

- iii. To establish federally enforceable production and operating limitations, which restrict the potential to emit for VOM to less than 25 tons per year so the source is not subject to the requirements of 35 Ill. Adm. Code Part 218 Subpart RR (Miscellaneous Organic Chemical Manufacturing Processes).
 - b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
 - c. This permit supersedes all operating permit(s) for this location.
2. The two boilers are subject to New Source Performance Standards (NSPS) for Small Industrial - Commercial - Institutional Steam Generating Units, 40 CFR 60, Subparts A and Dc. The Illinois EPA is administering the NSPS in Illinois on behalf of the United States EPA under a delegation agreement. Pursuant to 40 CFR 60.40c(a), except as provided in 40 CFR 60.40c(d), (e), (f), and (g), the affected facility to which 40 CFR 60 Subpart Dc applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (mmBtu/hour)) or less, but greater than or equal to 2.9 MW (10 mmBtu/hour).
- 3a. Pursuant to 35 Ill. Adm. Code 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 Ill. Adm. Code 212.122.
- b. Pursuant to 35 Ill. Adm. Code 212.123(b), the emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 meter (1000 foot) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period.
4. Pursuant to 35 Ill. Adm. Code 216.121, no person shall cause or allow the emission of carbon monoxide (CO) into the atmosphere from any fuel combustion emission source with actual heat input greater than 2.9 MW (10 mmBtu/hour) to exceed 200 ppm, corrected to 50 percent excess air.
- 5a. Pursuant to 35 Ill. Adm. Code 218.122(a), no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere during the loading of any organic material from the aggregate loading pipes of any loading area having through-put of greater than 151 cubic meters per day (40,000 gallons/day) into any railroad tank car, tank truck or trailer unless such loading area is

equipped with submerged loading pipes or a device that is equally effective in controlling emissions and is approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with 35 Ill. Adm. Code 218.108.

- b. Pursuant to 35 Ill. Adm. Code 218.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 liters (250 gallons), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with 35 Ill. Adm. Code 218.108, or unless such tank is a pressure tank as described in 35 Ill. Adm. Code 218.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 218.121(b)(2).
 - c. Pursuant to 35 Ill. Adm. Code 218.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission source, except as provided in 35 Ill. Adm. Code 218.302, 218.303, or 218.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 218 Subpart G (Use of Organic Material) shall apply only to photochemically reactive material.
 - d. Pursuant to 35 Ill. Adm. Code 218.302(b), emissions of organic material in excess of those permitted by 35 Ill. Adm. Code 218.301 are allowable if such emissions are controlled by a vapor recovery system which adsorbs and/or condenses at least 85 percent of the total uncontrolled organic material that would otherwise be emitted to the atmosphere.
6. The 20,000 gallon outdoor blending surfactant storage tanks (S18-S21) are not subject to the NSPS for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984, 40 CFR 60 Subpart Kb. Pursuant to 40 CFR 60.110b(b), 40 CFR 60 Subpart Kb does not apply to storage vessels with a capacity greater than or equal to 151 m³ storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m³ but less than 151 m³ storing a liquid with a maximum true vapor pressure less than 15.0 kPa.
- 7a. This permit is issued based upon the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Coating Manufacturing, 40 CFR 63 Subpart FFFF. This is a result of the federally enforceable production and operating limitations, which restrict the potential to emit to less than 10 tons/year for any individual Hazardous Air Pollutant (HAP), and 25 tons/year of any combination of such HAPs.
 - b. This permit is issued based on the two process boilers not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers Area Sources, 40 CFR 63 Subpart JJJJJJ. Pursuant to 40 CFR 63.11195(e), a

gas-fired boiler as defined in 40 CFR 63 Subpart JJJJJJ are not subject to 40 CFR 63 Subpart JJJJJJ and to any requirements in 40 CFR 63 Subpart JJJJJJ.

- c. This permit is issued based upon the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Chemical Manufacturing Area Sources, 40 CFR 63 Subpart VVVVVV. The chemical manufacturing process units (CMPU) at this source do not use as feedstocks, generates as byproducts, or produces as products any of the hazardous air pollutants (HAP) listed in Table 1 to 40 CFR 63 Subpart VVVVVV.
- 8a. This permit is issued based on the indoor storage tanks and Storage Tank S8 not being subject to 35 Ill. Adm. Code 218.120 (Control Requirements for Storage Containers of VOL). Pursuant to 35 Ill. Adm. Code 218.119, the limitations of 35 Ill. Adm. Code 218.120 shall apply to all storage containers of volatile organic liquid (VOL) with a maximum true vapor pressure of 0.5 psia or greater in any stationary tank, reservoir, or other container of 151 cubic meters (40,000 gallons) capacity or greater.
- b. Pursuant to 35 Ill. Adm. Code 218.122(c), if no odor nuisance exists the limitations of 35 Ill. Adm. Code 218.122 shall only apply to the loading of VOL with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).
- 9. Pursuant to 40 CFR 60.11(d), at all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Illinois EPA or USEPA which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
- 10a. In the event that the operation of this emission unit results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.
- b. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the scrubber associated with reactors R25 and R28-R30 such that the scrubber is kept in proper working condition and not cause a violation of the Illinois Environmental Protection Act or regulations promulgated therein.
- c. This permit is issued based on the use of only natural gas in the boilers at this source. The use of any other fuel in the boilers requires that the Permittee first obtain a construction permit from the

Illinois EPA and then perform stack testing to verify compliance with all applicable requirements.

10a. Emissions and operation of the two boilers (combined) shall not exceed the following limits:

i. Fuel usage:

Natural Gas Usage	
<u>(mmscf/Month)</u>	<u>(mmscf/Year)</u>
29	229

ii. Combustion emissions:

<u>Pollutant</u>	Emission Factor		Emissions	
	<u>(Lbs/mmscf)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>	
Nitrogen Oxides (NO _x)	100.0	1.43	11.45	
Carbon Monoxide (CO)	84.0	1.20	9.62	
Particulate Matter (PM)	7.6	0.11	0.87	
Sulfur Dioxide (SO ₂)	0.6	0.01	0.01	
Volatile Organic Material (VOM)	5.5	0.08	0.63	

These limits are based on the combined maximum firing rate (26.63 mmBtu/hour), maximum operating time (8,760 hours/year), and standard AP-42 emission factors.

b. Emissions and operation of the twenty-five reactors when manufacturing methanol generating products shall not exceed the following limits:

i. Production rates:

	Total Production	
	<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
All Products	738	7,375

ii. Emissions of VOM and HAPs:

<u>Product Type</u>	Emission Factor		Emissions			
	<u>(Lb/T)</u>	<u>(Lb/T)</u>	VOM		Methanol	
			<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>	<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>
Amides	1.292	1.009	--	--	--	--
Amidoamines	2.290	0.944	--	--	--	--
Imidazolines	1.799	0.885	--	--	--	--
		Totals	0.65	6.46	0.36	3.52

These limits are based on maximum production and emission factors developed through the use of the Emission Master software.

- c. Emissions and operation of the twenty-five reactors when manufacturing non-methanol generating products shall not exceed the following limits:

- i. Production rates:

	Total Production	
	<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
All Products	3,001	30,010

- ii. Emissions of VOM and HAPs:

<u>Product Type</u>	Emission Factor <u>(Lbs/Ton)</u>	VOM Emissions	
		<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Amides	0.283	--	--
Amidoamines	1.346	--	--
Imidazolines	0.914	--	--
	Totals	1.17	11.62

These limits are based on maximum production and emission factors developed through the use of the Emission Master software.

- d. The maximum raw material consumption and usage of the source shall not exceed the following limits:

<u>Material</u>	<u>(Tons/Month)</u>	<u>(Tons/year)</u>
Amphoteric Surfactants with Methanol	1,525	15,250
Alkyl Sulfates with Alcohol	613	6,125
Cosmetic Preservatives	750	7,500
Wetting Agents	1,750	17,500
Surfactants and Intermediates	10,000	100,000
Aminoethylethanolamine	175	1,750
Diethanolamine	400	4,000
2-Ethyl Hexanol	50	500
Ethylene Glycol	50	500
Methanol (Fresh and Recovered)	375	3,750
DMAPA Fresh and Recovered	750	7,500
Methyl Acrylate	50	500
Acrylic Acid	60	600
Epichlorohydrin	300	3,000
Wastewater (0.4% Methanol)	4,170	41,700
Methanol and other HAP/VOM (Container Filling Only)	500	5,000
Ethanol	50	500
Mono Chloroacetic Acid	750	7,500

- e. Emissions from and operation of all indoor and outdoor tanks (combined) shall not exceed 0.3 tons/month and 2.34 tons/year of VOM and 0.08 tons/month and 0.76 tons/year of methanol. These limits are based on the maximum raw material consumption specified in Condition 10(d).

- f. Filling loss emissions from all containers (combined) shall not exceed 0.3 tons/month and 3.10 tons/year of VOM and 0.15 tons/month and 1.48 tons/year of methanol. These limits are based on the maximum raw material consumption specified in Condition 10(d).
 - g. Emissions and operation of the flaker shall not exceed 0.4 tons/month and 3.72 tons/year of PM. These limits are based on the maximum raw material consumption specified in Condition 10(d).
 - h. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act from this source shall not exceed 0.79 tons/month and 7.9 tons/year of any single HAP and 1.99 tons/month and 19.9 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirement to obtain a CAAPP permit from the Illinois EPA and the requirements of Section 112(g) of the Clean Air Act.
 - i. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).
- 11a. Pursuant to 40 CFR 60.7(b), any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.
- b. Pursuant to 40 CFR 60.7(f), any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by 40 CFR Part 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records.
- 12a. i. Pursuant to 40 CFR 60.48c(g)(1), except as provided under 40 CFR 60.48c(g)(2) and (g)(3), the owner or operator of each affected facility shall record and maintain records of the amounts of each fuel combusted during each operating day.
- ii. Pursuant to 40 CFR 60.48c(g)(2), as an alternative to meeting the requirements of 40 CFR 60.48c(g)(1), the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in 40 CFR 60.48c(f) to demonstrate compliance with the SO₂ standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these

fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.

- iii. Pursuant to 40 CFR 60.48c(g)(2), as an alternative to meeting the requirements of 40 CFR 60.48c(g)(1), the owner or operator of an affected facility or multiple affected facilities located on a contiguous property unit where the only fuels combusted in any steam generating unit (including steam generating units not subject to 40 CFR 60 Subpart Dc) at that property are natural gas, wood, distillate oil meeting the most current requirements in 40 CFR 60.42c to use fuel certification to demonstrate compliance with the SO₂ standard, and/or fuels, excluding coal and residual oil, not subject to an emissions standard (excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.
 - b. Pursuant to 40 CFR 60.48c(i), all records required under 40 CFR 60.48 shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.
13. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.

14. Pursuant to 35 Ill. Adm. Code 218.129(f), the owner or operator of each storage vessel shall maintain readily accessible records of the dimension of the storage vessel and an analysis of the capacity of the storage vessel. Each storage vessel with a design capacity less than 40,000 gallons is subject to no provisions of 35 Ill. Adm. Code Part 218 other than those required by maintaining readily accessible records of the dimensions of the storage vessel and analysis of the capacity of the storage vessel.
- 15a. The Permittee shall maintain records of the following items to demonstrate compliance with the Conditions of this permit:
 - i. Records addressing use of good operating practices for the scrubber associated with reactors R25 and R28-R30:
 - A. Records for periodic inspection of the scrubber associated with reactors R25 and R28-R30 with date, individual performing the inspection, and nature of inspection; and
 - B. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.
 - ii. Methanol generating amide production (tons/month, tons/year);
 - iii. Methanol generating amidoamine production (tons/month, tons/year);
 - iv. Methanol generating imidazoline production (tons/month, tons/year);
 - v. Non-methanol generating amide production (tons/month, tons/year);
 - vi. Non-methanol generating amidoamine production (tons/month, tons/year);
 - vii. Non-methanol generating imidazoline production (tons/month, tons/year);
 - viii. Usage of each raw material in Condition 10(d) (tons/month, tons/year);
 - ix. Boiler natural gas usage (mmscf/month, mmscf/year); and
 - x. Monthly and annual CO, NO_x, PM, PM₁₀, VOM and HAPs emissions with supporting calculations (tons/month, tons/year).
- b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer storage device) shall be capable of being retrieved and printed on paper during normal source

office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.

16. Pursuant to 35 Ill. Adm. Code 218.990, upon request by the Illinois EPA, the owner or operator of an emission unit which is exempt from the requirements of 35 Ill. Adm. Code 218 Subparts PP, QQ, RR, TT or 35 Ill. Adm. Code 218.208(b) shall submit records to the Illinois EPA within 30 calendar days from the date of the request that document that the emission unit is exempt from those requirements.
- 17a. If there is an exceedance of or a deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance or deviation. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or deviation and efforts to reduce emissions and future occurrences.
- b. Two (2) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

If you have any questions on this, please call Jocelyn Stakely at 217/785-1705.

Raymond E. Pilapil
Acting Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

REP:JRS:psj

cc: Illinois EPA, FOS Region 1
Lotus Notes

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from this organic chemical products manufacturing facility operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels at which this source would be considered a major source for purposes of the Clean Air Act Permit Program (e.g., 10 tons/year for any single HAP and 25 tons/year for combined HAPs). Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled, and control measures are more effective than required in this permit.

<u>Emission Unit</u>	E M I S S I O N S (Tons/Year)						<u>Total HAPs</u>
	<u>CO</u>	<u>NO_x</u>	<u>PM</u>	<u>SO₂</u>	<u>VOM</u>	<u>Single HAP</u>	
Boilers	9.62	11.45	0.87	0.01	0.63		
Reactors					18.08	3.52*	
Tanks							
Indoor					1.68	0.34*	2.33
Outdoor					0.65	0.43*	
Containers					3.09	1.47*	
Flaker			<u>3.72</u>				
Totals	<u>9.62</u>	<u>11.45</u>	<u>4.59</u>	<u>0.01</u>	<u>24.13</u>	<u>7.90</u>	<u>19.90</u>

* methanol

JRS:psj