

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT

PERMITTEE

Albright and Wilson Americas Inc.  
Attn: William T. Stewart  
14000 South Seeley Avenue  
Blue Island, Illinois 60406

<u>Application No.:</u> 72111531	<u>I.D. No.:</u> 031024AAY
<u>Applicant's Designation:</u>	<u>Date Received:</u> August 19, 1999
<u>Subject:</u> Blue Island Manufacturing Plant	
<u>Date Issued:</u> March 24, 2000	<u>Expiration Date:</u> March 24, 2005
<u>Location:</u> 14000 South Seeley Avenue, Blue Island	

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, two condensers, two methanol receiver tanks and two liquid ring vacuum pumps; a CSA sulfation unit operation which includes three reactors, one HCl absorption system, nine storage tanks; a continuous sulfation unit (SO<sub>3</sub>) operation which includes one reactor, a catalytic converter, one cyclone, one Fischer Klestermanh scrubber, nine storage tanks, and a H<sub>2</sub>SO<sub>4</sub> absorber/demister unit; a multi-purpose reactor system with packed scrubber; a blending operation which includes ten closed tanks, thirty-six open and closed top tanks, sixteen open top multipurpose tanks used for blending, storage and product adjustments 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 to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 25 tons/year of VOM, 10 tons/year for a single HAP and 25 tons/year for total HAP). As a result the source is excluded from the requirement 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.
- b. Prior to 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.

2. The multiple purpose reactor system, amide synthesis unit, CSA sulfation unit, continuous sulfation unit and blending operations are not subject to the control requirements of 35 Ill. Adm. Code 218.966 and 218.986, as the facility wide VOM emissions are limited in a federally enforceable permit to keep the VOM emissions under 25 tons/year.

3a. 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 CSA sulfation unit operation shall not exceed the following limits:

Maximum Throughput	
<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
1,650	16,500

iii. 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

iv. The throughput for the multi-purpose reactor system operation shall not exceed the following limits:

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

v. The throughput for the blending operation shall not exceed the following limits:

Maximum Throughput	
<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
3,500	35,000

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

Amide Synthesis Unit	=	4.7	tons/year
CSA Sulfation Unit	=	0.2	tons/year
Continuous Sulfation Unit	=	9.9	tons/year
Blending Operation	=	0.2	tons/year
Multi-Purpose Reactor System	=	0.44	tons/year
Fugitive Emissions (Total)	=	8.2	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).

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

<u>Item of Equipment</u>	<u>SO<sub>x</sub> Emissions</u>	
	<u>(Lb/Hr)</u>	<u>(T/Yr)</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. Compliance with annual limits shall be determined from a running total of 12 months of data.

5. Compliance with the annual limits shall be determined from a running total of 12 months of data, i.e., current month's data plus the preceding 11 months.
6. The emissions of HAPs as listed in Section 112(b) of the Clean Air Act shall not exceed 10 tons per year of any single HAP or 25 tons per year of any combination of such HAPs, or such lesser quantity as USEPA may establish in rule which would require the Permittee to obtain a CAAPP permit from the Illinois EPA. 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.
- 7a. 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, incorporated by reference in 35 Ill. Adm. Code 218.112, 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 6(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 6(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.
- 8a. For the amide synthesis unit operations, the amide reactions shall not be started until a water cooled condenser is in operation. The outlet temperature from the condenser shall not exceed 100°F.
- 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.
- 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.
- 9a. Only natural gas or liquid propane shall be the fuel burned in the boilers.
- b. Operations of the boilers and associated VOM emissions shall not exceed the following limits:

<u>Item of Equipment</u>	<u>Firing Rate (mmBtu/Hr)</u>	<u>VOM Emissions</u>	
		<u>(Lb/Hr)</u>	<u>(Tons/Yr)</u>
Boiler	14.2	0.1	0.44
Boiler	4.2	0.02	0.10
Boiler	4.2	0.02	0.10

The emission limits are based on the maximum firing rate and standard emission factors. Compliance with annual limits shall be determined based on a running total of 12 months of data.

- 10a. The Permittee shall maintain the following records to check compliance with the limitations of this permit:
  - i. Throughput rate in tons/month and tons/year of:
    - A. Amide Synthesis Unit Operation.
    - B. CSA Sulfation Unit Operation.
    - C. Continuous Sulfation Unit Operation.
    - D. Multi-Purpose Reactor System Operation.
    - E. Blending Operation.
  - ii. Material Safety Data Sheets (M.S.D.S.) of raw materials used in the process listed in Condition 9(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. VOM and HAP emissions from individual processes including fugitive emissions in tons/month and tons/year.

- v. 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.
- b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three 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 request for records during the course of a source inspection.
- 11. If there is an exceedance of 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. 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 violation and efforts to reduce emissions and future occurrences.

12. No person shall cause or allow any visible emissions of fugitive particulate matter from any process, including any material handling or storage activity beyond the property line of the emission source, pursuant to 35 Ill. Adm. Code 212.301.
13. The Permittee shall submit the following additional information with the Annual Emission Report, due May 1st of each year:
  - a. Annual raw material usage and throughput for:
    - i. Amide Synthesis Unit Operation.
    - ii. CSA Sulfation Unit Operation.
    - iii. Continuous Sulfation Unit Operation.
    - iv. Multi-Purpose Reactor Unit Operation.
    - v. Blending Operation.

If there have been no exceedances during the prior calendar year the Annual Emission Report shall include a statement to that effect.

14. Two (2) copies of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system 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  
Eisenhower Tower  
1701 South First Avenue  
Maywood, Illinois 60153

It should be noted that the multi-purpose reactor system has been incorporated into this permit.

Page 8

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

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:JDC:jar

cc: Illinois EPA, FOS Region 1  
Illinois EPA, Compliance Section  
USEPA

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 well below the levels 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.

1. Emissions of volatile organic material from the facility wide operation:

a.	i.	Amide Synthesis Unit	=	4.7	tons/year
	ii.	CSA Sulfation Unit	=	0.2	tons/year
	iii.	Continuous Sulfation Unit	=	9.9	tons/year
	iv.	Multi-Purpose Reactor	=	0.44	tons/year
	v.	Blending Operation	=	0.2	tons/year
	vi.	Three Boilers	=	0.64	tons/year
	vii.	Fugitive Emissions (Total)	=	8.20	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).

- b. Emissions of VOM from all other activities at the facility are insignificant and shall not exceed nominal hourly emission rate and 0.44 ton/year.

$$\begin{aligned} \text{Total facility wide VOM} &= 4.7 + 0.2 + 9.9 + 0.44 + 0.2 + 0.64 \\ &+ 8.2 + 0.44 = 24.72 \text{ tons/year} \end{aligned}$$

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

<u>Item of Equipment</u>	<u>SO<sub>x</sub> Emissions</u>	
	<u>(Lb/Hr)</u>	<u>(T/Yr)</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. Compliance with annual limits shall be determined from a running total of 12 months of data.

3. The emissions of HAPs as listed in Section 112(b) of the Clean Air Act shall not exceed 10 tons per year of any single HAP or 25 tons per year of any combination of such HAPs, or such lesser quantity as USEPA may establish in rule which would require the Permittee to obtain a CAAPP permit from the Illinois EPA. 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.

JDC:jar

