedure for determining heat content means a published VCS or EPA method to obtain gross calorific (or higher heating) value.

(5) An equivalent procedure for determining fuel moisture content means a published VCS or EPA method to obtain moisture content. If the sample analysis plan calls for determining metals (especially the mercury, selenium, or arsenic) using an aliquot of the dried sample, then the drying temperature must be modified to prevent vaporizing these metals. On the other hand, if metals analysis is done on an "as received" basis, a separate aliquot can be dried to determine moisture content and the metals concentration mathematically adjusted to a dry basis.

(6) An equivalent pollutant (mercury, hydrogen chloride, hydrogen sulfide) determinative or analytical procedure means a published VCS or EPA method that clearly states that the standard, practice, or method is appropriate for the pollutant and the fuel matrix and has a published detection limit equal or lower than the methods listed in Table 6 to this subpart for the same purpose.

*Fabric filter* means an add-on air pollution control device used to capture particulate matter by filtering gas streams through filter media, also known as a baghouse. A fabric filter is a dry control system.

*Federally enforceable* means all limitations and conditions that are enforceable by the EPA Administrator, including the requirements of 40 CFR parts 60 and 61, requirements within any applicable State implementation plan, and any permit requirements established under 40 CFR 52.21 or under 40 CFR 51.18 and 40 CFR 51.24.

*Fluidized bed boiler* means a boiler utilizing a fluidized bed combustion process.

*Fluidized bed combustion* means a process where a fuel is burned in a bed of granulated particles, which are maintained in a mobile suspension by the forward flow of air and combustion products.

*Fuel cell* means a boiler type in which the fuel is dropped onto suspended fixed grates and is fired in a pile. The refractory-lined

fuel cell uses combustion air preheating and positioning of secondary and tertiary air injection ports to improve boiler efficiency.

*Fuel type* means each category of fuels that share a common name or classification. Examples include, but are not limited to, bituminous coal, sub-bituminous coal, lignite, anthracite, biomass, residual oil. Individual fuel types received from different suppliers are not considered new fuel types.

*Gaseous fuel* includes, but is not limited to, natural gas, process gas, landfill gas, coal derived gas, refinery gas, and biogas. Blast furnace gas is exempted from this definition.

*Heat input* means heat derived from combustion of fuel in a boiler or process heater and does not include the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources such as gas turbines, internal combustion engines, kilns, etc.

*Hourly average* means the arithmetic average of at least four CMS data values representing the four 15-minute periods in an hour, or at least two 15-minute data values during an hour when CMS calibration, quality assurance, or maintenance activities are being performed.

*Hot water heater* means a closed vessel with a capacity of no more than 120 U.S. gallons in which water is heated by combustion of gaseous or liquid fuel and is withdrawn for use external to the vessel at pressures not exceeding 160 psig, including the apparatus by which the heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210 degrees Fahrenheit (99 degrees Celsius). *Hot water heater* also means a tankless unit that provides on demand hot water.

*Hybrid suspension grate boiler* means a boiler designed with air distributors to spread the fuel material over the entire width and depth of the boiler combustion zone. The drying and much of the combustion of the fuel takes place in suspension, and the combustion is completed on the grate or floor of the boiler.

*Industrial boiler* means a boiler used in manufacturing, processing, mining, and refining or any other industry to provide steam and/or hot water.

*Limited-use boiler or process heater* means any boiler or process heater that burns any amount of solid, liquid, or gaseous fuels, has a rated capacity of greater than 10 MMBtu per hour heat input, and has a federally enforceable limit of no more than 876 hours per year of operation.

*Liquid fuel subcategory* includes any boiler or process heater of any design that burns more than 10 percent liquid fuel and less than 10 percent solid fuel, based on the total annual heat input to the unit.

*Liquid fuel* includes, but is not limited to, distillate oil, residual oil, on-spec used oil, and biodiesel.

*Load fraction* means the actual heat input of the boiler or process heater divided by the average operating load determined according to Table 7 to this subpart.

*Metal process furnaces* include natural gas-fired annealing furnaces, preheat furnaces, reheat furnaces, aging furnaces, heat treat furnaces, and homogenizing furnaces.

*Million Btu (MMBtu)* means one million British thermal units.

*Minimum activated carbon injection rate* means load fraction (percent) multiplied by the lowest hourly average activated carbon injection rate measured according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable emission limits.

*Minimum pressure drop* means the lowest hourly average pressure drop measured according to Table 7 to this subpart during

most recent performance test demonstrating compliance with the applicable emission limit.

*Minimum scrubber effluent pH* means the lowest hourly average sorbent liquid pH measured at the inlet to the wet scrubber according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable hydrogen chloride emission limit.

*Minimum scrubber liquid flow rate* means the lowest hourly average liquid flow rate (e.g., to the PM scrubber or to the acid gas scrubber) measured according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable emission limit.

*Minimum scrubber pressure drop* means the lowest hourly average scrubber pressure drop measured according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable emission limit.

*Minimum sorbent injection rate* means load fraction (percent) multiplied by the lowest hourly average sorbent injection rate for each sorbent measured according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable emission limits.

*Minimum total secondary electric power* means the lowest hourly average total secondary electric power determined from the values of secondary voltage and secondary current to the electrostatic precipitator measured according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable emission limits.

*Natural gas* means:

- (1) A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane; or
- (2) Liquid petroleum gas, as defined in ASTM D1835 (incorporated by reference, see §63.14); or
- (3) A mixture of hydrocarbons that maintains a gaseous state at ISO conditions. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 34 and 43 mega joules (MJ) per dry standard cubic meter (910 and 1,150 Btu per dry standard cubic foot); or
- (4) Propane or propane derived synthetic natural gas. Propane means a colorless gas derived from petroleum and natural gas, with the molecular structure C<sub>3</sub>H<sub>8</sub>.

*Opacity* means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.

*Operating day* means a 24-hour period between 12 midnight and the following midnight during which any fuel is combusted at any time in the boiler or process heater unit. It is not necessary for fuel to be combusted for the entire 24-hour period.

*Other gas 1 fuel* means a gaseous fuel that is not natural gas or refinery gas and does not exceed the maximum concentration of 40 micrograms/cubic meters of mercury and 4 parts per million, by volume, of hydrogen sulfide.

*Particulate matter (PM)* means any finely divided solid or liquid material, other than uncombined water, as measured by the test methods specified under this subpart, or an approved alternative method.

*Period of natural gas curtailment or supply interruption* means a period of time during which the supply of natural gas to an affected facility is halted for reasons beyond the control of the facility. The act of entering into a contractual agreement with a supplier of natural gas established for curtailment purposes does not constitute a reason that is under the control of a facility for the purposes of this definition. An increase in the cost or unit price of natural gas does not constitute a period of natural gas

curtailment or supply interruption.

*Process heater* means an enclosed device using controlled flame, and the unit's primary purpose is to transfer heat indirectly to a process material (liquid, gas, or solid) or to a heat transfer material for use in a process unit, instead of generating steam. Process heaters are devices in which the combustion gases do not come into direct contact with process materials. A device combusting solid waste, as defined in §241.3, is not a process heater unless the device is exempt from the definition of a solid waste incineration unit as provided in section 129(g)(1) of the Clean Air Act. Process heaters do not include units used for comfort heat or space heat, food preparation for on-site consumption, or autoclaves.

*Pulverized coal boiler* means a boiler in which pulverized coal or other solid fossil fuel is introduced into an air stream that carries the coal to the combustion chamber of the boiler where it is fired in suspension.

*Qualified energy assessor* means:

(1) someone who has demonstrated capabilities to evaluate a set of the typical energy savings opportunities available in opportunity areas for steam generation and major energy using systems, including, but not limited to:

(i) Boiler combustion management.

(ii) Boiler thermal energy recovery, including

(A) Conventional feed water economizer,

(B) Conventional combustion air preheater, and

(C) Condensing economizer.

(iii) Boiler blowdown thermal energy recovery.

(iv) Primary energy resource selection, including

(A) Fuel (primary energy source) switching, and

(B) Applied steam energy versus direct-fired energy versus electricity.

(v) Insulation issues.

(vi) Steam trap and steam leak management.

(vi) Condensate recovery.

(viii) Steam end-use management.

(2) Capabilities and knowledge includes, but is not limited to:

(i) Background, experience, and recognized abilities to perform the assessment activities, data analysis, and report preparation.

(ii) Familiarity with operating and maintenance practices for steam or process heating systems.

(iii) Additional potential steam system improvement opportunities including improving steam turbine operations and reducing

steam demand.

(iv) Additional process heating system opportunities including effective utilization of waste heat and use of proper process heating methods.

(v) Boiler-steam turbine cogeneration systems.

(vi) Industry specific steam end-use systems.

*Refinery gas* means any gas that is generated at a petroleum refinery and is combusted. Refinery gas includes natural gas when the natural gas is combined and combusted in any proportion with a gas generated at a refinery. Refinery gas includes gases generated from other facilities when that gas is combined and combusted in any proportion with gas generated at a refinery.

*Residual oil* means crude oil, and all fuel oil numbers 4, 5 and 6, as defined in ASTM D396-10 (incorporated by reference, see §63.14(b)).

*Responsible official* means responsible official as defined in §70.2.

*Solid fossil fuel* includes, and is not limited to, coal, coke, petroleum coke, and tire derived fuel.

*Solid fuel* means any solid fossil fuel or biomass or bio-based solid fuel.

*Steam output* means (1) for a boiler that produces steam for process or heating only (no power generation), the energy content in terms of MMBtu of the boiler steam output, and (2) for a boiler that cogenerates process steam and electricity (also known as combined heat and power (CHP)), the total energy output, which is the sum of the energy content of the steam exiting the turbine and sent to process in MMBtu and the energy of the electricity generated converted to MMBtu at a rate of 10,000 Btu per kilowatt-hour generated (10 MMBtu per megawatt-hour).

*Stoker* means a unit consisting of a mechanically operated fuel feeding mechanism, a stationary or moving grate to support the burning of fuel and admit under-grate air to the fuel, an overfire air system to complete combustion, and an ash discharge system. This definition of stoker includes air swept stokers. There are two general types of stokers: Underfeed and overfeed. Overfeed stokers include mass feed and spreader stokers.

*Suspension boiler* means a unit designed to feed the fuel by means of fuel distributors. The distributors inject air at the point where the fuel is introduced into the boiler in order to spread the fuel material over the boiler width. The drying (and much of the combustion) occurs while the material is suspended in air. The combustion of the fuel material is completed on a grate or floor below. Suspension boilers almost universally are designed to have high heat release rates to dry quickly the wet fuel as it is blown into the boilers.

*Temporary boiler* means any gaseous or liquid fuel boiler that is designed to, and is capable of, being carried or moved from one location to another by means of, for example, wheels, skids, carrying handles, dollies, trailers, or platforms. A boiler is not a temporary boiler if any one of the following conditions exists:

(1) The equipment is attached to a foundation.

(2) The boiler or a replacement remains at a location for more than 12 consecutive months. Any temporary boiler that replaces a temporary boiler at a location and performs the same or similar function will be included in calculating the consecutive time period.

(3) The equipment is located at a seasonal facility and operates during the full annual operating period of the seasonal facility,

remains at the facility for at least 2 years, and operates at that facility for at least 3 months each year.

(4) The equipment is moved from one location to another in an attempt to circumvent the residence time requirements of this definition.

*Tune-up* means adjustments made to a boiler in accordance with procedures supplied by the manufacturer (or an approved specialist) to optimize the combustion efficiency.

*Unit designed to burn biomass/bio-based solid subcategory* includes any boiler or process heater that burns at least 10 percent biomass or bio-based solids on an annual heat input basis in combination with solid fossil fuels, liquid fuels, or gaseous fuels.

*Unit designed to burn coal/solid fossil fuel subcategory* includes any boiler or process heater that burns any coal or other solid fossil fuel alone or at least 10 percent coal or other solid fossil fuel on an annual heat input basis in combination with liquid fuels, gaseous fuels, or less than 10 percent biomass and bio-based solids on an annual heat input basis.

*Unit designed to burn gas 1 subcategory* includes any boiler or process heater that burns only natural gas, refinery gas, and/or other gas 1 fuels; with the exception of liquid fuels burned for periodic testing not to exceed a combined total of 48 hours during any calendar year, or during periods of gas curtailment and gas supply emergencies.

*Unit designed to burn gas 2 (other) subcategory* includes any boiler or process heater that is not in the unit designed to burn gas 1 subcategory and burns any gaseous fuels either alone or in combination with less than 10 percent coal/solid fossil fuel, less than 10 percent biomass/bio-based solid fuel, and less than 10 percent liquid fuels on an annual heat input basis.

*Unit designed to burn liquid subcategory* includes any boiler or process heater that burns any liquid fuel, but less than 10 percent coal/solid fossil fuel and less than 10 percent biomass/bio-based solid fuel on an annual heat input basis, either alone or in combination with gaseous fuels. Gaseous fuel boilers and process heaters that burn liquid fuel for periodic testing of liquid fuel maintenance, or operator training, not to exceed a combined total of 48 hours during any calendar year or during periods of maintenance, operator training, or testing of liquid fuel, not to exceed a combined total of 48 hours during any calendar year are not included in this definition. Gaseous fuel boilers and process heaters that burn liquid fuel during periods of gas curtailment or gas supply emergencies of any duration are also not included in this definition.

*Unit designed to burn liquid fuel that is a non-continental unit* means an industrial, commercial, or institutional boiler or process heater designed to burn liquid fuel located in the State of Hawaii, the Virgin Islands, Guam, American Samoa, the Commonwealth of Puerto Rico, or the Northern Mariana Islands.

*Unit designed to burn solid fuel subcategory* means any boiler or process heater that burns any solid fuel alone or at least 10 percent solid fuel on an annual heat input basis in combination with liquid fuels or gaseous fuels.

*Voluntary Consensus Standards or VCS* mean technical standards ( e.g., materials specifications, test methods, sampling procedures, business practices) developed or adopted by one or more voluntary consensus bodies. EPA/Office of Air Quality Planning and Standards, by precedent, has only used VCS that are written in English. Examples of VCS bodies are: American Society of Testing and Materials (ASTM 100 Barr Harbor Drive, P.O. Box CB700, West Conshohocken, Pennsylvania 19428–B2959, (800) 262–1373, <http://www.astm.org> ), American Society of Mechanical Engineers (ASME ASME, Three Park Avenue, New York, NY 10016–5990, (800) 843–2763, <http://www.asme.org> ), International Standards Organization (ISO 1, ch. de la Voie-Creuse, Case postale 56, CH–1211 Geneva 20, Switzerland, +41 22 749 01 11, <http://www.iso.org/iso/home.htm> ), Standards Australia (AS Level 10, The Exchange Centre, 20 Bridge Street, Sydney, GPO Box 476, Sydney NSW 2001, + 61 2 9237 6171 <http://www.stadards.org.au> ), British Standards Institution (BSI, 389 Chiswick High Road, London, W4 4AL, United Kingdom, +44 (0)20 8996 9001, <http://www.bsigroup.com> ), Canadian Standards Association (CSA 5060 Spectrum Way, Suite 100, Mississauga, Ontario L4W 5N6, Canada, 800–463–6727, <http://www.csa.ca> ), European Committee for Standardization (CEN CENELEC Management Centre Avenue Marnix 17 B–1000 Brussels, Belgium +32 2 550 08 11, <http://www.cen.eu/cen> ), and German Engineering Standards (VDI VDI Guidelines Department, P.O. Box 10 11 39 40002, Duesseldorf, Germany, +49 211 6214–230, <http://www.vdi.eu> ). The types of standards that are not considered VCS are standards developed by: The United States, e.g., California (CARB) and Texas (TCEQ); industry groups, such as American Petroleum Institute (API), Gas

Processors Association (GPA), and Gas Research Institute (GRI); and other branches of the U.S. government, e.g., Department of Defense (DOD) and Department of Transportation (DOT). This does not preclude EPA from using standards developed by groups that are not VCS bodies within their rule. When this occurs, EPA has done searches and reviews for VCS equivalent to these non-EPA methods.

*Waste heat boiler* means a device that recovers normally unused energy and converts it to usable heat. Waste heat boilers are also referred to as heat recovery steam generators.

*Waste heat process heater* means an enclosed device that recovers normally unused energy and converts it to usable heat. Waste heat process heaters are also referred to as recuperative process heaters.

*Wet scrubber* means any add-on air pollution control device that mixes an aqueous stream or slurry with the exhaust gases from a boiler or process heater to control emissions of particulate matter or to absorb and neutralize acid gases, such as hydrogen chloride. A wet scrubber creates an aqueous stream or slurry as a byproduct of the emissions control process.

*Work practice standard* means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

### **Tables to Subpart DDDDD of Part 63**

Table 1 Emission Limits for New or Reconstructed Boilers and Process Heaters

*As the Spunstrand boilers have a heat input capacity of less than 10 MMBtu/hr, the emissions limits in Table 1 are not applicable to this facility.*

Table 2 Emission Limits for Existing Boilers and Process Heaters

*As the Spunstrand boilers have a heat input capacity of less than 10 MMBtu/hr, the emissions limits in Table 2 are not applicable to this facility.*

Table 3 Work Practice Standards

*Spunstrand acknowledges the applicability of the work practices in Table 3. Work practices #1 and 3 apply to the Spunstrand boilers.*

Table 4 Operating Limits for Boilers and Process Heaters

*As the Spunstrand boilers have a heat input capacity of less than 10 MMBtu/hr, the emissions limits in Table 1 and 2 and thus the operating limits in Table 4, are not applicable to this facility.*

Table 5 Performance Testing Requirements

*As the Spunstrand boilers have a heat input capacity of less than 10 MMBtu/hr, the emissions limits in Table 1 and 2, and thus the performance testing requirements in Table 5 are not applicable to this facility.*

Table 6 Fuel Analysis Requirements

*As the Spunstrand boilers have a heat input capacity of less than 10 MMBtu/hr, the emissions limits in Table 1 and 2, and thus the fuel analysis requirements in Table 6 are not applicable to this facility.*

Table 7 Establishing Operating Limits

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, located at a major source, the boilers are not subject to the emission limits of this subpart, nor performance testing. Accordingly the requirements of 63.7520, and thus Table 7, do not apply.*

Table 8 Demonstrating Continuous Compliance

*As the Spunstrand boilers have a heat input capacity of less than 10 MMBtu/hr, the emissions or operating limits in Table 1, 2, or 4, and thus the continuous compliance demonstration requirements in Table 8 are not applicable to this facility.*

Table 9 Reporting Requirements

*Spunstrand acknowledges the applicability and reporting requirements of Table 9, as outlined in 63.7550.*

Table 10 Applicability of General Provisions to Subpart DDDDD

*Spunstrand acknowledges the applicability of the General Provisions according to Table 10.*

Table 11 Toxic Equivalency Factors for Dioxins/Furans

*As the Spunstrand boilers have a heat input capacity of less than 10 MMBtu/hr, the emissions limits in Table 1 and 2, the performance testing requirements in Table 5 are not applicable to this facility, and thus the factors in Table 11 do not apply.*

Table 12 Alternative Emission Limits for New or Reconstructed Boilers and Process Heaters That Commenced Construction or Reconstruction After June 4, 2010, and Before May 20, 2011

*As each of the Spunstrand boilers is an existing boiler, with a heat input capacity less than 10 MMBtu per hour, located at a major source, the boilers are not subject to the emission limits in Tables 1, 2, or 12.*

TABLE 1 TO SUBPART DDDDD OF PART 63—EMISSION LIMITS FOR NEW OR RECONSTRUCTED BOILERS AND PROCESS HEATERS<sup>a</sup>

[Units with heat input capacity of 10 million Btu per hour or greater]

If your boiler or process heater is in this subcategory . . .	For the following pollutants . . .	The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . .	Or the emissions must not exceed the following output-based limits (lb per MMBtu of steam output) . . .	Using this specified sampling volume or test run duration . . .
1. Units in all subcategories designed to burn solid fuel.	a. Particulate Matter .....	0.0011 lb per MMBtu of heat input (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	0.0011; (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	Collect a minimum of 3 dscm per run.
	b. Hydrogen Chloride .....	0.0022 lb per MMBtu of heat input.	0.0021 .....	For M26A, collect a minimum of 1 dscm per run; for M26 collect a minimum of 60 liters per run.
	c. Mercury .....	3.5E-06 lb per MMBtu of heat input.	3.4E-06 .....	For M29, collect a minimum of 1 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784 <sup>b</sup> collect a minimum of 2 dscm.
2. Units designed to burn pulverized coal/solid fossil fuel.	a. Carbon monoxide (CO) .....	12 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.01 .....	1 hr minimum sampling time, use a span value of 30 ppmv.
	b. Dioxins/Furans .....	0.003 ng/dscm (TEQ) corrected to 7 percent oxygen.	2.8E-12 (TEQ) .....	Collect a minimum of 4 dscm per run.
3. Stokers designed to burn coal/solid fossil fuel.	a. CO .....	6 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.005 .....	1 hr minimum sampling time, use a span value of 20 ppmv.
	b. Dioxins/Furans .....	0.003 ng/dscm (TEQ) corrected to 7 percent oxygen.	2.8E-12 (TEQ) .....	Collect a minimum of 4 dscm per run.
4. Fluidized bed units designed to burn coal/solid fossil fuel.	a. CO .....	18 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.02 .....	1 hr minimum sampling time, use a span value of 40 ppmv.
	b. Dioxins/Furans .....	0.002 ng/dscm (TEQ) corrected to 7 percent oxygen.	1.8E-12 (TEQ) .....	Collect a minimum of 4 dscm per run.
5. Stokers designed to burn biomass/bio-based solids.	a. CO .....	160 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.13 .....	1 hr minimum sampling time, use a span value of 400 ppmv.
	b. Dioxins/Furans .....	0.005 ng/dscm (TEQ) corrected to 7 percent oxygen.	4.4E-12 (TEQ) .....	Collect a minimum of 4 dscm per run.
6. Fluidized bed units designed to burn biomass/bio-based solids.	a. CO .....	260 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.18 .....	1 hr minimum sampling time, use a span value of 500 ppmv.
	b. Dioxins/Furans .....	0.02 ng/dscm (TEQ) corrected to 7 percent oxygen.	1.8E-11 (TEQ) .....	Collect a minimum of 4 dscm per run.
7. Suspension burners/ Dutch Ovens designed to burn biomass/bio-based solids.	a. CO .....	470 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.45 .....	1 hr minimum sampling time, use a span value of 1000 ppmv.
	b. Dioxins/Furans .....	0.2 ng/dscm (TEQ) corrected to 7 percent oxygen.	1.8E-10 (TEQ) .....	Collect a minimum of 4 dscm per run.
8. Fuel cells designed to burn biomass/bio-based solids.	a. CO .....	470 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.23 .....	1 hr minimum sampling time, use a span value of 1000 ppmv.
	b. Dioxins/Furans .....	0.003 ng/dscm (TEQ) corrected to 7 percent oxygen.	2.86E-12 (TEQ) .....	Collect a minimum of 4 dscm per run.
9. Hybrid suspension/grate units designed to burn biomass/bio-based solids.	a. CO .....	1,500 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.84 .....	1 hr minimum sampling time, use a span value of 3000 ppmv.

TABLE 1 TO SUBPART DDDDD OF PART 63—EMISSION LIMITS FOR NEW OR RECONSTRUCTED BOILERS AND PROCESS HEATERS <sup>a</sup>—Continued

[Units with heat input capacity of 10 million Btu per hour or greater]

If your boiler or process heater is in this subcategory . . . .	For the following pollutants . . . .	The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . .	Or the emissions must not exceed the following output-based limits (lb per MMBtu of steam output) . . . .	Using this specified sampling volume or test run duration . . . .
10. Units designed to burn liquid fuel.	b. Dioxins/Furans . . . . .	0.2 ng/dscm (TEQ) corrected to 7 percent oxygen.	1.8E-10 (TEQ) . . . . .	Collect a minimum of 4 dscm per run.
	a. Particulate Matter . . . . .	0.0013 lb per MMBtu of heat input (30-day rolling average for residual oil-fired units 250 MMBtu/hr or greater, 3-run average for other units).	0.001; (30-day rolling average for residual oil-fired units 250 MMBtu/hr or greater, 3-run average for other units).	Collect a minimum of 3 dscm per run.
	b. Hydrogen Chloride . . . . .	0.00033 lb per MMBtu of heat input.	0.0003 . . . . .	For M26A: Collect a minimum of 1 dscm per run; for M26, collect a minimum of 60 liters per run.
	c. Mercury . . . . .	2.1E-07 lb per MMBtu of heat input.	0.2E-06 . . . . .	Collect enough volume to meet an in-stack detection limit data quality objective of 0.10 ug/dscm.
	d. CO . . . . .	3 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.0026 . . . . .	1 hr minimum sampling time, use a span value of 3 ppmv.
11. Units designed to burn liquid fuel located in non-continental States and territories.	e. Dioxins/Furans . . . . .	0.002 ng/dscm (TEQ) corrected to 7 percent oxygen.	4.6E-12 (TEQ) . . . . .	Collect a minimum of 4 dscm per run.
	a. Particulate Matter . . . . .	0.0013 lb per MMBtu of heat input (30-day rolling average for residual oil-fired units 250 MMBtu/hr or greater, 3-run average for other units).	0.001; (30-day rolling average for residual oil-fired units 250 MMBtu/hr or greater, 3-run average for other units).	Collect a minimum of 3 dscm per run.
	b. Hydrogen Chloride . . . . .	0.00033 lb per MMBtu of heat input.	0.0003 . . . . .	For M26A: Collect a minimum of 1 dscm per run; for M26, collect a minimum of 60 liters per run.
	c. Mercury . . . . .	7.8E-07 lb per MMBtu of heat input.	8.0E-07 . . . . .	For M29, collect a minimum of 3 dscm per run; for M30B, collect a minimum sample as specified in the method; for ASTM D6784 <sup>b</sup> collect a minimum of 3 dscm.
	d. CO . . . . .	51 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.043 . . . . .	1 hr minimum sampling time, use a span value of 100 ppmv.
12. Units designed to burn gas 2 (other) gases.	e. Dioxins/Furans . . . . .	0.002 ng/dscm (TEQ) corrected to 7 percent oxygen.	4.6E-12(TEQ) . . . . .	Collect a minimum of 3 dscm per run.
	a. Particulate Matter . . . . .	0.0067 lb per MMBtu of heat input (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	.004; (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	Collect a minimum of 1 dscm per run.
	b. Hydrogen Chloride . . . . .	0.0017 lb per MMBtu of heat input.	.003 . . . . .	For M26A, Collect a minimum of 1 dscm per run; for M26, collect a minimum of 60 liters per run.

TABLE 1 TO SUBPART DDDDD OF PART 63—EMISSION LIMITS FOR NEW OR RECONSTRUCTED BOILERS AND PROCESS HEATERS <sup>a</sup>—Continued

[Units with heat input capacity of 10 million Btu per hour or greater]

If your boiler or process heater is in this subcategory . . .	For the following pollutants . . .	The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . .	Or the emissions must not exceed the following output-based limits (lb per MMBtu of steam output) . . .	Using this specified sampling volume or test run duration . . .
	c. Mercury .....	7.9E-06 lb per MMBtu of heat input.	2.0E-07 .....	For M29, collect a minimum of 1 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784 <sup>b</sup> collect a minimum of 2 dscm. 1 hr minimum sampling time, use a span value of 10 ppmv. Collect a minimum of 4 dscm per run
	d. CO .....	3 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.002 .....	
	e. Dioxins/Furans .....	0.08 ng/dscm (TEQ) corrected to 7 percent oxygen.	4.1E-12 (TEQ) .....	

<sup>a</sup> If your affected source is a new or reconstructed affected source that commenced construction or reconstruction after June 4, 2010, and before May 20, 2011, you may comply with the emission limits in Table 12 to this subpart until March 21, 2014. On and after March 21, 2014, you must comply with the emission limits in Table 1 to this subpart.

<sup>b</sup> Incorporated by reference, see § 63.14.

As stated in § 63.7500, you must comply with the following applicable emission limits:

TABLE 2 TO SUBPART DDDDD OF PART 63—EMISSION LIMITS FOR EXISTING BOILERS AND PROCESS HEATERS

[Units with heat input capacity of 10 million Btu per hour or greater]

If your boiler or process heater is in this subcategory . . .	For the following pollutants . . .	The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . .	The emissions must not exceed the following output-based limits (lb per MMBtu of steam output) . . .	Using this specified sampling volume or test run duration . . .
1. Units in all subcategories designed to burn solid fuel.	a. Particulate Matter .....	0.039 lb per MMBtu of heat input (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	0.038; (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	Collect a minimum of 1 dscm per run.
	b. Hydrogen Chloride .....	0.035 lb per MMBtu of heat input.	0.04 .....	For M26A, collect a minimum of 1 dscm per run; for M26, collect a minimum of 60 liters per run.
	c. Mercury .....	4.6E-06 lb per MMBtu of heat input.	4.5E-06 .....	For M29, collect a minimum of 1 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784 <sup>a</sup> collect a minimum of 2 dscm.
2. Pulverized coal units designed to burn pulverized coal/solid fossil fuel.	a. CO .....	160 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.14 .....	1 hr minimum sampling time, use a span value of 300 ppmv.
	b. Dioxins/Furans .....	0.004 ng/dscm (TEQ) corrected to 7 percent oxygen.	3.7E-12 (TEQ) .....	Collect a minimum of 4 dscm per run.
3. Stokers designed to burn coal/solid fossil fuel.	a. CO .....	270 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.25 .....	1 hr minimum sampling time, use a span value of 500 ppmv.
	b. Dioxins/Furans .....	0.003 ng/dscm (TEQ) corrected to 7 percent oxygen.	2.8E-12 (TEQ) .....	Collect a minimum of 4 dscm per run.

TABLE 2 TO SUBPART DDDDD OF PART 63—EMISSION LIMITS FOR EXISTING BOILERS AND PROCESS HEATERS—  
Continued

[Units with heat input capacity of 10 million Btu per hour or greater]

If your boiler or process heater is in this subcategory . . .	For the following pollutants . . .	The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . .	The emissions must not exceed the following output-based limits (lb per MMBtu of steam output) . . .	Using this specified sampling volume or test run duration . . .
4. Fluidized bed units designed to burn coal/solid fossil fuel.	a. CO ..... b. Dioxins/Furans .....	82 ppm by volume on a dry basis corrected to 3 percent oxygen. 0.002 ng/dscm (TEQ) corrected to 7 percent oxygen.	0.08 ..... 1.8E-12 (TEQ) .....	1 hr minimum sampling time, use a span value of 200 ppmv Collect a minimum of 4 dscm per run.
5. Stokers designed to burn biomass/bio-based solid.	a. CO ..... b. Dioxins/Furans .....	490 ppm by volume on a dry basis corrected to 3 percent oxygen. 0.005 ng/dscm (TEQ) corrected to 7 percent oxygen.	0.35 ..... 4.4E-12 (TEQ) .....	1 hr minimum sampling time, use a span value of 1000 ppmv. Collect a minimum of 4 dscm per run.
6. Fluidized bed units designed to burn biomass/bio-based solid.	a. CO ..... b. Dioxins/Furans .....	430 ppm by volume on a dry basis corrected to 3 percent oxygen. 0.02 ng/dscm (TEQ) corrected to 7 percent oxygen.	0.28 ..... 1.8E-11(TEQ) .....	1 hr minimum sampling time, use a span value of 850 ppmv. Collect a minimum of 4 dscm per run.
7. Suspension burners/ Dutch Ovens designed to burn biomass/bio-based solid.	a. CO ..... b. Dioxins/Furans .....	470 ppm by volume on a dry basis corrected to 3 percent oxygen. 0.2 ng/dscm (TEQ) corrected to 7 percent oxygen.	0.45 ..... 1.8E-10 (TEQ) .....	1 hr minimum sampling time, use a span value of 1000 ppmv. Collect a minimum of 4 dscm per run.
8. Fuel cells designed to burn biomass/bio-based solid.	a. CO ..... b. Dioxins/Furans .....	690 ppm by volume on a dry basis corrected to 3 percent oxygen. 4 ng/dscm (TEQ) corrected to 7 percent oxygen.	0.34 ..... 3.5E-09 (TEQ) .....	1 hr minimum sampling time, use a span value of 1300 ppmv. Collect a minimum of 4 dscm per run.
9. Hybrid suspension/grate units designed to burn biomass/bio-based solid.	a. CO ..... b. Dioxins/Furans .....	3,500 ppm by volume on a dry basis corrected to 3 percent oxygen. 0.2 ng/dscm (TEQ) corrected to 7 percent oxygen.	2.0 ..... 1.8E-10 (TEQ) .....	1 hr minimum sampling time, use a span value of 7000 ppmv. Collect a minimum of 4 dscm per run.
10. Units designed to burn liquid fuel.	a. Particulate Matter ..... b. Hydrogen Chloride ..... c. Mercury ..... d. CO ..... e. Dioxins/Furans .....	0.0075 lb per MMBtu of heat input (30-day rolling average for residual oil-fired units 250 MMBtu/hr or greater, 3-run average for other units). 0.00033 lb per MMBtu of heat input. 3.5E-06 lb per MMBtu of heat input. 10 ppm by volume on a dry basis corrected to 3 percent oxygen. 4 ng/dscm (TEQ) corrected to 7 percent oxygen.	0.0073; (30-day rolling average for residual oil-fired units 250 MMBtu/hr or greater, 3-run average for other units). 0.0003 ..... 3.3E-06 ..... 0.0083 ..... 9.2E-09 (TEQ) .....	Collect a minimum of 1 dscm per run. For M26A, collect a minimum of 1 dscm per run; for M26, collect a minimum of 200 liters per run. For M29, collect a minimum of 1 dscm per run; for M30A or M30B collect a minimum sample as specified in the method, for ASTM D6784 <sup>a</sup> collect a minimum of 2 dscm. 1 hr minimum sampling time, use a span value of 20 ppmv. Collect a minimum of 1 dscm per run.

TABLE 2 TO SUBPART DDDDD OF PART 63—EMISSION LIMITS FOR EXISTING BOILERS AND PROCESS HEATERS—  
Continued

[Units with heat input capacity of 10 million Btu per hour or greater]

If your boiler or process heater is in this subcategory . . .	For the following pollutants . . .	The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . .	The emissions must not exceed the following output-based limits (lb per MMBtu of steam output) . . .	Using this specified sampling volume or test run duration . . .
11. Units designed to burn liquid fuel located in non-continental States and territories.	a. Particulate Matter .....	0.0075 lb per MMBtu of heat input (30-day rolling average for residual oil-fired units 250 MMBtu/hr or greater, 3-run average for other units).	0.0073; (30-day rolling average for residual oil-fired units 250 MMBtu/hr or greater, 3-run average for other units).	Collect a minimum of 1 dscm per run.
	b. Hydrogen Chloride .....	0.00033 lb per MMBtu of heat input.	0.0003 .....	For M26A, collect a minimum of 1 dscm per run; for M26, collect a minimum of 200 liters per run.
	c. Mercury .....	7.8E-07 lb per MMBtu of heat input.	8.0E-07 .....	For M29, collect a minimum of 1 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784 <sup>a</sup> collect a minimum of 2 dscm.
	d. CO .....	160 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.13 .....	1 hr minimum sampling time, use a span value of 300 ppmv.
	e. Dioxins/Furans .....	4 ng/dscm (TEQ) corrected to 7 percent oxygen.	9.2E-09 (TEQ) .....	Collect a minimum of 1 dscm per run.
12. Units designed to burn gas 2 (other) gases.	a. Particulate Matter .....	0.043 lb per MMBtu of heat input (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	0.026; (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	Collect a minimum of 1 dscm per run.
	b. Hydrogen Chloride .....	0.0017 lb per MMBtu of heat input.	0.001 .....	For M26A, collect a minimum of 1 dscm per run; for M26, collect a minimum of 60 liters per run.
	c. Mercury .....	1.3E-05 lb per MMBtu of heat input.	7.8E-06 .....	For M29, collect a minimum of 1 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784 <sup>a</sup> collect a minimum of 2 dscm.
	d. CO .....	9 ppm by volume on a dry basis corrected to 3 percent oxygen.	0.005 .....	1 hr minimum sampling time, use a span value of 20 ppmv.
	e. Dioxins/Furans .....	0.08 ng/dscm (TEQ) corrected to 7 percent oxygen.	3.9E-11 (TEQ) .....	Collect a minimum of 4 dscm per run.

<sup>a</sup> Incorporated by reference, see § 63.14.

As stated in § 63.7500, you must comply with the following applicable work practice standards:

TABLE 3 TO SUBPART DDDDD OF PART 63—WORK PRACTICE STANDARDS

If your unit is . . .	You must meet the following . . .
1. A new or existing boiler or process heater with heat input capacity of less than 10 million Btu per hour or a limited use boiler or process heater.	Conduct a tune-up of the boiler or process heater biennially as specified in § 63.7540.

TABLE 3 TO SUBPART DDDDD OF PART 63—WORK PRACTICE STANDARDS—Continued

If your unit is . . .	You must meet the following . . .
<p>2. A new or existing boiler or process heater in either the Gas 1 or Metal Process Furnace subcategory with heat input capacity of 10 million Btu per hour or greater.</p> <p>3. An existing boiler or process heater located at a major source facility</p> <p>4. An existing or new unit subject to emission limits in Tables 1, 2, or 12 of this subpart.</p>	<p>Conduct a tune-up of the boiler or process heater annually as specified in § 63.7540.</p> <p>Must have a one-time energy assessment performed on the major source facility by qualified energy assessor. An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements in this table, satisfies the energy assessment requirement. The energy assessment must include:</p> <ul style="list-style-type: none"> <li>a. A visual inspection of the boiler or process heater system.</li> <li>b. An evaluation of operating characteristics of the facility, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints,</li> <li>c. An inventory of major energy consuming systems,</li> <li>d. A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage,</li> <li>e. A review of the facility's energy management practices and provide recommendations for improvements consistent with the definition of energy management practices,</li> <li>f. A list of major energy conservation measures,</li> <li>g. A list of the energy savings potential of the energy conservation measures identified, and</li> <li>h. A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments.</li> </ul> <p>Minimize the unit's startup and shutdown periods following the manufacturer's recommended procedures. If manufacturer's recommended procedures are not available, you must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available.</p>

As stated in § 63.7500, you must comply with the applicable operating limits:

TABLE 4 TO SUBPART DDDDD OF PART 63—OPERATING LIMITS FOR BOILERS AND PROCESS HEATERS

If you demonstrate compliance using . . .	You must meet these operating limits . . .
<p>1. Wet PM scrubber control .....</p> <p>2. Wet acid gas (HCl) scrubber control .....</p> <p>3. Fabric filter control on units not required to install and operate a PM CEMS.</p> <p>4. Electrostatic precipitator control on units not required to install and operate a PM CEMS.</p> <p>5. Dry scrubber or carbon injection control .....</p>	<p>Maintain the 12-hour block average pressure drop and the 12-hour block average liquid flow rate at or above the lowest 1-hour average pressure drop and the lowest 1-hour average liquid flow rate, respectively, measured during the most recent performance test demonstrating compliance with the PM emission limitation according to § 63.7530(b) and Table 7 to this subpart.</p> <p>Maintain the 12-hour block average effluent pH at or above the lowest 1-hour average pH and the 12-hour block average liquid flow rate at or above the lowest 1-hour average liquid flow rate measured during the most recent performance test demonstrating compliance with the HCl emission limitation according to § 63.7530(b) and Table 7 to this subpart.</p> <ul style="list-style-type: none"> <li>a. Maintain opacity to less than or equal to 10 percent opacity (daily block average); or</li> <li>b. Install and operate a bag leak detection system according to § 63.7525 and operate the fabric filter such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during each 6-month period.</li> </ul> <ul style="list-style-type: none"> <li>a. This option is for boilers and process heaters that operate dry control systems (<i>i.e.</i>, an ESP without a wet scrubber). Existing and new boilers and process heaters must maintain opacity to less than or equal to 10 percent opacity (daily block average); or</li> <li>b. This option is only for boilers and process heaters not subject to PM CEMS or continuous compliance with an opacity limit (<i>i.e.</i>, COMS). Maintain the minimum total secondary electric power input of the electrostatic precipitator at or above the operating limits established during the performance test according to § 63.7530(b) and Table 7 to this subpart.</li> </ul> <p>Maintain the minimum sorbent or carbon injection rate as defined in § 63.7575 of this subpart.</p>

TABLE 4 TO SUBPART DDDDD OF PART 63—OPERATING LIMITS FOR BOILERS AND PROCESS HEATERS—Continued

If you demonstrate compliance using . . .	You must meet these operating limits . . .
6. Any other add-on air pollution control type on units not required to install and operate a PM CEMS.	<p>This option is for boilers and process heaters that operate dry control systems. Existing and new boilers and process heaters must maintain opacity to less than or equal to 10 percent opacity (daily block average).</p> <p>Maintain the fuel type or fuel mixture such that the applicable emission rates calculated according to § 63.7530(c)(1), (2) and/or (3) is less than the applicable emission limits.</p> <p>For boilers and process heaters that demonstrate compliance with a performance test, maintain the operating load of each unit such that it does not exceed 110 percent of the average operating load recorded during the most recent performance test.</p> <p>For boilers and process heaters subject to a carbon monoxide emission limit that demonstrate compliance with an O<sub>2</sub> CEMS as specified in § 63.7525(a), maintain the oxygen level of the stack gas such that it is not below the lowest hourly average oxygen concentration measured during the most recent CO performance test.</p>
7. Fuel analysis .....	
8. Performance testing .....	
9. Continuous Oxygen Monitoring System .....	

As stated in § 63.7520, you must comply with the following requirements for performance testing for existing, new or reconstructed affected sources:

TABLE 5 TO SUBPART DDDDD OF PART 63—PERFORMANCE TESTING REQUIREMENTS

To conduct a performance test for the following pollutant...	You must...	Using...
1. Particulate Matter .....	<p>a. Select sampling ports location and the number of traverse points.</p> <p>b. Determine velocity and volumetric flow-rate of the stack gas..</p> <p>c. Determine oxygen or carbon dioxide concentration of the stack gas.</p> <p>d. Measure the moisture content of the stack gas .....</p> <p>e. Measure the particulate matter emission concentration.</p> <p>f. Convert emissions concentration to lb per MMBtu emission rates.</p>	<p>Method 1 at 40 CFR part 60, appendix A-1 of this chapter.</p> <p>Method 2, 2F, or 2G at 40 CFR part 60, appendix A-1 or A-2 to part 60 of this chapter.</p> <p>Method 3A or 3B at 40 CFR part 60, appendix A-2 to part 60 of this chapter, or ANSI/ASME PTC 19.10-1981.<sup>a</sup></p> <p>Method 4 at 40 CFR part 60, appendix A-3 of this chapter.</p> <p>Method 5 or 17 (positive pressure fabric filters must use Method 5D) at 40 CFR part 60, appendix A-3 or A-6 of this chapter.</p> <p>Method 19 F-factor methodology at 40 CFR part 60, appendix A-7 of this chapter.</p>
2. Hydrogen chloride .....	<p>a. Select sampling ports location and the number of traverse points.</p> <p>b. Determine velocity and volumetric flow-rate of the stack gas.</p> <p>c. Determine oxygen or carbon dioxide concentration of the stack gas.</p> <p>d. Measure the moisture content of the stack gas .....</p> <p>e. Measure the hydrogen chloride emission concentration.</p> <p>f. Convert emissions concentration to lb per MMBtu emission rates.</p>	<p>Method 1 at 40 CFR part 60, appendix A-1 of this chapter.</p> <p>Method 2, 2F, or 2G at 40 CFR part 60, appendix A-2 of this chapter.</p> <p>Method 3A or 3B at 40 CFR part 60, appendix A-2 of this chapter, or ANSI/ASME PTC 19.10-1981.<sup>a</sup></p> <p>Method 4 at 40 CFR part 60, appendix A-3 of this chapter.</p> <p>Method 26 or 26A (M26 or M26A) at 40 CFR part 60, appendix A-8 of this chapter.</p> <p>Method 19 F-factor methodology at 40 CFR part 60, appendix A-7 of this chapter.</p>
3. Mercury .....	<p>a. Select sampling ports location and the number of traverse points.</p> <p>b. Determine velocity and volumetric flow-rate of the stack gas.</p> <p>c. Determine oxygen or carbon dioxide concentration of the stack gas.</p> <p>d. Measure the moisture content of the stack gas .....</p> <p>e. Measure the mercury emission concentration .....</p> <p>f. Convert emissions concentration to lb per MMBtu emission rates.</p>	<p>Method 1 at 40 CFR part 60, appendix A-1 of this chapter.</p> <p>Method 2, 2F, or 2G at 40 CFR part 60, appendix A-1 or A-2 of this chapter.</p> <p>Method 3A or 3B at 40 CFR part 60, appendix A-1 of this chapter, or ANSI/ASME PTC 19.10-1981.<sup>a</sup></p> <p>Method 4 at 40 CFR part 60, appendix A-3 of this chapter.</p> <p>Method 29, 30A, or 30B (M29, M30A, or M30B) at 40 CFR part 60, appendix A-8 of this chapter or Method 101A at 40 CFR part 60, appendix B of this chapter, or ASTM Method D6784.<sup>a</sup></p> <p>Method 19 F-factor methodology at 40 CFR part 60, appendix A-7 of this chapter.</p>
4. CO .....	<p>a. Select the sampling ports location and the number of traverse points.</p>	<p>Method 1 at 40 CFR part 60, appendix A-1 of this chapter.</p>

TABLE 5 TO SUBPART DDDDD OF PART 63—PERFORMANCE TESTING REQUIREMENTS—Continued

To conduct a performance test for the following pollutant...	You must...	Using...
5. Dioxins/Furans .....	b. Determine oxygen concentration of the stack gas .....	Method 3A or 3B at 40 CFR part 60, appendix A-3 of this chapter, or ASTM D6522-00 (Reapproved 2005), or ANSI/ASME PTC 19.10-1981. <sup>a</sup>
	c. Measure the moisture content of the stack gas .....	Method 4 at 40 CFR part 60, appendix A-3 of this chapter.
	d. Measure the CO emission concentration .....	Method 10 at 40 CFR part 60, appendix A-4 of this chapter. Use a span value of 2 times the concentration of the applicable emission limit.
	a. Select the sampling ports location and the number of traverse points.	Method 1 at 40 CFR part 60, appendix A-1 of this chapter.
	b. Determine oxygen concentration of the stack gas .....	Method 3A or 3B at 40 CFR part 60, appendix A-3 of this chapter, or ASTM D6522-00 (Reapproved 2005), <sup>a</sup> or ANSI/ASME PTC 19.10-1981. <sup>a</sup>
	c. Measure the moisture content of the stack gas .....	Method 4 at 40 CFR part 60, appendix A-3 of this chapter.
	d. Measure the dioxins/furans emission concentration ...	Method 23 at 40 CFR part 60, appendix A-7 of this chapter.
e. Multiply the measured dioxins/furans emission concentration by the appropriate toxic equivalency factor.	Table 11 of this subpart.	

<sup>a</sup> Incorporated by reference, see § 63.14.

As stated in § 63.7521, you must comply with the following requirements for fuel analysis testing for existing, new or reconstructed affected sources. However, equivalent methods (as defined in § 63.7575) may be used in lieu of the prescribed methods at the discretion of the source owner or operator:

TABLE 6 TO SUBPART DDDDD OF PART 63—FUEL ANALYSIS REQUIREMENTS

To conduct a fuel analysis for the following pollutant . . .	You must . . .	Using . . .
1. Mercury .....	a. Collect fuel samples .....	Procedure in § 63.7521(c) or ASTM D2234/D2234M <sup>a</sup> (for coal) or ASTM D6323 <sup>a</sup> (for biomass), or equivalent.
	b. Composite fuel samples .....	Procedure in § 63.7521(d) or equivalent.
	c. Prepare composited fuel samples .....	EPA SW-846-3050B <sup>a</sup> (for solid samples), EPA SW-846-3020A <sup>a</sup> (for liquid samples), ASTM D2013/D2013M <sup>a</sup> (for coal), ASTM D5198 <sup>a</sup> (for biomass), or equivalent.
	d. Determine heat content of the fuel type .....	ASTM D5865 <sup>a</sup> (for coal) or ASTM E711 <sup>a</sup> (for biomass), or equivalent.
	e. Determine moisture content of the fuel type	ASTM D3173 <sup>a</sup> or ASTM E871, <sup>a</sup> or equivalent.
	f. Measure mercury concentration in fuel sample.	ASTM D6722 <sup>a</sup> (for coal), EPA SW-846-7471B <sup>a</sup> (for solid samples), or EPA SW-846-7470A <sup>a</sup> (for liquid samples), or equivalent.
	g. Convert concentration into units of pounds of pollutant per MMBtu of heat content.	
2. Hydrogen Chloride .....	a. Collect fuel samples .....	Procedure in § 63.7521(c) or ASTM D2234/D2234M <sup>a</sup> (for coal) or ASTM D6323 <sup>a</sup> (for biomass), or equivalent.
	b. Composite fuel samples .....	Procedure in § 63.7521(d) or equivalent.
	c. Prepare composited fuel samples .....	EPA SW-846-3050B <sup>a</sup> (for solid samples), EPA SW-846-3020A <sup>a</sup> (for liquid samples), ASTM D2013/D2013M <sup>a</sup> (for coal), or ASTM D5198 <sup>a</sup> (for biomass), or equivalent.
	d. Determine heat content of the fuel type .....	ASTM D5865 <sup>a</sup> (for coal) or ASTM E711 <sup>a</sup> (for biomass), or equivalent.
	e. Determine moisture content of the fuel type	ASTM D3173 <sup>a</sup> or ASTM E871, <sup>a</sup> or equivalent.
	f. Measure chlorine concentration in fuel sample.	EPA SW-846-9250, <sup>a</sup> ASTM D6721 <sup>a</sup> (for coal), or ASTM E776 <sup>a</sup> (for biomass), or equivalent.
	g. Convert concentrations into units of pounds of pollutant per MMBtu of heat content.	
3. Mercury Fuel Specification for other gas 1 fuels.	a. Measure mercury concentration in the fuel sample.	ASTM D5954, <sup>a</sup>
	b. Convert concentration to unit of micrograms/cubic meter.	ASTM D6350, <sup>a</sup> ISO 6978-1:2003(E), <sup>a</sup> or ISO 6978-2:2003(E) <sup>a</sup> , or equivalent.

TABLE 6 TO SUBPART DDDDD OF PART 63—FUEL ANALYSIS REQUIREMENTS—Continued

To conduct a fuel analysis for the following pollutant . . .	You must . . .	Using . . .
4. Hydrogen Sulfide Fuel Specification for other gas 1 fuels.	a. Measure total hydrogen sulfide ..... b. Convert to ppm .....	ASTM D4084a or equivalent.

<sup>a</sup> Incorporated by reference, see § 63.14.

As stated in § 63.7520, you must comply with the following requirements for establishing operating limits:

TABLE 7 TO SUBPART DDDDD OF PART 63—ESTABLISHING OPERATING LIMITS

If you have an applicable emission limit for . . .	And your operating limits are based on . . .	You must . . .	Using . . .	According to the following requirements
1. Particulate matter or mercury.	a. Wet scrubber operating parameters.	i. Establish a site-specific minimum pressure drop and minimum flow rate operating limit according to § 63.7530(b).	(1) Data from the pressure drop and liquid flow rate monitors and the particulate matter or mercury performance test.	(a) You must collect pressure drop and liquid flow rate data every 15 minutes during the entire period of the performance tests; (b) Determine the lowest hourly average pressure drop and liquid flow rate by computing the hourly averages using all of the 15-minute readings taken during each performance test.
	b. Electrostatic precipitator operating parameters (option only for units that operate wet scrubbers).	i. Establish a site-specific minimum total secondary electric power input according to § 63.7530(b).	(1) Data from the voltage and secondary amperage monitors during the particulate matter or mercury performance test.	(a) You must collect secondary voltage and secondary amperage for each ESP cell and calculate total secondary electric power input data every 15 minutes during the entire period of the performance tests; (b) Determine the average total secondary electric power input by computing the hourly averages using all of the 15-minute readings taken during each performance test.
2. Hydrogen Chloride .....	a. Wet scrubber operating parameters.	i. Establish site-specific minimum pressure drop, effluent pH, and flow rate operating limits according to § 63.7530(b).	(1) Data from the pressure drop, pH, and liquid flow-rate monitors and the hydrogen chloride performance test.	(a) You must collect pH and liquid flow-rate data every 15 minutes during the entire period of the performance tests; (b) Determine the hourly average pH and liquid flow rate by computing the hourly averages using all of the 15-minute readings taken during each performance test.

TABLE 7 TO SUBPART DDDDD OF PART 63—ESTABLISHING OPERATING LIMITS—Continued

If you have an applicable emission limit for . . .	And your operating limits are based on . . .	You must . . .	Using . . .	According to the following requirements
3. Mercury and dioxins/furans.	b. Dry scrubber operating parameters.	i. Establish a site-specific minimum sorbent injection rate operating limit according to § 63.7530(b). If different acid gas sorbents are used during the hydrogen chloride performance test, the average value for each sorbent becomes the site-specific operating limit for that sorbent.	(1) Data from the sorbent injection rate monitors and hydrogen chloride or mercury performance test.	(a) You must collect sorbent injection rate data every 15 minutes during the entire period of the performance tests; (b) Determine the hourly average sorbent injection rate by computing the hourly averages using all of the 15-minute readings taken during each performance test. (c) Determine the lowest hourly average of the three test run averages established during the performance test as your operating limit. When your unit operates at lower loads, multiply your sorbent injection rate by the load fraction (e.g., for 50 percent load, multiply the injection rate operating limit by 0.5) to determine the required injection rate.
3. Mercury and dioxins/furans.	a. Activated carbon injection.	i. Establish a site-specific minimum activated carbon injection rate operating limit according to § 63.7530(b).	(1) Data from the activated carbon rate monitors and mercury and dioxins/furans performance tests.	(a) You must collect activated carbon injection rate data every 15 minutes during the entire period of the performance tests; (b) Determine the hourly average activated carbon injection rate by computing the hourly averages using all of the 15-minute readings taken during each performance test. (c) Determine the lowest hourly average established during the performance test as your operating limit. When your unit operates at lower loads, multiply your activated carbon injection rate by the load fraction (e.g., actual heat input divided by heat input during performance test, for 50 percent load, multiply the injection rate operating limit by 0.5) to determine the required injection rate.
4. Carbon monoxide . . . . .	a. Oxygen . . . . .	i. Establish a unit-specific limit for minimum oxygen level according to § 63.7520.	(1) Data from the oxygen monitor specified in § 63.7525(a).	(a) You must collect oxygen data every 15 minutes during the entire period of the performance tests;

TABLE 7 TO SUBPART DDDDD OF PART 63—ESTABLISHING OPERATING LIMITS—Continued

If you have an applicable emission limit for . . .	And your operating limits are based on . . .	You must . . .	Using . . .	According to the following requirements
5. Any pollutant for which compliance is demonstrated by a performance test.	a. Boiler or process heater operating load.	i. Establish a unit specific limit for maximum operating load according to § 63.7520(c).	(1) Data from the operating load monitors or from steam generation monitors.	<p>(b) Determine the hourly average oxygen concentration by computing the hourly averages using all of the 15-minute readings taken during each performance test.</p> <p>(c) Determine the lowest hourly average established during the performance test as your minimum operating limit.</p> <p>(a) You must collect operating load or steam generation data every 15 minutes during the entire period of the performance test.</p> <p>(b) Determine the average operating load by computing the hourly averages using all of the 15-minute readings taken during each performance test.</p> <p>(c) Determine the average of the three test run averages during the performance test, and multiply this by 1.1 (110 percent) as your operating limit.</p>

As stated in § 63.7540, you must show continuous compliance with the emission limitations for affected sources according to the following:

TABLE 8 TO SUBPART DDDDD OF PART 63—DEMONSTRATING CONTINUOUS COMPLIANCE

If you must meet the following operating limits or work practice standards . . .	You must demonstrate continuous compliance by . . .
1. Opacity .....	a. Collecting the opacity monitoring system data according to § 63.7525(c) and § 63.7535; and b. Reducing the opacity monitoring data to 6-minute averages; and c. Maintaining opacity to less than or equal to 10 percent (daily block average).
2. Fabric Filter Bag Leak Detection Operation ...	Installing and operating a bag leak detection system according to § 63.7525 and operating the fabric filter such that the requirements in § 63.7540(a)(9) are met.
3. Wet Scrubber Pressure Drop and Liquid Flow-rate.	a. Collecting the pressure drop and liquid flow rate monitoring system data according to §§ 63.7525 and 63.7535; and b. Reducing the data to 12-hour block averages; and c. Maintaining the 12-hour average pressure drop and liquid flow-rate at or above the operating limits established during the performance test according to § 63.7530(b).
4. Wet Scrubber pH .....	a. Collecting the pH monitoring system data according to §§ 63.7525 and 63.7535; and b. Reducing the data to 12-hour block averages; and c. Maintaining the 12-hour average pH at or above the operating limit established during the performance test according to § 63.7530(b).
5. Dry Scrubber Sorbent or Carbon Injection Rate.	a. Collecting the sorbent or carbon injection rate monitoring system data for the dry scrubber according to §§ 63.7525 and 63.7535; and b. Reducing the data to 12-hour block averages; and c. Maintaining the 12-hour average sorbent or carbon injection rate at or above the minimum sorbent or carbon injection rate as defined in § 63.7575.
6. Electrostatic Precipitator Total Secondary Electric Power Input.	a. Collecting the total secondary electric power input monitoring system data for the electrostatic precipitator according to §§ 63.7525 and 63.7535; and b. Reducing the data to 12-hour block averages; and c. Maintaining the 12-hour average total secondary electric power input at or above the operating limits established during the performance test according to § 63.7530(b).
7. Fuel Pollutant Content .....	a. Only burning the fuel types and fuel mixtures used to demonstrate compliance with the applicable emission limit according to § 63.7530(b) or (c) as applicable; and b. Keeping monthly records of fuel use according to § 63.7540(a).

TABLE 8 TO SUBPART DDDDD OF PART 63—DEMONSTRATING CONTINUOUS COMPLIANCE—Continued

If you must meet the following operating limits or work practice standards . . .	You must demonstrate continuous compliance by . . .
8. Oxygen content .....	a. Continuously monitor the oxygen content in the combustion exhaust according to § 63.7525(a). b. Reducing the data to 12-hour block averages; and c. Maintain the 12-hour block average oxygen content in the exhaust at or above the lowest hourly average oxygen level measured during the most recent carbon monoxide performance test.
9. Boiler or process heater operating load .....	a. Collecting operating load data or steam generation data every 15 minutes. b. Reducing the data to 12-hour block averages; and c. Maintaining the 12-hour average operating load at or below the operating limit established during the performance test according to § 63.7520(c).

As stated in § 63.7550, you must comply with the following requirements for reports:

TABLE 9 TO SUBPART DDDDD OF PART 63—REPORTING REQUIREMENTS

You must submit a(n)	The report must contain . . .	You must submit the report . . .
1. Compliance report .....	a. Information required in § 63.7550(c)(1) through (12); and  b. If there are no deviations from any emission limitation (emission limit and operating limit) that applies to you and there are no deviations from the requirements for work practice standards in Table 3 to this subpart that apply to you, a statement that there were no deviations from the emission limitations and work practice standards during the reporting period. If there were no periods during which the CMSs, including continuous emissions monitoring system, continuous opacity monitoring system, and operating parameter monitoring systems, were out-of-control as specified in § 63.8(c)(7), a statement that there were no periods during which the CMSs were out-of-control during the reporting period; and c. If you have a deviation from any emission limitation (emission limit and operating limit) where you are not using a CMS to comply with that emission limit or operating limit, or a deviation from a work practice standard during the reporting period, the report must contain the information in § 63.7550(d); and d. If there were periods during which the CMSs, including continuous emissions monitoring system, continuous opacity monitoring system, and operating parameter monitoring systems, were out-of-control as specified in § 63.8(c)(7), or otherwise not operating, the report must contain the information in § 63.7550(e).	Semiannually, annually, or biennially according to the requirements in § 63.7550(b).

As stated in § 63.7565, you must comply with the applicable General Provisions according to the following:

TABLE 10 TO SUBPART DDDDD OF PART 63—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART DDDDD

Citation	Subject	Applies to subpart DDDDD
§ 63.1 .....	Applicability .....	Yes.
§ 63.2 .....	Definitions .....	Yes. Additional terms defined in § 63.7575
§ 63.3 .....	Units and Abbreviations .....	Yes.
§ 63.4 .....	Prohibited Activities and Circumvention .....	Yes.
§ 63.5 .....	Preconstruction Review and Notification Requirements .....	Yes.
§ 63.6(a), (b)(1)–(b)(5), (b)(7), (c) ...	Compliance with Standards and Maintenance Requirements .....	Yes.
§ 63.6(e)(1)(i) .....	General duty to minimize emissions. ....	No. See § 63.7500(a)(3) for the general duty requirement.
§ 63.6(e)(1)(ii) .....	Requirement to correct malfunctions as soon as practicable. ....	No.
§ 63.6(e)(3) .....	Startup, shutdown, and malfunction plan requirements. ....	No.
§ 63.6(f)(1) .....	Startup, shutdown, and malfunction exemptions for compliance with non-opacity emission standards..	No.
§ 63.6(f)(2) and (3) .....	Compliance with non-opacity emission standards. ....	Yes.
§ 63.6(g) .....	Use of alternative standards .....	Yes.
§ 63.6(h)(1) .....	Startup, shutdown, and malfunction exemptions to opacity standards. ....	No. See § 63.7500(a).
§ 63.6(h)(2) to (h)(9) .....	Determining compliance with opacity emission standards .....	Yes.

TABLE 10 TO SUBPART DDDDD OF PART 63—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART DDDDD—  
Continued

Citation	Subject	Applies to subpart DDDDD
§ 63.6(i)	Extension of compliance	Yes.
§ 63.6(j)	Presidential exemption	Yes.
§ 63.7(a), (b), (c), and (d)	Performance Testing Requirements	Yes.
§ 63.7(e)(1)	Conditions for conducting performance tests	No. Subpart DDDDD specifies conditions for conducting performance tests at § 63.7520(a).
§ 63.7(e)(2)–(e)(9), (f), (g), and (h)	Performance Testing Requirements	Yes.
§ 63.8(a) and (b)	Applicability and Conduct of Monitoring	Yes.
§ 63.8(c)(1)	Operation and maintenance of CMS	Yes.
§ 63.8(c)(1)(i)	General duty to minimize emissions and CMS operation	No. See § 63.7500(a)(3).
§ 63.8(c)(1)(ii)	Operation and maintenance of CMS	Yes.
§ 63.8(c)(1)(iii)	Startup, shutdown, and malfunction plans for CMS	No.
§ 63.8(c)(2) to (c)(9)	Operation and maintenance of CMS	Yes.
§ 63.8(d)(1) and (2)	Monitoring Requirements, Quality Control Program	Yes.
§ 63.8(d)(3)	Written procedures for CMS	Yes, except for the last sentence, which refers to a startup, shutdown, and malfunction plan. Startup, shutdown, and malfunction plans are not required.
§ 63.8(e)	Performance evaluation of a CMS	Yes.
§ 63.8(f)	Use of an alternative monitoring method	Yes.
§ 63.8(g)	Reduction of monitoring data	Yes.
§ 63.9	Notification Requirements	Yes.
§ 63.10(a), (b)(1)	Recordkeeping and Reporting Requirements	Yes.
§ 63.10(b)(2)(i)	Recordkeeping of occurrence and duration of startups or shutdowns	Yes.
§ 63.10(b)(2)(ii)	Recordkeeping of malfunctions	No. See § 63.7555(d)(7) for recordkeeping of occurrence and duration and § 63.7555(d)(8) for actions taken during malfunctions.
§ 63.10(b)(2)(iii)	Maintenance records	Yes.
§ 63.10(b)(2)(iv) and (v)	Actions taken to minimize emissions during startup, shutdown, or malfunction.	No.
§ 63.10(b)(2)(vi)	Recordkeeping for CMS malfunctions	Yes.
§ 63.10(b)(2)(vii) to (xiv)	Other CMS requirements	Yes.
§ 63.10(b)(3)	Recordkeeping requirements for applicability determinations	No.
§ 63.10(c)(1) to (9)	Recordkeeping for sources with CMS	Yes.
§ 63.10(c)(10) and (11)	Recording nature and cause of malfunctions, and corrective actions	No. See § 63.7555(d)(7) for recordkeeping of occurrence and duration and § 63.7555(d)(8) for actions taken during malfunctions.
§ 63.10(c)(12) and (13)	Recordkeeping for sources with CMS	Yes.
§ 63.10(c)(15)	Use of startup, shutdown, and malfunction plan	No.
§ 63.10(d)(1) and (2)	General reporting requirements	Yes.
§ 63.10(d)(3)	Reporting opacity or visible emission observation results	No.
§ 63.10(d)(4)	Progress reports under an extension of compliance	Yes.
§ 63.10(d)(5)	Startup, shutdown, and malfunction reports	No. See § 63.7550(c)(11) for malfunction reporting requirements.
§ 63.10(e) and (f)		Yes.
§ 63.11	Control Device Requirements	No.
§ 63.12	State Authority and Delegation	Yes.
§ 63.13–63.16	Addresses, Incorporation by Reference, Availability of Information, Performance Track Provisions.	Yes.
§ 63.1(a)(5), (a)(7)–(a)(9), (b)(2), (c)(3)–(4), (d), 63.6(b)(6), (c)(3), (c)(4), (d), (e)(2), (e)(3)(ii), (h)(3), (h)(5)(iv), 63.8(a)(3), 63.9(b)(3), (h)(4), 63.10(c)(2)–(4), (c)(9)..	Reserved	No.

TABLE 11 TO SUBPART DDDDD OF PART 63—TOXIC EQUIVALENCY FACTORS FOR DIOXINS/FURANS

Dioxin/furan congener	Toxic equivalency factor
2,3,7,8-tetrachlorinated dibenzo-p-dioxin	1
1,2,3,7,8-pentachlorinated dibenzo-p-dioxin	1
1,2,3,4,7,8-hexachlorinated dibenzo-p-dioxin	0.1
1,2,3,7,8,9-hexachlorinated dibenzo-p-dioxin	0.1
1,2,3,6,7,8-hexachlorinated dibenzo-p-dioxin	0.1

TABLE 11 TO SUBPART DDDDD OF PART 63—TOXIC EQUIVALENCY FACTORS FOR DIOXINS/FURANS—Continued

Dioxin/furan congener	Toxic equivalency factor
1,2,3,4,6,7,8-heptachlorinated dibenzo-p-dioxin .....	0.01
octachlorinated dibenzo-p-dioxin .....	0.0003
2,3,7,8-tetrachlorinated dibenzofuran .....	0.1
2,3,4,7,8-pentachlorinated dibenzofuran .....	0.3
1,2,3,7,8-pentachlorinated dibenzofuran .....	0.03
1,2,3,4,7,8-hexachlorinated dibenzofuran .....	0.1
1,2,3,6,7,8-hexachlorinated dibenzofuran .....	0.1
1,2,3,7,8,9-hexachlorinated dibenzofuran .....	0.1
2,3,4,6,7,8-hexachlorinated dibenzofuran .....	0.1
1,2,3,4,6,7,8-heptachlorinated dibenzofuran .....	0.01
1,2,3,4,7,8,9-heptachlorinated dibenzofuran .....	0.01
octachlorinated dibenzofuran .....	0.0003

TABLE 12 TO SUBPART DDDDD OF PART 63—ALTERNATIVE EMISSION LIMITS FOR NEW OR RECONSTRUCTED BOILERS AND PROCESS HEATERS THAT COMMENCED CONSTRUCTION OR RECONSTRUCTION AFTER JUNE 4, 2010, AND BEFORE MAY 20, 2011

If your boiler or process heater is in this subcategory	For the following pollutants	The emissions must not exceed the following emission limits, except during periods of startup and shutdown	Using this specified sampling volume or test run duration
1. Units in all subcategories designed to burn solid fuel	a. Mercury .....	3.5E-06 lb per MMBtu of heat input.	For M29, collect a minimum of 2 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784 <sup>a</sup> collect a minimum of 2 dscm.
2. Units in all subcategories designed to burn solid fuel that combust at least 10 percent biomass/bio-based solids on an annual heat input basis and less than 10 percent coal/solid fossil fuels on an annual heat input basis.	a. Particulate Matter .....	0.008 lb per MMBtu of heat input (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	Collect a minimum of 1 dscm per run.
	b. Hydrogen Chloride .....	0.004 lb per MMBtu of heat input.	For M26A, collect a minimum of 1 dscm per run; for M26, collect a minimum of 60 liters per run.
3. Units in all subcategories designed to burn solid fuel that combust at least 10 percent coal/solid fossil fuels on an annual heat input basis and less than 10 percent biomass/bio-based solids on an annual heat input basis.	a. Particulate Matter .....	0.0011 lb per MMBtu of heat input (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	Collect a minimum of 3 dscm per run.
	b. Hydrogen Chloride .....	0.0022 lb per MMBtu of heat input.	For M26A, collect a minimum of 1 dscm per run; for M26, collect a minimum of 60 liters per run.
4. Units designed to burn pulverized coal/solid fossil fuel.	a. CO .....	90 ppm by volume on a dry basis corrected to 3 percent oxygen.	1 hr minimum sampling time.
	b. Dioxins/Furans .....	0.003 ng/dscm (TEQ) corrected to 7 percent oxygen.	Collect a minimum of 4 dscm per run.
5. Stokers designed to burn coal/solid fossil fuel .....	a. CO .....	7 ppm by volume on a dry basis corrected to 3 percent oxygen.	1 hr minimum sampling time.
	b. Dioxins/Furans .....	0.003 ng/dscm (TEQ) corrected to 7 percent oxygen.	Collect a minimum of 4 dscm per run.
6. Fluidized bed units designed to burn coal/solid fossil fuel.	a. CO .....	30 ppm by volume on a dry basis corrected to 3 percent oxygen.	1 hr minimum sampling time.

TABLE 12 TO SUBPART DDDDD OF PART 63—ALTERNATIVE EMISSION LIMITS FOR NEW OR RECONSTRUCTED BOILERS AND PROCESS HEATERS THAT COMMENCED CONSTRUCTION OR RECONSTRUCTION AFTER JUNE 4, 2010, AND BEFORE MAY 20, 2011—Continued

If your boiler or process heater is in this subcategory	For the following pollutants	The emissions must not exceed the following emission limits, except during periods of startup and shutdown	Using this specified sampling volume or test run duration
7. Stokers designed to burn biomass/bio-based solids ..	b. Dioxins/Furans .....	0.002 ng/dscm (TEQ) corrected to 7 percent oxygen.	Collect a minimum of 4 dscm per run.
	a. CO .....	560 ppm by volume on a dry basis corrected to 3 percent oxygen.	1 hr minimum sampling time.
	b. Dioxins/Furans .....	0.005 ng/dscm (TEQ) corrected to 7 percent oxygen.	Collect a minimum of 4 dscm per run.
8. Fluidized bed units designed to burn biomass/bio-based solids.	a. CO .....	260 ppm by volume on a dry basis corrected to 3 percent oxygen.	1 hr minimum sampling time.
	b. Dioxins/Furans .....	0.02 ng/dscm (TEQ) corrected to 7 percent oxygen.	Collect a minimum of 4 dscm per run.
9. Suspension burners/Dutch Ovens designed to burn biomass/bio-based solids.	a. CO .....	1,010 ppm by volume on a dry basis corrected to 3 percent oxygen.	1 hr minimum sampling time.
	b. Dioxins/Furans .....	0.2 ng/dscm (TEQ) corrected to 7 percent oxygen.	Collect a minimum of 4 dscm per run.
10. Fuel cells designed to burn biomass/bio-based solids.	a. CO .....	470 ppm by volume on a dry basis corrected to 3 percent oxygen.	1 hr minimum sampling time.
	b. Dioxins/Furans .....	0.003 ng/dscm (TEQ) corrected to 7 percent oxygen.	Collect a minimum of 4 dscm per run.
11. Hybrid suspension/grate units designed to burn biomass/bio-based solids.	a. CO .....	1,500 ppm by volume on a dry basis corrected to 3 percent oxygen.	1 hr minimum sampling time.
	b. Dioxins/Furans .....	0.2 ng/dscm (TEQ) corrected to 7 percent oxygen.	Collect a minimum of 4 dscm per run.
12. Units designed to burn liquid fuel .....	a. Particulate Matter .....	0.002 lb per MMBtu of heat input (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	Collect a minimum of 2 dscm per run.
	b. Hydrogen Chloride .....	0.0032 lb per MMBtu of heat input.	For M26A, collect a minimum of 1 dscm per run; for M26, collect a minimum of 60 liters per run.
	c. Mercury .....	3.0E-07 lb per MMBtu of heat input.	For M29, collect a minimum of 2 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784 <sup>a</sup> collect a minimum of 2 dscm.
	d. CO .....	3 ppm by volume on a dry basis corrected to 3 percent oxygen.	1 hr minimum sampling time.
	e. Dioxins/Furans .....	0.002 ng/dscm (TEQ) corrected to 7 percent oxygen.	Collect a minimum of 4 dscm per run.
13. Units designed to burn liquid fuel located in non-continental States and territories.	a. Particulate Matter .....	0.002 lb per MMBtu of heat input (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	Collect a minimum of 2 dscm per run.

TABLE 12 TO SUBPART DDDDD OF PART 63—ALTERNATIVE EMISSION LIMITS FOR NEW OR RECONSTRUCTED BOILERS AND PROCESS HEATERS THAT COMMENCED CONSTRUCTION OR RECONSTRUCTION AFTER JUNE 4, 2010, AND BEFORE MAY 20, 2011—Continued

If your boiler or process heater is in this subcategory	For the following pollutants	The emissions must not exceed the following emission limits, except during periods of startup and shutdown	Using this specified sampling volume or test run duration
14. Units designed to burn gas 2 (other) gases .....	b. Hydrogen Chloride .....	0.0032 lb per MMBtu of heat input.	For M26A, collect a minimum of 1 dscm per run; for M26, collect a minimum of 60 liters per run.
	c. Mercury .....	7.8E-07 lb per MMBtu of heat input.	
	d. CO .....	51 ppm by volume on a dry basis corrected to 3 percent oxygen.	1 hr minimum sampling time.
	e. Dioxins/Furans .....	0.002 ng/dscm (TEQ) corrected to 7 percent oxygen.	Collect a minimum of 4 dscm per run.
	a. Particulate Matter .....	0.0067 lb per MMBtu of heat input (30-day rolling average for units 250 MMBtu/hr or greater, 3-run average for units less than 250 MMBtu/hr).	Collect a minimum of 1 dscm per run.
	b. Hydrogen Chloride .....	0.0017 lb per MMBtu of heat input.	For M26A, collect a minimum of 1 dscm per run; for M26, collect a minimum of 60 liters per run.
	c. Mercury .....	7.9E-06 lb per MMBtu of heat input.	
	d. CO .....	3 ppm by volume on a dry basis corrected to 3 percent oxygen.	1 hr minimum sampling time.
	e. Dioxins/Furans .....	0.08 ng/dscm (TEQ) corrected to 7 percent oxygen.	Collect a minimum of 4 dscm per run.

<sup>a</sup>Incorporated by reference, see § 63.14.