

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT - REVISED

PERMITTEE

Rhodia, Inc.  
Attn: Kia Zuber  
14000 South Seeley Avenue  
Blue Island, Illinois 60406

Application No.: 72111531

I.D. No.: 031024AAY

Applicant's Designation:

Date Received: November 5, 2008

Subject: Blue Island Manufacturing Plant

Date Issued: January 23, 2009

Expiration Date: February 27, 2011

Location: 14000 South Seeley Avenue, Blue Island, Cook County

This permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of three gas fired boilers, an amide synthesis unit operation which includes two reactors, and other associated equipment; a continuous sulfation unit (SO<sub>3</sub>) operation which includes storage of molten sulfur, one sulfur burner, one catalytic converter, one acid mist eliminator, one sulfuric acid absorber, one reactor, one cyclone, neutralization equipment, deaeration equipment, one diocane stripping unit, an electro-static precipitator, one caustic scrubber and other associated equipment; a multi-purpose reactor system which includes a natural gas fired hot oil heating system, one distillation column, one condenser, two receiver tanks, a vacuum system, packed scrubber and other associated equipment; a blending operation with associated raw material and product storage pursuant to the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued:
  - i. To limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for Volatile Organic Material (VOM), 10 tons/year for any single Hazardous Air Pollutant (HAP) and 25 tons/year for any combination of such HAPs). As a result, the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit are described in Attachment A.
  - ii. To limit the potential emissions of VOM from the source to less than 25 tons/year. As a result, the source is excluded from the requirements for 35 Ill. Adm. Code Part 205, Emission Reduction Market System. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.

- 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 that the source is not subject to the requirements of 35 Ill. Adm. Code Part 218 Subpart RR (Miscellaneous Organic Chemical Manufacturing Processes), and 35 Ill. Adm. Code Part 218 Subpart TT (Other Emission Units).
  - b. Prior to initial issuance, a draft of this permit has undergone a public notice and comment period.
  - c. This permit supersedes all operating permits issued for this location.
- 2a. 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 m (1000 ft) 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.
  - c. Pursuant to 35 Ill. Adm. Code 212.301, no person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source.
3. 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/hr) to exceed 200 ppm, corrected to 50 percent excess air.
4. 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 unit, 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 shall only apply to photochemically reactive material.
- 5a. In the event that the operation of this source 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. For the continuous sulfation unit operations, the scrubber must be in operation during production process.
- c. For the multi-purpose reactor system, the scrubber must be in operation during production process. During general blending operations, the scrubber does not need to be in operation.
- d. For the blending operations, the blended products judged to have measurable partial vapor pressures (> 30 mmHg @ 100°F) will be produced in closed tanks.
- e. The boilers shall only be operated with natural gas or liquid propane as the fuel. 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.

6a. Operation of the source shall not exceed the following limits:

- i. The throughput for the amide synthesis unit operation shall not exceed the following limits:

Maximum Throughput	
<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
1,000	10,000

- ii. The throughput for the continuous sulfation unit operation shall not exceed the following limits:

Maximum Throughput	
<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
5,208	52,080

- iii. The throughput for the multi-purpose reactor/blending (agricultural and flammable blending) operation shall not exceed the following limits:

Maximum Throughput	
<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
4,200	42,000

- b. The VOM emissions from the amide synthesis unit, continuous sulfation unit and blending operations shall not exceed the following limits:

Amide Synthesis Unit	=	4.7 tons/year
Continuous Sulfation Unit	=	8.2 tons/year
Multi-Purpose Reactor System	=	0.44 tons/year
Fugitive Emissions (Total)	=	<u>1.13 tons/year</u>
Total	=	14.47 tons/year

These emission limits are based on the maximum production allowed and using standard emission factors for storage and filling operations and using the vapor pressures of the materials used and engineering estimates for process emissions. The fugitive emissions are based on the leak detection and repair (LDAR) program for all

units in light liquid service being in place and using standard emission factors for equipment leak estimates (SOCMI factors).

c. Emissions and operation of the miscellaneous blending operation shall not exceed the following limits:

i. Production rate:

	Maximum Throughput	
<u>(Tons/Month)</u>		<u>(Tons/Year)</u>
10,000		100,000

ii. VOM emissions:

	VOM Emissions	
<u>(Tons/Month)</u>		<u>(Tons/Year)</u>
0.04		0.44

These emission limits are based on the maximum production allowed and using standard emission factors for storage and filling operations and using the vapor pressures of the materials used and engineering estimates for process emissions. The fugitive emissions are based on the leak detection and repair (LDAR) program for all units in light liquid service being in place and using standard emission factors for equipment leak estimates (SOCMI factors).

d. Emissions and operation of SO<sub>x</sub> scrubber shall not exceed the following limits:

	SO <sub>x</sub> Emissions	
<u>Item of Equipment</u>	<u>(Lb/Hour)</u>	<u>(Tons/Year)</u>
SO <sub>x</sub> Scrubber	0.61	2.66

These limits are based on maximum material throughput and 8,760 operating hours per year.

e. This permit is issued based on negligible emissions of volatile organic material (VOM) from the storage. For this purpose, emissions from all the storage tanks shall not exceed nominal emissions rates of 0.12ton/month and 1.20 ton/year.

f. Emissions and operations of the boilers shall not exceed the following limits:

i. Natural Gas Usage:

<u>Item of Equipment</u>	<u>Firing Rate</u> <u>(mmBtu/Hour)</u>
Boiler	14.2
Boiler	4.2
Boiler	<u>4.2</u>
Total:	22.6

ii. Emissions from the combustion of natural gas:

Emission Factor	Emissions
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<u>Pollutant</u>	<u>(lbs/mmscf)</u>	<u>(lb/hour)</u>	<u>(Tons/Yr)</u>
Carbon Monoxide (CO)	84.0	1.90	8.31
Nitrogen Oxides (NO <sub>x</sub> )	100.0	2.26	9.90
Particulate Matter (PM)	7.6	0.17	0.75
Sulfur Dioxide (SO <sub>2</sub> )	0.6	0.01	0.06
Volatile Organic Material (VOM)	5.5	0.12	0.54

These limits are based on the maximum fuel usage and standard emission factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998).

7. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act from the 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.
8. 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).
- 9a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:
  - i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.
  - ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.

- b. Testing required by Condition 10 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.
10. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.
- 11a. For all units in light liquid services, the Permittee shall conduct a component inspection program using the test methods specified in Method 21 of 40 CFR 60, Appendix A, consistent with the following provisions:
- i. Test annually those components operated near extreme temperature or pressure.
  - ii. Test quarterly all other pumps in light liquid service, valves in light liquid service and compressors.
  - iii. If less than or equal to 2 percent of the valves in light liquid service and in gas service tested as required in Condition 11(a)(ii) are found to leak for five consecutive quarters, no leak tests shall be required for three consecutive quarters.
  - iv. Observe visually all pump seals weekly.
  - v. Test immediately any pump seal from which liquids are observed dripping.
  - vi. Test immediately after repair any component that was found leaking.
  - vii. Within one hour of its detection, a weatherproof, readily visible tag, in bright colors such as red or yellow, bearing an identification number and the date on which the leak was detected must be affixed on the leaking component and remain in place until the leaking component is repaired.
  - viii. The following components are exempt from the inspection program required by Condition 11(a):
    - A. Any component that is in vacuum service; and
    - B. Any pressure relief valve that is connected to any operating flare header or vapor recovery device.
- b. All leaking components must be repaired and retested as soon as practicable but no later than 15 days after the leak is found, unless the leaking component cannot be repaired until the process unit is shut down.

12. 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 the following records so as to demonstrate compliance with the conditions of this permit:
  - i. Throughput rate (tons/month and tons/year) of:
    - A. Amide Synthesis Unit Operation.
    - B. Continuous Sulfation Unit Operation.
    - C. Multi-Purpose Reactor System Operation.
    - D. Blending Operation.

- ii. Material Safety Data Sheets (M.S.D.S.) of raw materials used in the process listed in Condition 10(a)(i) A through D.
  - iii. Monthly records of hazardous air pollutant (HAP) content of all materials used in all processes at the facility.
  - iv. The Permittee shall also maintain a leaking components monitoring log which shall contain the following information:
    - A. The name of the process unit where the component is located.
    - B. The type of component (e.g., valve, seal).
    - C. The identification number of the component.
    - D. The date on which a leaking component is discovered.
    - E. The date on which a leaking component is repaired.
    - F. The date and instrument reading of the recheck procedure after a leaking component is repaired.
    - G. A record of the calibration of the monitoring instrument.
    - H. The identification number of leaking components which cannot be repaired until process unit shutdown.
    - I. The total number of valves in light liquid service inspected; the total number and the percentage of these valves found leaking during the monitoring period.
  - v. Monthly and annual CO, NO<sub>x</sub>, PM, SO<sub>2</sub>, VOM and HAP emissions from the source (including fugitive emissions) with supporting calculations (tons/month and 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 and USEPA upon request. Any records retained in an electronic format (e.g., computer) 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 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.
17. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate

compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.

19a. 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 exceedances 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

It should be noted that this permit has been revised to incorporate Construction Permit #08110008 to increase production throughput for the miscellaneous blending operation and the removal of the CSA sulfation unit.

If you have any questions on this, please call George Kennedy at 217/782-2113.

Edwin C. Bakowski, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

Date Signed: \_\_\_\_\_

EDB:GMK:jws

cc: Region 1

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from the blue island manufacturing plant 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, (e.g., 100 tons per year of VOM, 10 tons per year for a single HAP, and 25 tons per year for any combination of such HAP) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. 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>Single HAP</u>	<u>Total HAPs</u>
	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>SO<sub>2</sub></u>	<u>VOM</u>		
Amide Synthesis Unit					4.70		
Continuous Sulfation Unit					8.20		
Blending Operation					0.44		
Storage Tanks					1.20		
Multi Purpose Reactor System					0.44		
Fugitive Emissions (Total)					1.13		
Boilers	8.31	9.90	0.75	0.06	0.54		
Scrubber	--	--	--	<u>2.66</u>	--	--	--
Totals	8.31	9.90	0.75	<u>2.72</u>	16.65	7.9	19.9

GMK:jws