

Lane Regional Air Protection Agency
 Standard Air Contaminant Discharge Permit

REVIEW REPORT

ADDENDUM NO. 7
Non-NSR/PSD Simple Technical Permit Modification

Hexion Inc.
 470 South Second Street
 Springfield, OR 97477
<https://www.hexion.com/>

Permit No. 200510

1. General Background Information

Hexion Inc. operates a resin manufacturing facility. Formaldehyde is produced and used primarily on-site as a raw material for various types of resins. Wax emulsions are also produced at this facility. Two (2) tail-gas boilers are used to control Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs), while additionally providing steam for the plant. The facility has a number of scrubbers and baghouses used to control other emissions from various portions of the operation. The facility operates 8,760 hours per year (24 hours per day and 365 days per year).

2. Reasons for Permit Action

The facility applied to increase throughput of Durite LV-1259M Loading from 2,250 tons per year to 3,375 tons per year and the Methanol Distillate from 259 tons per year to 777 tons per year. Per LRAPA Title 34-035(1) this is considered a Type 1 modification to the current permit. The emissions from the source will not increase above the PSEL by more than the de minimis emission level defined in LRAPA Title 12. The federally enforceable limits and the TACT determination have been maintained.

3. Projected Emission Increase per Pollutant

Emission Unit	VOC (tpy)	HCHO (tpy)	MeOH (tpy)	Phenol (tpy)	Ethylene Glycol (tpy)	MIBK (tpy)
Durite LV-1259M Loading	0.26	3.58E-03	0.13	2.75E-04	6.08E-06	3.83E-04
Methanol Distillate	0.043	9.61E-04	0.042	--	--	--
Pre-Project Emissions	0.30	4.54E-03	0.18	2.75E-04	6.08E-06	3.83E-04
Durite LV-1259M Loading	0.38	5.37E-03	0.20	4.12E-04	9.11E-06	5.74E-04
Methanol Distillate	0.13	2.88E-03	0.13	--	--	--
Post-Project Emissions	0.51	8.25E-03	0.33	4.12E-04	9.11E-06	5.74E-04
Total Emissions Increase	0.21	3.71E-03	0.15	1.37E-04	3.04E-06	1.91E-04

4. Projected PSEL

The PSEL are in accordance with Section 42-0040 and 42-0041. The maximum actual emissions are based on the increased throughputs per process using AP-42 Section 5.2 and Section 7.1 emission factors detailed in the facility's Attachment to the Review Report.

Pollutant	Post-Project Facility Emissions (tons/yr)	PSEL
PM	5.88	24
PM ₁₀	5.88	14
PM _{2.5}	5.88	9
CO	14.14	99
NO _x	10.22	39
SO ₂	0.06	39
VOC	47.95	68
Individual HAP	8.72	9
Combined HAPs	20.22	24

5. Typically Achievable Control Technology (TACT)

This permitting action does not change the TACT determination for the facility.

6. New Source Performance Standards (NSPSs)

This permitting action does not change current NSPSs for the facility.

7. National Emissions Standards for Hazardous Air Pollutants

This permitting action does not change current NESHAPs for the facility.

8. Public Notice

In accordance with LRAPA 37-0066(4)(b)(A), as a Non-NSR Simple Technical Permit Modification, Title 31 Category I public notice is required. Category I public notice procedures specify that no prior public notice or opportunity for participation is required.

Pre- and Post-Construction Emissions Calculations

Pre-Construction							
Emission Unit	Operating Parameter		Pollutant	EF	Units	Reference	Emissions (ton/yr)
Durite LV 1259M Loading	2,250	tons/yr	VOC	1.14E-04	lb/lb	AP-42 5.2	0.26
			HCOH	1.59E-06	lb/lb	AP-42 5.2	3.58E-03
			MeOH	5.93E-05	lb/lb	AP-42 5.2	0.13
			Phenol	1.22E-07	lb/lb	AP-42 5.2	2.75E-04
			Ethylene Glycol	2.70E-09	lb/lb	AP-42 5.2	6.08E-06
			Methyl Isobutyl Ketone	1.70E-07	lb/lb	AP-42 5.2	3.83E-04
Methanol Distillate	259	tons/yr	VOC	3.33E-01	lb/ton	AP-42 7.1	0.043
			HCOH	7.42E-03	lb/ton	AP-42 7.1	9.61E-04
			MeOH	3.26E-01	lb/ton	AP-42 7.1	0.042

Post-Construction							
Emission Unit	Operating Parameter		Pollutant	EF	Units	Reference	Emissions (ton/yr)
Durite LV 1259M Loading	3,375	tons/yr	VOC	1.14E-04	lb/lb	AP-42 5.2	0.38
			HCOH	1.59E-06	lb/lb	AP-42 5.2	5.37E-03
			MeOH	5.93E-05	lb/lb	AP-42 5.2	0.20
			Phenol	1.22E-07	lb/lb	AP-42 5.2	4.12E-04
			Ethylene Glycol	2.70E-09	lb/lb	AP-42 5.2	9.11E-06
			Methyl Isobutyl Ketone	1.70E-07	lb/lb	AP-42 5.2	5.74E-04
Methanol Distillate	777	tons/yr	VOC	3.33E-01	lb/ton	AP-42 7.1	0.130
			HCOH	7.42E-03	lb/ton	AP-42 7.1	2.88E-03
			MeOH	3.26E-01	lb/ton	AP-42 7.1	0.127

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REVIEW REPORT

ADDENDUM NO. 6
Non-NSR/PSD Simple Technical Permit Modification

Hexion Inc.
470 South Second Street
Springfield, OR 97477
<https://www.hexion.com/>

Permit No. 200510

1. General Background Information

Hexion, Inc. operates a resin manufacturing facility. Formaldehyde is produced and used primarily on-site as a raw material for various types of resins. Wax emulsions are also produced at this facility. Two (2) tail-gas boilers are used to control Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs), while additionally providing steam for the plant. The facility also has a number of scrubbers and baghouses used to control other emissions from various portions of the operation. The facility operates 8,760 hours per year (24 hours per day and 365 days per year).

2. Reasons for Permit Action

The facility applied to increase the Urea-Formaldehyde (UF) and Phenol-Formaldehyde (PF) resin production rate to 200,000 tons per year from 140,000 tons per year. This proposed increase to the UF and PF resin production will entail increasing the throughputs of the resin storage, formaldehyde storage, methanol storage, phenol/LPE storage, and urea weigh bins to accommodate the increase of production. In this addendum Hexion is also requesting the removal of the methanol loading because this activity will no longer be done at the facility.

Per LRAPA Title 34-035-2 this is considered a Type 2 modification to the current permit. This emissions have increased, but have not over the current PSELs or over the significant emission rates (SERs). The federally enforceable limits and the TACT determination have been maintained.

3. Description of Throughputs Changes per Processes

Process	Current Throughput (tons/yr)	Increased Throughput (tons/yr)
UF and/or PF/PRF Resin Produced in Reactors	140,000	200,000
Formaldehyde Storage	82,075	100,000
Methanol Storage	45,000	66,000
Phenol/LPE Storage	27,000	40,000
Urea Weigh Bins #1 and #2	25,000 each	50,000 each
Methanol Loading	250	0

4. Plant Site Emission Limits

Projected Emission Increase per Pollutant:

Pollutant	PM ₁₀ /PM _{2.5} (tpy)	VOC (tpy)	Methanol* (tpy)	Total HAPs (tpy)
Pre-Project Emissions Totals (140,000 tons)	0.50	23.29	4.27	7.24
• PF/UF Resin Production	--	11.84	1.49	2.55
• PF/UF Resin Storage	--	0.45	0.17	0.27
• PF/UF Resin Loading	--	7.83	0.89	1.24
• Formaldehyde Storage	--	1.69	0.24	1.69
• Methanol Storage	--	0.26	0.26	0.26
• Phenol/LPE Storage	---	1.18	1.18	1.18
• Urea Bins #1 & #2	0.50	--	--	--
• Methanol Loading	--	0.04	0.04	0.04
Post-Project Emissions Totals (200,000 tons)	1.00	29.74	5.02	8.60
• PF/UF Resin Production	--	11.84	1.85	3.29
• PF/UF Resin Storage	--	0.48	0.19	0.31
• PF/UF Resin Loading	--	11.15	1.28	1.73
• Formaldehyde Storage	--	1.81	0.26	1.81
• Methanol Storage	--	0.26	0.26	0.26
• Phenol/LPE Storage	--	1.18	1.18	1.18
• Urea Bins #1 & #2	1.00	--	--	--
Emission Increase	0.50	6.45	0.75	1.36
SER	15/10	40	10	25

*Methanol is the individual HAP that has highest emission rate.

Projected PSEL

The PSEL are in accordance with Section 42-0040 and 42-0041. The maximum actual emissions are based on the increased throughputs per process using R&D and AP-42 Section 5.2 and Section 7.1 emission factors.

Pollutant	Post-Projected Facility Emissions (tons/yr)	PSEL
PM	5.88	24
PM ₁₀	5.88	14

Pollutant	Post-Projected Facility Emissions (tons/yr)	PSEL
PM _{2.5}	5.88	9
CO	14.14	99
NO _x	10.22	39
SO ₂	0.06	39
VOC	47.58	68
Individual HAP	8.48	9
Combined HAPs	19.98	24

5. Typically Achievable Control Technology (TACT)

This permitting action does not change the TACT determination for the facility.

6. New Source Performance Standards (NSPSs)

This permitting action does not change current NSPSs for the facility.

7. National Emissions Standards for Hazardous Air Pollutants

This permitting action does not change current NESHAPs for the facility.

8. Public Notice

In accordance with LRAPA 37-0066-4-B.1, as a Non-NSR Simple Technical Permit Modification, Title 31 Category I public notice is required. Category I public notice procedures specify that no prior public notice or opportunity for participation is required.

Attachments

Post-Project Facility Emissions compared to PSELS									
	PM	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	Individual HAP ¹	Combined HAPs
Post-Project Facility Emissions (tpy)	5.88	5.88	5.88	10.22	14.14	0.06	47.58	8.48	19.98
Current PSEL	24	14	9	39	99	39	68	9	24

1. Methanol is the individual HAP that has the highest emission rate

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ADDENDUM NO. 5
Non-NSR/PSD Simple Technical Permit Modification

Hexion Inc.

470 South Second Street
Springfield, OR 97477
<https://www.hexion.com/>

Permit No. 200510

1. General Background Information

Hexion, Inc. operates a resin manufacturing facility. Formaldehyde is produced and used primarily on-site as a raw material for various types of resins. Wax emulsions are also produced at this facility. Two (2) tail-gas boilers are used to control Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs), while additionally providing steam for the plant. The facility also has a number of scrubbers and baghouses used to control other emissions from various portions of the operation. The facility operates 8,760 hours per year (24 hours per day and 365 days per year).

2. Reasons for Permit Action

The facility applied to replace the 1,500 horsepower Nebraska tail gas boiler (Boiler-1) with a 1,000 horsepower Johnston tail gas boiler (Boiler-6). Per LRAPA Title 34-035-2 this is considered a Type 2 modification to the current permit. This emissions have increased, but have not over the current PSEs or over the significant emission rates (SERs). The federally enforceable limits and the TACT determination have been maintained.

3. Description of Johnston Tail Gas Boiler

Boiler – 6: Tail Gas boiler – Manufactured by Johnston; rated at 17.6 MMBtu/hr (1,000 horsepower) with a maximum fuel usage of 220,200 scf/hr utilizing tail gases as primary fuel and natural gas as a secondary fuel.

4. Plant Site Emission Limits

The PSEL are in accordance with Section 42-0040 and 42-0041. Maximum actual emissions are based on the estimated maximum MMBtu rating for the Johnston Boiler (Boiler-6) at 8,760 hours per year for tail gas burning and 54 hours per year for bypass per Hexion's ACDP Addendum #3 issued January 6, 2014, and 6 MMscf per year of natural gas use per application for current action. Hexion has evaluated the worst-case emissions between the following available data sources: the existing Nebraska tail gas boiler stack test data from April 2010 and EPA AP-42 emission factors for natural gas boilers. The evaluation of EPA AP-42 included applying the ratio of higher heating value of the tail gas (80 Btu/scf) and average natural gas (1020 Btu/scf) to EPA AP-42 Section 1.4 for natural gas combustion emission factors. Based on Hexion's request, nitrogen oxides (NO_x), sulfur dioxide (SO₂), and particulate matter (PM, PM₁₀, PM_{2.5}) emission factors are based on EPA AP-42, and carbon monoxide (CO), volatile organic compounds (VOC), methanol, and formaldehyde emissions will be based on the Nebraska tail gas boiler 2010 stack test data. There is no increase to the current PSEL for this action.

Pollutant	New Johnston Boiler Emissions (tons/yr)	Nebraska Boiler Emissions (tons/yr)	Project Increase Emissions*
PM/PM ₁₀ /PM _{2.5}	0.57	- 0.02	0.55
CO	6.35	- 6.62	-0.27
NO _x	7.56	- 0.50	7.05
SO ₂	0.0453	- 0.0176	0.04
VOC	5.48	- 5.48	0.00
Methanol	1.10	- 1.09	0.01
Formaldehyde	0.11	- 0.11	0.00
Total HAP	1.21	- 1.20	0.01

*Project Increase Emissions have not increased the PSEL of the facility.

5. Typically Achievable Control Technology (TACT)

LRAPA Title 32-008 required an existing emission unit at a facility to meet TACT if the emissions unit has emission of criteria pollutants greater than ten (10) tons per year of any gaseous pollutant or five (5) tons per year of particulate, the emissions unit is not subject to the emissions standards under LRAPA Title 32, Title 33, Title 39, or Title 46 for the pollutants emitted, and the facility is required to have a permit. The formaldehyde production lines emit more than ten (10) tons per year of gaseous pollutants and are therefore, required to meet TACT. LRAPA has determined that the tail gas boiler meet TACT for this facility. The emissions from the tail gas boiler emit more than ten (10) tons per year of gaseous pollutants; but because the boiler is subject to the opacity and grain loading limits in Title 32, TACT does not to the boiler.

6. New Source Performance Standards (NSPSs)

The Johnston Boiler (EU: Boiler-6) is subject to Small Industrial – Commercial – Institutional Steam Generating Units. [40 CFR 60 Subpart Dc]

7. National Emissions Standards for Hazardous Air Pollutants

The Johnston Tail Gas boiler is not subject to any NESHAPs.

8. Public Notice

In accordance with LRAPA 37-0066-4-B.1, as a Non-NSR Simple Technical Permit Modification, Title 31 Category I public notice is required. Category I public notice procedures specify that no prior public notice or opportunity for participation is required.

Attachment

Nebraska Boiler Waste Tail Gas Emissions		
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Nebraska Boiler Hours of Operation	8760	hrs/yr
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Emission (TPY)	
NOx	0.21
CO	6.37
VOC	5.46
Formaldehyde	0.11
Methanol	1.085

Calculations					
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Tail Gas Combustion	NOx	CO	VOC	HCHO	MeOH
Emission Factors (lb/hr)	0.05	1.45	1.25	0.02507	0.25
Concentrations used	Outlet	Inlet	Inlet	Inlet	Inlet

Notes: Stack Test Data was used for the Emission Factors for the Nebraska Boiler. NOx used the outlet (lb/hr) data of the outlet concentration and CO, VOC, HCHO, and MeOH used the inlet concentrations with a 94% capture efficiency for CO and 99.5% capture efficiency the VOC, Formaldehyde and Methanol

Nebraska Boiler Tail Gas Combustion Emissions [Also New Johnston Boiler NG Combustion Emissions]

Source: Nebraska Boiler

1. Assume that Ap-42 factors for natural gas combustion are applicable to this source
2. The AP-42 emission factors for SOx was assumed for SO2

Permit Basis		
Description	Quantity	Units
Natural Gas Heating Value	1,000	Btu/scf
Combined Natural Gas Usage	6	MMscf/yr
Conversion Factor	2,000	lb/ton

EMISSION FACTORS	
AP-42 Table 1.4-1 and 1.4-2	
Emission Factors for Criteria Pollutants from Natural Gas Combustion	
Component	Emission Factor (lb/MMScf)
NOx	100
CO	84
SOx	0.6
PM10	7.6
VOC	5.5
Based on a heating value of	1020 Btu/scf

Annual Hours of Operation: 8760

Calculations for Nebraska Boiler Tail Gas Combustion Emissions

Calculate the Criteria Pollutants Emissions and Speciated VOC Emissions		
Natural Gas Heating Value	Natural Gas Usage	Conversion Factor
Btu/scf	MMscf/yr	lb/ton
1,000	6	2,000

Component	AP-42 EF	Annual Emissions ¹	Annual Emissions ²
	lb/MMscf	(lb/yr)	(tpy)
NOx	100	588	0.29
CO	84	494	0.25
SO2	0.60	4	0.0018
PM10	7.60	45	0.02
VOC	5.50	32	0.02

Speciated VOC Emission Calculations

Component	AP-42 EF	Annual Emissions ¹	Annual Emissions ²
	lb/MMscf	(lb/yr)	(tpy)
Benzene	2.10E-03	1.24E-02	6.18E-06
Dichlorobenzene	1.20E-03	7.06E-03	3.53E-06
Formaldehyde	7.50E-02	4.41E-01	2.21E-04
Hexane	1.80E+00	1.06E+01	5.29E-03
Naphthalene	6.10E-04	3.59E-03	1.79E-06
Toluene	3.40E-03	2.00E-02	1.00E-05
Polycyclic Organic Matter	8.82E-05	5.19E-04	2.59E-07
Non-HAP/TAP VOC	9.40E+00	5.53E+01	2.76E-02
Total Speciated VOC		6.64E+01	3.32E-02

Formulas Nebraska Boiler:

1. Emissions (lb/yr) = AP-42 Emission Factor (lb/MMscf) * [(1,000 btu/scf NG)/scf NG Average] * Natural Gas Usage (MMscf/yr)

2. Annual emissions (tpy) = Average emissions (lb/yr) / Conversion Factor (lb/ton)

For the Johnston Boiler Emissions

1. Natural Gas is only used for pilot gas.

2. Emissions (lb/yr) = AP-42 Emission Factor (lb/MMscf) * [(1,000 btu/scf NG)/scf NG Average] * Natural Gas Usage (MMscf/yr)

3. Annual emissions (tpy) = Average emissions (lb/yr) / Conversion Factor (lb/ton)

EMISSION FACTORS	
AP-42 Table 1.4-3	
Emission factors for Speciated Organic Compounds from Natural Gas Combustion	
Component	Emission Factor (lb/MMScf)
Benzene	2.10E-03
Dichlorobenzene	1.20E-03
Formaldehyde	7.50E-02
Hexane	1.80E+00
Naphthalene	6.10E-04
Toluene	3.40E-03
Polycyclic Organic Matter	8.82E-05

Johnston Boiler Tail Gas Combustion Emissions

Source:	Johnston Boiler				
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Assumptions:

1. For the purposes of preparing a Type 2 NOI application, Hexion has evaluated the worst case emissions between the only available data sources for tail gas combustion: the existing Nebraska boiler stack test data and AP-42 emission factors for natural gas boilers
2. The AP-42 emission factors for SOx was assumed for SO2

Permit Basis		
Description	Quantity	Units
Tail Gas Heating Value	80	Btu/scf
Conversion Factor	2,000	lb/ton

EMISSION FACTORS

AP-42 Table 1.4-1 and 1.4-2

Emission Factors for Criteria Pollutants from Natural Gas Combustion	
Component	Emission Factor (lb/MMScf)
NOx	100
CO	84
SOx	0.6
PM10	7.6
VOC	5.5
Based on a heating value of	1020 Btu/scf
Annual Hours of Operation: 8760	

EMISSION FACTORS

AP-42 Table 1.4-3

Emission factors for Speciated Organic Compounds from Natural Gas Combustion	
Component	Emission Factor (lb/MMScf)
Benzene	2.10E-03
Dichlorobenzene	1.20E-03
Formaldehyde	7.50E-02
Hexane	1.80E+00
Naphthalene	6.10E-04
Toluene	3.40E-03
Polycyclic Organic Matter	8.82E-05
Non-HAP/TAP VOC	9.40E+00

Calculations for Johnston Boiler Tail Gas Combustion Emissions

Emission Calculations using AP-42 Section 1.4		
Tail Gas Heating Value	Boiler Heat Input	Conversion Factor
Btu/scf	MMBtu/hr	lb/ton
80	17.6	2,000

Component	Tail Gas EF	Annual Emissions ¹	Annual Emissions ²
	lb/MMBtu	(lb/yr)	(tpy)
NOx	0.098	15,115	7.56
CO	0.082	12,697	6.35
SO ₂	0.001	91	0.045
PM ₁₀	0.007	1,149	0.57
VOC	0.005	831	0.42

Emission Calculations using the Nebraska Boiler 2010 Stack Test Data

Component	Tail Gas Combustion Factor	Johnston Boiler Annual Emission
	lb/hr	tpy
NOx	0.050	0.22
CO	1.450	6.35
Total VOC	1.250	5.48
Formaldehyde	0.025	0.11
Methanol	0.250	1.10

Component	Johnston Boiler
	Annual Emission tpy
NOx	7.56
CO	6.35
SO2	0.05
PM/PM10/PM2.5	0.57
Total VOC	5.48
Formaldehyde	0.11
Methanol	1.10

Component	AP-42 EF	Annual Emissions ¹	Annual Emissions ²
	lb/MMscf	(lb/yr)	(tpy)
Benzene	2.10E-03	1.24E-02	6.18E-06
Dichlorobenzene	1.20E-03	7.06E-03	3.53E-06
Formaldehyde	7.50E-02	4.41E-01	2.21E-04
Hexane	1.80E+00	1.06E+01	5.29E-03
Naphthalene	6.10E-04	3.59E-03	1.79E-06
Toluene	3.40E-03	2.00E-02	1.00E-05
Polycyclic Organic Matter	8.82E-05	5.19E-04	2.59E-07
Non-HAP/TAP VOC	9.40E+00	5.53E+01	2.76E-02
Total Speciated VOC		6.64E+01	3.32E-02

Formulas:

1. Emissions (lb/hr) = AP-42 Emission Factors (lb/MMscf) * [(80 Btu/scf tail gas) / (1020 Btu/scf NG) / (80 Btu/scf tail gas)] * Heat Input (MMBtu/hr) * Annual Hours of Operation (hr/yr)
2. Annual emissions (tpy) = Average emissions (lb/hr) * Annual hours of operation (hr/yr) / Conversion Factor (lb/ton)
3. VOC emission rates assume a 99.5% control efficiency. CO emission rate assumes a 94% control efficiency.
4. For purpost of preparing a Type 2 NOI application, Hexion has evaluated that worst cast emissions between the only available data sources for tail gas combustion: the existing Nebraska boiler stack test data and AP-42 emission factors for natural gas boilers.

Project Increases for Nebraska Boiler Replacement						
Pollutant	New Johnston Boiler Emissions (tpy)	Nebraska Boiler Emissions (tpy)	Project Increases (typ)	Facility-wide Pre-Project Emissions (tpy)	Facility-wide Post-Project Emissions (tpy)	PSEL
PM	0.57	-0.02	0.55	5	6	24
PM10	0.57	-0.02	0.55	5	6	14
PM2.5	0.57	-0.02	0.55	5	6	9
NOx	7.56	-0.50	7.05	10	17	39
CO	6.35	-6.62	-0.27	19	19	99
VOC	5.48	-5.48	0.00	50	50	68
SO2	4.53E-02	-1.76E-03	0.04	0	0	39
Methanol	1.10	-1.09	0.01	9	9	9
Formaldehyde	0.11	-0.11	0.00	6	6	9
Total HAPs	1.21	-1.20	0.01	18	18	24

Lane Regional Air Protection Agency
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REVIEW REPORT

Momentive Speciality Chemicals, Inc.

Permit No. 200510

1. **General Background Information**

Momentive Specialty Chemicals, Inc., located at 470 South Second Street in Springfield, is a resin manufacturing facility. Formaldehyde is produced and used primarily on-site as a raw material for various types of resins. Wax emulsions are also produced at this facility. Two (2) tail-gas boilers are used to control Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs), while additionally providing steam for the plant. The facility also has a number of scrubbers and baghouses used to control other emissions from various portions of the operation. Total annual resin production at the facility is approximately 586 million pounds. The facility operates 8,760 hours per year (24 hours per day and 365 days per year).

2. **Reasons for Permit Action**

The facility operates a process listed in Title 37, Table 1, Part B, and is therefore required to obtain a permit. The facility's permit expired on September 15, 2011. The primary reason for this permit action is to renew the expired permit. The facility requested and LRAPA approved an extension to submit the renewal application. The facility submitted the renewal application and the expired permit was administratively continued until the renewal was approved and issued.

3. **Enforcement History**

The facility was issued Notice of Non-Compliance (NON) No. 3269 on February 22, 2011 and Notice of Civil Penalty (NCP) No. 11-3269 on April 11, 2011 for installing a new source of air contaminant emissions (Miura boilers) without first notifying LRAPA in writing and obtaining approval. A civil penalty of \$1,500 was imposed by the NCP. In response to request from the facility, the penalty was reduced to \$750 on the basis of amended civil penalty matrix inputs. The facility paid the penalty on May 5, 2011 and the file was closed.

The facility was issued NON No. 2920 on March 19, 2007 and NCP No. 07-2929 for failure to operate the methanol tank farm scrubber in accordance to conditions submitted in the permit application; failure to operate the methanol tank farm scrubber in accordance to conditions submitted in Operation and Maintenance (O&M) plan. A civil penalty of \$1,000 was imposed by the NCP. The facility and LRAPA entered into Stipulated Final Order (SFO) No. 07-2920 to resolve the violation in January of 2008. In response to request from the facility, the penalty was reduced to \$800 on the basis of amended civil penalty matrix inputs. The facility paid the penalty on January 25, 2008 and the file was closed.

The facility was issued NON No. 2366 on March 19, 2002, for failure to operate plant process in accordance with permit application (failed to include emission point V-7, failed to report accurate formaldehyde process, and storage tank temperatures); failure to operate, maintain and demonstrate that plant process scrubbers are operated and maintained at all times in a manner which shall minimize air contaminant discharges; failure to report breakdown of equipment or air pollution control equipment which may result in exceeding permitted emission limits (process scrubbers); and failure to notify and receive approval for modification of Formaldehyde Plant #3. The facility removed tank V-7 and completed the requirements in SFO-02-2366 and the file was closed.

The facility was issued NON No. 1516 on March 3, 1998, and NCP No. 98-1516 on June 8, 1998, for failure to demonstrate compliance with Leak Detection and Repair (LDAR) requirements.

The facility was also issued NON No. 1519 on March 3, 1998, for failure to comply with New Source Performance Standards (NSPS) Subpart III. No civil penalty was issued, compliance was obtained and the file has been closed.

4. Performance Test Results

The inlets and outlets of Boiler 1 (Nebraska) and Boiler 2 (Erie) were tested on April 27-28, 2010 for VOC, CO, NO_x, Methanol and Formaldehyde. The results were used in establishing revised emission factors for Plant Site Emission Limit (PSEL) compliance.

The Formaldehyde Tank Farm Scrubbers were tested in June of 1991. The current application assumes the tanks are uncontrolled, therefore the test results are not used to estimate emissions. In 2001, the facility performed an emission study on the scrubbers of the reactors at the facility. The emission factors determined by this study are used for the emissions from the scrubbers.

A compliance test was performed on the Boiler 1 (Nebraska Boiler) in March of 1993. For VOC (measured as total organic compounds (TOC)), the boiler tested at greater than the 98% destruction efficiency as required by the New Source Performance Standards (NSPS) Subpart III.

The Methanol Scrubber System was tested in September of 1995. The results showed an average methanol removal efficiency of 99.995%. The current application assumes the system operates at 95% efficiency.

The permit contains emission factor verification testing requirements for the Boiler1 (Nebraska), and the Boiler 2 (Erie).

5. Plant Site Emission Limits

Baseline Emissions Rate (BER) and Significant Emission Rate (SER) Comparison

The baseline emission rates were established in a previous permit issuance and were based on equipment and production totals for the year 1978. The equipment in operation during the baseline year were:

- 1 uncontrolled formaldehyde production line (Plant #2, Erie Boiler), and
- 7 resin kettles, which had controls only on the condensers.

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis		Plant Site Emission Limit (PSEL)			SER (tons/yr)
		Previous (tons/yr)	Proposed (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Increase over netting basis (tons/yr)	
PM	3.7	3.7	3.7	24	24	20.3	25
PM ₁₀	3.7	3.7	3.7	14	14	10.3	15
PM _{2.5}	NA	NA	3.7	NA	9	5.3	10
CO	7.1	7.1	7.1	37	99	91.9	100
NO _x	28.2	28.2	28.2	24	39	10.8	40
SO ₂	13.5	13.5	13.5	23	39	25.5	40
VOC	48.8	48.8	48.8	68	68	19.2	40
GHG	NE	NE	NE	NA	74,000	74,000	75,000

- 5.a. The baseline emission rates for PM, PM₁₀, CO, NO_x, SO₂, VOC and Pb were determined in previous permitting actions and there are no changes. A baseline emission rate is not required for PM_{2.5} in accordance with the definition of "baseline emission rate" in LRAPA Title 12 (see 5.d and 5.e below).
- 5.b. For greenhouse gases (GHG), NE = Not established. A baseline emission rate was not established with this permitting action due to the relatively low actual emission levels and a facility request to not establish the GHG Baseline Emission Rate.
- 5.c. The PSEL for PM, PM₁₀, PM_{2.5}, NO_x, CO, SO₂ and GHG are established at the Generic PSEL level in accordance with Section 42-0040-1.
- 5.d. The PM_{2.5} netting basis is established with this permitting action as being equivalent to the PM₁₀ netting basis. The fraction of PM₁₀ in the netting basis that is PM_{2.5} is assumed to be 100%. The PM from boiler combustion in the baseline year is assumed to be 100% PM_{2.5}.
- 5.e. GHG and PM_{2.5} are new regulated pollutants and, therefore, a PSEL for GHG and PM_{2.5} are established with this permit action. The PSEL for PM_{2.5} is established using the procedure specified in the definition of "netting basis" in LRAPA Title 12 (see detail sheets).
- 5.f. There are no Unassigned Emissions and no Emission Reduction Credits available to this facility.

The Attachment to this Review Report contains the calculations of the PSELs.

6. Other Emission Limitations

LRAPA's process weight rule specifies limits on the emissions of particulate matter for specific processes as a function of the amount of material processed. [LRAPA 32-045(A)] This rule is intended for large sources of PM such as wood products facilities. Since PM emissions from the facility are from the combustion of fuel and are relatively small, the facility is expected to be in compliance with the process weight rule.

The permit includes general visible emissions limitations for the facility as well as general grain-loading limitations for the facility.

7. Hazardous Air Pollutants (HAPs)

The facility is required to calculate emissions of HAPs on a 12-month rolling basis. Emissions of total HAPs are expected to be approximately 18.5 tons per year. The attachment to this report contains the calculations of the HAPs.

Pollutant	Emissions (tons/yr)
Formaldehyde	6.00
Methanol	9.42
Phenol	0.70
Ethylene Glycol	0.17
Toluene	0.7
Triethylamine	0.72
Total HAPs (including other HAPs not listed above)	17.9

There are no National Emission Standards for HAPs (NESHAPs) that are applicable to the facility. The facility is not subject to the Chemical Manufacturing NESHAP (Subpart VVVVV or 6V) because the facility asserts that it does not use or produce any of the 15 HAPs listed in the NESHAP that would make the facility subject. The provisions of the area source boiler NESHAP (Subpart JJJJJ or 6J) do not include any requirements for gas-fired boilers of any size and therefore the standards, tune-up and energy assessments requirements do not apply to the facility's boilers.

The facility requested that LRAPA add a federally enforceable permit condition (Condition 20) requiring the facility to meet Leak Detection and Repair (LDAR) monitoring requirements pursuant to 40 CFR §§63.162- §63.180 for Plant #2 and Plant #3 and the recordkeeping and reporting requirements of 40 CFR 60, Subpart VV (Condition 19.j and 19.k) for Plant #3.

8. Typically Achievable Control Technology (TACT)

LRAPA Title 32-008 requires an existing emission unit at a facility to meet TACT if the emissions unit has emissions of criteria pollutants greater than 10 tons per year of any gaseous pollutant or five (5) tons per year of particulate, the emissions unit is not subject to the emissions standards under LRAPA Title 32, Title 33, Title 39, or Title 46 for the pollutants emitted, and the facility is required to have a permit. The formaldehyde production lines emit more than ten (10) tons per year of gaseous pollutants and are, therefore, required to meet TACT. LRAPA has determined that the tail gas boilers, scrubbers and baghouses meet TACT for this facility. The emissions from the boilers, as steam-generating units, emit more than 10 tons per year of gaseous pollutants; but because the boilers are subject to the opacity and grain loading limits in Title 32, TACT does not apply to the boilers.

9. New Source Review (NSR) and Prevention of Significant Deterioration (PSD)

Because the proposed PSEs for all regulated pollutants are below the Significant Emission Rates (SERs) in LRAPA Title 38, the facility is not subject to LRAPA's New Source Review (NSR) requirements for PM₁₀ nor the Prevention of Significant Deterioration (PSD) requirements for SO_x, NO_x, CO, and VOC.

10. New Source Performance Standards (NSPSs)

The Nebraska tail-gas boiler on Plant #3 was installed in 1990 and since it was constructed after October 21, 1983, the air oxidation reactor and any recovery system it vents to are subject to NSPS Subpart III, Standards of Performance for VOC Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes. The permit contains requirements from the NSPS Subpart III. The facility has performed the initial compliance test in accordance with 40 CFR 60.8(a). The permit retains the testing requirements in the event the facility performs or is required to perform additional compliance testing.

Because Plant #3 was modified after January 5, 1981, and is considered part of the SOCMI unit, the equipment of Plant #3 as established, is subject to the New Source Performance Standards Subpart VV, Standards of Performance for Equipment Leaks of VOCs in the SOCMI.

Boilers 4 and 5 (Miura Boilers) each have a maximum design rate of less than 10 MM BTU/hr and are, therefore, **not** subject to the NSPS Subpart Dc.

11. Reporting Requirements

The facility is required to submit semi-annual reports by the 45th day of each semi-annual period for every semi-annual period this permit is in effect, a copy of a report which includes the following information for the preceding semi-annual period (all totals are required to be 12-month rolling totals and expressed in tons per year). The semi-annual periods are defined as January through June and July through December. [LRAPA 34-120]

a. Estimation of:

- i. Total VOC, CO, NO_x, SO₂ and PM/PM₁₀/PM_{2.5}
- ii. Total HAP and
- iii. Individual HAP emissions

(The facility is required to use the emission factors specified in the facility's application when determining total VOC, HAP and individual HAP emissions).

b. The parameters required by Permit Condition 24.

- c. The 12-month rolling total emissions estimations are also to include the estimation of emissions from storage tanks.
- d. The format of the semi-annual report and associated calculations may be required to be modified subject to LRAPA approval.
- e. The annual report is required to contain the GHG emissions in accordance with ODEQ Division 215 GHG reporting rule.

Unless otherwise specified, all reports, test results, notifications, etc., required by the above terms and conditions are to be reported to the following office:

Lane Regional Air Protection Agency
1010 Main Street
Springfield, Oregon 97477
(541) 736-1056

The facility is also required to report any entries in the upset log as required per Condition G15.

12. Public Notice

The draft permit was on public notice from January 18, 2012 to February 21, 2012. No written comments were submitted during the 35-day comment period.

MAX/cmw
02/22/12

"Emission Factors Attachment"

Emission Unit	Operating Parameter	Pollutant	EF	Units	Ref	Emissions (ton/yr)
Boiler 1 (NE) Tail Gas	7946	hours/yr	NOx	0.05 lb/hr	ST 4/2010	0.20
			CO	1.45 lb/hr	ST 4/2010	5.76
			VOC	2.49 lb/hr	ST 4/2010	9.89
			MeOH	0.5 lb/hr	ST 4/2010	1.99
Boiler 2 (Erie) Tail Gas	5950	hours/yr	NOx	0.03 lb/hr	ST 4/2010	0.09
			CO	0.62 lb/hr	ST 4/2010	1.84
			VOC	0.43 lb/hr	ST 4/2010	1.28
			MeOH	0.006 lb/hr	ST 4/2010	0.02
All Boilers Natural Gas	205.4	MMscf	PM/PM10/PM2.5	7.6 lb/MMSCF	AP42	0.78
			NOx	100 lb/MMSCF	AP42	10.27
			CO	84 lb/MMSCF	AP42	8.63
			SO2	0.6 lb/MMSCF	AP42	0.06
			VOC	5.5 lb/MMSCF	AP42	0.56
			Total HAP	1.88 lb/MMSCF	AP42	0.19
			Non HAP VOC	9.4 lb/MMSCF	AP42	0.97
Boiler 1 (NE) Bypass	54	hours/yr	CO	24.2 lb/hr	ST 4/2010	0.65
			VOC	249.37 lb/hr	ST 4/2010	6.73
			HCOH	5.01 lb/hr	ST 4/2010	0.14
			MeOH	49.53 lb/hr	ST 4/2010	1.34
Boiler 2 (Erie) Bypass	50	hours/yr	CO	62.5 lb/hr	ST 4/2010	1.56
			VOC	43 lb/hr	ST 4/2010	1.08
			HCOH	0.61 lb/hr	ST 4/2010	0.02
			MeOH	0.58 lb/hr	ST 4/2010	0.01
PF Resin Reactor Scrubber	75,000	tons/yr	VOC	1.57E-01 lb/ton	R&D	5.89
			HCOH	2.57E-03 lb/ton	R&D	0.10
			MeOH	2.13E-02 lb/ton	R&D	0.80
			Phenol	2.54E-04 lb/ton	R&D	0.01
UF Resin Reactor Scrubber	75,000	tons/yr	VOC	6.56E-02 lb/ton	R&D	2.46
			HCOH	8.97E-04 lb/ton	R&D	0.03
			MeOH	7.42E-03 lb/ton	R&D	0.28
			Triethylamine	1.10E-02 lb/ton	R&D	0.41
MF Resin Reactor Scrubber	17,500	tons/yr	VOC	2.50E-01 lb/ton	R&D	2.19
			HCOH	3.89E-03 lb/ton	R&D	0.03
			MeOH	3.41E-02 lb/ton	R&D	0.30
			VOC	4.13E-02 lb/ton	AP42 7.1	1.70
Formaldehyde Storage	82,075	tons/yr	HCOH	3.55E-02 lb/ton	AP42 7.1	1.46
			MeOH	5.82E-03 lb/ton	AP42 7.1	0.24
			VOC	5.01E-05 lb/lb	AP42 5.2	0.50
Formaldehyde Loading	10,000	tons/yr	HCOH	4.29E-05 lb/lb	AP42 5.2	0.43
			MeOH	7.15E-06 lb/lb	AP42 5.2	0.07
			VOC	1.19E-06 lb/lb	site	8.93E-02
PF Resin Produced in Reactors	75,000	ton/yr	Ethylene Glycol	1.19E-06 lb/lb	site	8.93E-02
			VOC	2.89E-03 lb/ton	site	0.03
MF Resin Produced in Reactors	17,500	tons/yr	Ethylene Glycol	1.82E-04 lb/ton	site	1.59E-03
			VOC	3.43E-06 lb/lb	AP42 5.2	0.24
UF Resin Loading	70,000	tons/yr	HCOH	1.44E-06 lb/lb	AP42 5.2	0.10
			MeOH	1.98E-06 lb/lb	AP42 5.2	0.14
			Ethylene Glycol	2.16E-09 lb/lb	AP42 5.2	1.51E-04
			VOC	2.82E-05 lb/lb	AP42 5.2	0.14
Triazine Loading	5,000	tons/yr	MeOH	2.71E-05 lb/lb	AP42 5.2	0.14
			VOC	5.13E-05 lb/lb	AP42 5.2	3.71
			HCOH	1.42E-06 lb/lb	AP42 5.2	0.10
			MeOH	2.40E-06 lb/lb	AP42 5.2	0.17
PF Resin Loading	72,250	tons/yr	Phenol	1.09E-07 lb/lb	AP42 5.2	0.01
			Ethylene Glycol	1.09E-06 lb/lb	AP42 5.2	7.88E-02
			Methyl Isobutyl Ketone	1.52E-07 lb/lb	AP42 5.2	0.01
			VOC	1.14E-04 lb/lb	AP42 5.2	0.26
			HCOH	1.59E-06 lb/lb	AP42 5.2	0.00
			MeOH	5.93E-05 lb/lb	AP42 5.2	0.13
			Phenol	1.22E-07 lb/lb	AP42 5.2	2.75E-04
Durite LV 1259M Loading	2,250	tons/yr	Ethylene Glycol	2.70E-09 lb/lb	AP42 5.2	6.08E-06
			Methyl Isobutyl Ketone	1.70E-07 lb/lb	AP42 5.2	3.83E-04
			VOC	6.35E-05 lb/lb	AP42 5.2	0.03
			HCOH	1.47E-06 lb/lb	AP42 5.2	7.35E-04
			MeOH	1.29E-05 lb/lb	AP42 5.2	0.01
Durite SC748A Loading	500	tons/yr	Phenol	1.13E-07 lb/lb	AP42 5.2	5.65E-05
			Ethylene Glycol	2.50E-09 lb/lb	AP42 5.2	1.25E-06
			Methyl Isobutyl Ketone	1.57E-07 lb/lb	AP42 5.2	7.85E-05
			VOC	1.69E-05 lb/lb	AP42 5.2	0.30
MF Resin Loading	17,500	tons/yr	HCOH	9.22E-08 lb/lb	AP42 5.2	1.61E-03
			MeOH	1.54E-05 lb/lb	AP42 5.2	0.27
			Ethylene Glycol	3.56E-10 lb/lb	AP42 5.2	6.23E-06
Dry Catalyst Loading	3,893	tons/yr	VOC and HCOH	2.90E-07 lb/lb	AP42 5.2	1.13E-03
Methanol Loading	250	tons/yr	VOC and MeOH	1.53E-04 lb/lb	AP42 5.2	3.83E-02
UF Resin Storage	70,000	tons/yr	VOC	6.19E-03 lb/ton	AP42 7.1	0.22
			HCOH	2.34E-03 lb/ton	AP42 7.1	0.08
			MeOH	3.78E-03 lb/ton	AP42 7.1	0.13
Triazine Storage	5,000	tons/yr	VOC	208.50 lb/yr	AP42 7.1	0.10
			MeOH	201.37 lb/yr	AP42 7.1	0.10
PF/PRF Resin Storage	75,000	tons/yr	VOC	5.66E-03 lb/ton	AP42 7.1	0.21
			HCOH	1.81E-04 lb/ton	AP42 7.1	0.01
			MeOH	2.90E-03 lb/ton	AP42 7.1	0.11
			Phenol	4.17E-05 lb/ton	AP42 7.1	1.56E-03

			Ethylene Glycol	9.36E-05	lb/ton	AP42 7.1	3.51E-03
			Methyl Isobutyl Ketone	8.22E-06	lb/ton	AP42 7.1	3.08E-04
MF Resin Storage	17,500	tons/yr	VOC	8.23E-03	lb/ton	AP42 7.1	0.07
			HCOH	1.43E-05	lb/ton	AP42 7.1	1.25E-04
			MeOH	8.18E-03	lb/ton	AP42 7.1	0.07
Methanol Storage	42,000	tons/yr	VOC and MeOH	1.26E-02	lb/ton	TANKS 4.09	0.26
			VOC	3.33E-01	lb/ton	AP42 7.1	0.043
Methanol Distillate	259	tons/yr	HCOH	7.42E-03	lb/ton	AP42 7.1	9.61E-04
			MeOH	3.26E-01	lb/ton	AP42 7.1	4.22E-02
Phenol Storage	27,000	tons/yr	VOC	3.85E-02	lb/ton	TANKS 4.09	0.52
			Phenol	3.85E-02	lb/ton	TANKS 4.09	0.52
Triethylamine Storage	300	tons/yr	VOC	1.18	lb/ton	TANKS 4.09	0.18
			Triethylamine	1.18	lb/ton	TANKS 4.09	0.18
Triethanolamine Storage	1,487	tons/yr	VOC	6.55E-03	lb/ton	TANKS 4.09	4.87E-03
Triethanolamine Rx9 Storage	38	tons/yr	VOC	3.26E-03	lb/ton	TANKS 4.09	6.19E-05
10% Formic Acid	4,127	tons/yr	VOC	1.24E-03	lb/ton	TANKS 4.09	2.56E-03
Diethylene Glycol Storage	9,588	tons/yr	VOC	3.13E-06	lb/ton	TANKS 4.09	1.50E-05
			VOC	54.1	lb/yr	AP42 7.1	2.71E-02
UF Distillate Storage	2,718	tons/yr	HCOH	6.86	lb/yr	AP42 7.1	3.43E-03
			MeOH	47.2	lb/yr	AP42 7.1	2.36E-02
PF Distillate Storage	5,839	tons/yr	VOC	3.65	lb/yr	AP42 7.1	1.83E-03
			HCOH	3.65	lb/yr	AP42 7.1	1.83E-03
			VOC	17.8	lb/yr	AP42 7.1	8.90E-03
PF Washwater Storage	21,605	tons/yr	HCOH	10.82	lb/yr	AP42 7.1	5.41E-03
			MeOH	6.96	lb/yr	AP42 7.1	3.48E-03
			Phenol	0.01	lb/yr	AP42 7.1	7.43E-06
			VOC	4.87	lb/yr	AP42 7.1	2.44E-03
UF Seal Water	18,630	tons/yr	HCOH	1.35	lb/yr	AP42 7.1	6.75E-04
			MeOH	3.52	lb/yr	AP42 7.1	1.76E-03
			Phenol	3.46E-04	lb/yr	AP42 7.1	1.73E-07
GN11 Storage	3,375	tons/yr	VOC and Methanol	2.67E-03	lb/ton	AP42 7.1	4.51E-03
			VOC	277	lb/yr	AP42 7.1	0.14
			HCOH	1.21	lb/yr	AP42 7.1	6.05E-04
			MeOH	27.37	lb/yr	AP42 7.1	0.014
			Methyl Isobutyl Ketone	0.66	lb/yr	AP42 7.1	3.30E-04
			Ethylene Glycol	0.07	lb/yr	AP42 7.1	3.50E-05
			Phenol	2.4	lb/yr	AP42 7.1	1.20E-03
Sheer Mixer FM-6310L	27,422,609	gallons/yr	VOC	1.1	lb/yr	AP42 7.1	5.50E-04
			HCOH	1.1	lb/yr	AP42 7.1	5.50E-04
Sheer Mixer FM-7400L	75,085,714	gallons/yr	VOC	0.05	lb/yr	AP42 7.1	2.50E-05
			HCOH	0.05	lb/yr	AP42 7.1	2.50E-05
Sheer Mixer Momentive 4720	13,770,000	gallons/yr	VOC	288.91	lb/yr	AP42 7.1	0.14
			HCOH	0.91	lb/yr	AP42 7.1	4.55E-04
			MeOH	288	lb/yr	AP42 7.1	0.14
			VOC	440.18	lb/yr	WATERS9	0.22
Washwater Pits	1,464,540	gallons/yr	HCOH	3.74	lb/yr	WATERS9	1.87E-03
			MeOH	435	lb/yr	WATERS9	0.22
			Phenol	1.44	lb/yr	WATERS9	7.20E-04
Stearic Acid Storage	1,431	tons/yr	VOC	0.49	lb/yr	TANKS 4.09	2.45E-04
Plant #3 Fugitive Emissions	8,000	hours/yr	VOC and Total HAPs	see applicati	lb/hr/comp	Modified SOCM1	1.25
			HCHCO	see applicati	lb/hr/comp	Modified SOCM1	0.43
			MeOH	see applicati	lb/hr/comp	Modified SOCM1	0.82
Plant #2 Fugitive Emissions	6,000	hours/yr	VOC and Total HAPs	see applicati	lb/hr/comp	Modified SOCM1	0.54
			HCHCO	see applicati	lb/hr/comp	Modified SOCM1	0.26
			MeOH	see applicati	lb/hr/comp	Modified SOCM1	0.28
Resin Fugitive Emissions	8,760	hours/yr	VOC and Total HAPs	see applicati	lb/hr/comp	Modified SOCM1	1.68
			HCHCO	see applicati	lb/hr/comp	Modified SOCM1	0.381
			MeOH	see applicati	lb/hr/comp	Modified SOCM1	0.51
			Phenol	see applicati	lb/hr/comp	Modified SOCM1	0.66
			Triethylamine	see applicati	lb/hr/comp	Modified SOCM1	0.14
Urea Weigh Bin #1	25,000	tons/yr	PM/PM10	0.02	lb/ton	Vendor	0.25
Urea Weigh Bin #2	25,000	tons/yr	PM/PM10	0.02	lb/ton	Vendor	0.25
Adhesive Dump Hopper	1,000	tons/yr	PM/PM10	2.00	lb/ton	Vendor	1
Melamine Conveyor	455	MMcf/yr	PM/PM10	2.86	lb/MMcf	Vendor	0.65
Melamine Hopper	263	MMcf/yr	PM/PM10	2.86	lb/MMcf	Vendor	0.38
RTU Dry Material Loading	750	tons/yr	PM/PM10	0.61	lb/ton	EPA 11.17-4	0.23
	411	MMcf/yr	PM/PM10	2.86	lb/MMcf	Vendor	0.59
Dry Catalyst Blender#1	3,893	tons/yr	VOC	0.51	lb/yr	Site Estimate	2.55E-04
			HCOH	0.27	lb/yr	Site Estimate	1.35E-04
	561	MMcf/yr	PM/PM10	2.86	lb/MMcf	Vendor	0.80
Dry Catalyst Blender#2	1,560	hours/yr	VOC	611.47	lb/yr	Site Estimate	0.31
			HCOH	611.24	lb/yr	R&D Study	0.31
Dry Catalyst Vacuum Sweeper	15.4	MMcf/yr	PM/PM10	2.86	lb/MMcf	Vendor	0.02
Dry Catalyst Exhaust Fan West	18.7	MMcf/yr	PM/PM10	0.62	lb/MMcf	Site Estimate	0.01
Dry Catalyst Exhaust Fan South	18.7	MMcf/yr	PM/PM10	0.62	lb/MMcf	Site Estimate	0.01
Unpaved Haul Road	54	VMT	PM/PM10	6.90	lb/VMT	Ap42	0.19
			VOC	0.00861	lb/lb	Company Study	2.58
Resin Drying Pad	300	tons/yr	HCOH	0.00606	lb/lb	Company Study	1.82
			MeOH	0.00252	lb/lb	Company Study	0.76
			Phenol	0.00003	lb/lb	Company Study	0.01
Emulsified Wax Process	71,540	tons/yr	MeOH	0.01	lb/yr	Site Estimate	5.00E-06
			VOC	0.05	lb/yr	Site Estimate	2.50E-05
Emulsified Wax Loading	71,540	tons/yr	MeOH	9.07	lb/yr	Site Estimate	0.005
			VOC	137.0	lb/yr	Site Estimate	0.069
Emulsified Wax Storage	71,540	tons/yr	MeOH	2.03	lb/yr	Site Estimate	1.02E-03
			VOC	2.03	lb/yr	Site Estimate	1.02E-03
Wax Process (includes emulsified wax and process slack wax storage)	71,540	tons/yr	Toluene	1302.00	lb/yr	Site Estimate	0.65
			VOC	1302.0	lb/yr	Site Estimate	0.65

Emission Unit	Pollutant							
	PM/PM10	PM2.5	NOx	CO	VOC	HCHO	MeOH	Phenol
Boiler 1 (Erie) Tail Gas			0.20	5.76	9.89	0.20	1.99	
Boiler 2 (NE) Tail Gas			0.09	1.84	1.28	0.02	0.02	
All Boilers Natural Gas	0.78	0.78	10.27	8.63	0.56			
Boiler 1 (Erie) Bypass				0.65	6.73	0.14	1.34	
Boiler 2 (NE) Bypass				1.56	1.08	0.02	0.01	
PF Resin Reacotr Scrubber					5.89	0.10	0.80	0.01
UF Resin Reactor Scrubber					2.46	0.03	0.28	
MF Resin Reactor Scrubber					2.19	0.03	0.30	
Formaldehyde Storage					1.70	1.46	0.24	
Formaldehyde Loading					0.50	0.43	0.07	
PF Resin Produced in Reactors					0.09			0.01
MF Resin Produced in Reactors					0.03			
UF Resin Loading					0.24	0.10	0.14	
PF Resin Loading					3.71	0.10	0.17	
Durite LV 1259M Loading					0.26	0.00	0.13	2.75E-04
Durite SC748A Loading					0.03	7.35E-04	0.01	5.65E-05
MF Resin Loading					0.30	1.61E-03	0.27	
Dry Catalyst Loading					1.13E-03	1.13E-03		
Methanol Loading					3.83E-02		0.04	
UF Resin Storage					0.22	0.08	0.13	
PF/PRF Resin Storage					0.21	0.01	0.11	1.56E-03
MF Resin Storage					0.07	1.25E-04	0.07	
Methanol Storage					0.26		0.26	
Methanol Distillate					0.04		4.22E-02	
Phenol Storage					0.52			0.52
Triethylamine Storage					1.77E-01			
Triethanolamine Rx9 Storage					6.19E-05			
10% Formic Acid					2.56E-03			
Diethylene Glycol Storage					1.50E-05			
UF Distillate Storage					2.71E-02	3.43E-03	2.36E-02	
PF Distillate Storage					1.83E-03	1.83E-03		
PF Washwater Storage					8.90E-03	5.41E-03	3.48E-03	7.43E-06
UF Seal Water					2.44E-03	6.75E-04	1.76E-03	1.73E-07
GN11 Storage					4.51E-03	6.05E-04	4.51E-03	
Sheer Mixer RF-300W					0.14	6.05E-04	0.014	1.20E-03
Sheer Mixer FM-6310L					5.50E-04	5.50E-04		
Sheer Mixer FM-7400L					2.50E-05	2.50E-05		
Sheer Mixer Momentive 4720					0.14	4.55E-04	0.14	
Washwater Pits					0.22	1.87E-03	0.22	7.20E-04
Stearic Acid Storage					1.25			
Plant 3 Fugitives					1.25	0.43	0.82	
Plant 2 Fugitives					0.54	0.26	0.28	
Resin Fugitives					1.68	0.381	0.51	0.14
Urea Weigh Bin #1	0.25							
Urea Weigh Bin #2	0.25							
Adhesive Dump Hopper	1							
Melamine Conveyor	0.65							
Melaimine Hopper	0.38							
RTU Dry Material Loading	0.23							
Dry Catalyst Blender#1	0.59					1.35E-04		
Dry Catalyst Blender#2	0.80					0.31		
Dry Catalyst Vacuum Sweeper	0.02							
Dry Catalyst Exhaust Fan West	0.01							
Dry Catalyst Exhaust Fan South	0.01							
Unpaved Haul Road	0.19							
Resin Drying Pad						1.82	0.76	
Emulsified Wax Process							5.00E-06	
Emulsified Wax Loading							0.004535	
Wax Process					0.65			

TOTAL 5.1 1 11 18 44 5.9 9.20 0.7

TOTAL HAPS 18.2 from facility application