

217/785-1705

CONSTRUCTION PERMIT

PERMITTEE

Koppers Industries, Inc.
Attn: Richard Wagner
3900 South Laramie Avenue
Cicero, Illinois 60804

Application No.: 11100041

I.D. No.: 031300AAJ

Applicant's Designation:

Date Received: October 24, 2011

Construction of: New Tube Heater for Tar Distillation System #2

Date Issued: June 14, 2012

Source Location: 3900 South Laramie Avenue, Cicero, Cook County

This Permit is hereby granted to the above-designated Permittee to CONSTRUCT emissions source(s) and/or air pollution control equipment consisting of a new Tube Heater for Tar Distillation System #2 as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1. Introduction

- a. This permit authorizes construction of a new heater (the affected unit) for Tar Distillation System #2 (the affected system). The affected unit will serve as the afterburner control device for waste process gases from the distillation column in the affected system and as the reboiler for the affected system, heating the feed to the distillation column. The affected unit would replace the existing afterburner-heater for the affected system. The new unit would be constructed from the shell of the heater for the Naphthalene Distillation System, which has been idle for a number of years, and various new components, i.e., new burner systems, fuel train, heat exchange tubing and exhaust stack.
- b. This permit does not authorize any changes to the affected system that would increase its production capacity.
- c. This permit does not revise or relax requirements for the affected system, as addressed in the Clean Air Act Permit Program (CAAPP) for the source, Permit 96030134.

2. Applicable Emission Standards

- a. The affected unit is subject to 35 IAC 212.123(a), which generally provides that the emissions of smoke or other PM, from emission units shall not have an opacity greater than 30 percent into atmosphere.
- b. The affected unit is subject to 35 IAC 214.301, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2,000 ppm.

3. Non-Applicability Provisions

- a. This permit is issued based on this project not being a major modification under federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, or state rules for Major Stationary Sources Construction and Modification (MSSCAM), 35 IAC Part 203. For emissions of SO₂, the net increase in emissions will not be significant after considering the decrease in emission that will occur from the shutdown of the existing emission heater. (See Attachment 1)
- b. The affected system is not subject to the National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry, etc., 40 CFR 63 Subparts F, G, and H. This is because the primary products manufactured by the affected system are not listed in 40 CFR 63.100(b)(1)(i) or (b)(1)(ii).
- c. The affected system is not subject to Standards of Performance for New Stationary Sources for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations, 40 CFR 60 Subpart NNN. This is because construction of the affected system was commenced prior to December 30, 1983.

4. Applicable Work Practices

- a. Natural gas and the process waste gas from the plant shall be the only fuels fired in the affected unit.
- b. The total rated capacity of the natural gas burners in the affected unit shall not exceed 14 mmBtu/hour.
- c. The Permittee shall operate and maintain the affected system in accordance with written procedures developed and maintained by the Permittee. These procedures shall provide for good air pollution control practices to minimize emissions and shall include the Permittee's standard operating procedures for startup, normal operation, and shutdown of the affected system and address likely malfunction and upsets events for the affected system.
- d. Upon completion of shakedown of the affected unit but in no case later than 180 days after initial startup of the affected unit, the Permittee shall permanently shut down the existing heater for the affected system.

5. Emission Limits

The emissions of affected system shall not exceed the following limits. Compliance with the annual limits shall be determined from a running total of 12 months of data.

Pollutant	Limit	
	Lbs/Hour	Tons/Year
CO	3.0	13.1
NO _x	6.0	26.2
PM/PM ₁₀	0.5	2.2
SO ₂	41.4	181.2
VOM	3.0	13.1

6. Operational Monitoring

- a. The combustion chamber temperature of the affected unit shall be maintained above 1,000°F or at a temperature that is consistent with the manufacturer's recommended minimum operating temperature or, once testing has been conducted demonstrating compliance with applicable requirements, the minimum operating temperature during emission testing.
- b. The combustion chamber of the affected unit shall be preheated to the manufacturer's recommended temperature or a temperature that is consistent with the most recent emission test in which compliance was demonstrated, prior to operating the affected system. The affected unit shall be equipped with a combustion chamber temperature indicator and strip chart recorder (or other approved digital storage device). This device shall record the temperature of the exhaust gases at the exit of the chamber combustion zone of the affected unit.

7. Requirements for Sampling and Analyzing of Process Waste Gas

- a. The Permittee shall conduct representative sampling for the process waste gas sent to the affected unit. The samples shall be analyzed for sulfur content (percent by volume, for H₂S, COS, CS₂ and total sulfur) and heat content (Btu/cubic foot) of the process waste gas. This sampling and analysis of the process waste gas shall initially be conducted within 180 days of the initial startup of the affected unit. Thereafter, at least two more samples shall be taken and analyzed, between 9 and 12 months of the previous sampling and analysis.
- b. The Permittee shall keep records for this activity, including the date of sampling and operating condition of the affected system, sampling methodology, identity of analyst, the analysis methods and the results of the analysis.

- c. The Permittee shall submit the results of each analysis to the Illinois EPA with the Annual Emission Reports following the analysis.

8. Testing Requirements

Within 60 days of a written request from the Illinois EPA or the date agreed upon by the Illinois EPA, whichever is later, the Permittee shall have emission tests conducted for NO_x and VOM emissions, and VOM control efficiency (comparing VOM in process waste gas and in the exhaust) of the affected unit. These tests shall be conducted by an approved independent testing service during conditions that are representative of maximum emission using standard USEPA test methods, as specified in the CAAPP permit for the source.

9. Recordkeeping Requirements

- a. The Permittee shall maintain the following records for the affected unit:
 - i. The rated heat input of the natural gas burners in the affected unit, mmBtu/hour, with supporting documentation.
 - ii. Design data for the maximum and typical rate of process waste gas combusted (scf/hour and mmBtu/hour), i.e., used as the fuel for the affected unit, and typical gross and net heat content of the process waste gas.
- b. The Permittee shall maintain the following records related to emissions of the affected unit:
 - i. The SO₂ emission factor and maximum hourly emission rates used by the Permittee to determine SO₂ emissions from the affected unit, with supporting documentation and calculations.
 - ii. The hourly emission rates or emission factors, and maximum hourly emission rates for emissions of pollutants other than SO₂ used by the Permittee to determine emissions of the affected unit, with supporting documentation and calculations.
- c. The Permittee shall maintain the following operating records for the affected system:
 - i. The operating hour of the affected system (hours/month and hours/year).
 - ii. The natural gas usage of the affected unit (scf/month and scf/year).

- iii. The amount of process waste gas generated by the affected system (scf/month and scf/year), with supporting calculations. This data and the data required by condition 9(c)(iv) may be determined directly or indirectly, being calculated from operating hours and/or operation data recorded for the affected system.
 - iv. The amount of process waste gas sent to the affected unit (scf/month and scf/year).
 - d. The Permittee shall maintain records of the monthly and annual CO, NO_x, PM, SO₂, and VOM emissions from the affected unit based on appropriate emission rates or factors and operating data, with supporting calculations.
 - e. The Permittee shall maintain records for upsets in the operation of the affected unit that could generate additional emissions, with a description of the incident, explanation, and corrective actions and any preventative measures taken, and an estimate of the additional emissions that occurred, with supporting calculations and background information.
 - f. 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 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.
10. If there is a deviation from the requirements of this permit, the Permittee shall submit a report to the Illinois EPA within 30 days after the deviation or such later time as specified in the CAAPP permit at the source. The report shall describe the deviation, the probable cause of deviation, the corrective actions that were taken, and any action taken to prevent future occurrences.
11. Two copies of required reports 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 copy shall be sent to the Illinois EPA's regional office:

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

12. The Permittee may operate the affected unit and system under this construction permit until the CAAPP permit is revised to address this unit. This Condition supersedes Standard Condition 6.

If you have any questions on this Permit, please contact Wei Han or Minesh Patel at 217/785-1705.

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

Date Signed: _____

ECB:WH:psj

cc: Region 1

Attachment 1: Evaluation of Net Change in Emissions of SO₂ (Tons/Yr)

Project Increase ¹	181.2
Project Decrease ²	-154.5
Contemporaneous Changes from Other Projects ³	2.0
Net Emissions Change ⁴	28.7
Significant Increase Level	40

Notes:

1. Project Increase is the permitted SO₂ emission of the affected unit.
2. Project Decrease, for the shutdown of existing heater for Tar Distillation System #2, is based on data for actual operation of existing heater provided in the application for 2009 and 2010. The shutdown of the existing heater will also be accompanied by decreases in emissions of NO_x, CO, VOM and PM/PM₁₀, projected at 11.6, 1.3, 5.0 and 0.4 tons/year, respectively.
3. Contemporaneous Changes in emission from other projects accounts for the increase and decrease in emissions of SO₂ from other project that occurred at the source during the applicable five-year contemporaneous period (February 2007 to February 2012). It includes permitted SO₂ emission of the thermal oxidizer for the pitch tanks and other equipment, as addressed by Construction Permit 08040005.
4. Net Emission change is the total of Project Emissions, Project Decrease and Contemporaneous Changes.

WH:psj