

Facility ID: 0204000417 Issuance type: Final State Permit To Operate

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In addition to the terms and conditions, hyperlinks have been inserted into the document so you may more readily access the section of the document you wish to review.

Finally, the term language under "Part II" and before "A. Applicable Emissions Limitations..." has been added to aid in document conversion, and was not part of the original issued permit.

\*\*\*THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION\*\*\*

Facility ID: 0204000417 Emissions Unit ID: P001 Issuance type: Final State Permit To Operate

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## Part II - Special Terms and Conditions

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
  - (a) None.

### A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Sodium dialkyldithiophosphate and zinc dialkyldithiophosphate process: including reactor R11 with a condenser, reactor R12 with a condenser, a neutralization tank (T213), a caustic scrubber (T214) with a condenser to control H2S and OC emissions, and a back-up packed bed scrubber (OC water scrubber) with a mist eliminator to control OC emissions.	OAC rule 3745-31-05(A)(3) PTI 02-15609	The organic compound (OC) emissions shall not exceed 77.3 lbs/day and 14.1 tons/year. The hydrogen sulfide (H2S) emissions shall not exceed 0.02 lb/hr and 0.09 ton/year. Compliance with the Air Toxic Policy as specified in sections C.5.-C.7.

2. **Additional Terms and Conditions**
  - (a) None

### B. Operational Restrictions

1. The temperature of the R11 reactor condenser exhaust shall be continuously maintained at a value no greater than 85 degrees Fahrenheit.
2. The temperature of the R12 reactor condenser exhaust shall be continuously maintained at a value no greater than 89 degrees Fahrenheit.
3. Prior to the start of each batch process, the sodium hydroxide concentration of the caustic scrubber liquor shall be maintained at or above 20%.
4. The caustic scrubber inlet vacuum pressure shall be continuously maintained at 5 inches of water gauge or greater, in accordance with the manufacturer's recommendations, instructions and operating manuals at all times while the emissions unit is in operation.
5. The back-up packed bed scrubber (OC water scrubber) water inflow shall be maintained at 1.5 gallons per minute or greater while the temperature of the R11 reactor condenser exhaust or the temperature of the R12 reactor condenser exhaust is 83 degrees Fahrenheit or greater.

### C. Monitoring and/or Record Keeping Requirements

1. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the temperature from the R11 condenser exhaust and from the R12 condenser exhaust when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The accuracy for each thermocouple, monitor, and recorder shall be guaranteed by the manufacturer to be within + 1 percent of the temperature being measured or + 5 degrees Fahrenheit, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals. The permittee shall collect and record the following information each day:
  - a. The temperature of the R11 reactor condenser exhaust; and
  - b. The temperature of the R12 reactor condenser exhaust.
2. Prior to the start of each batch process, the permittee shall collect and record the following information each day for the caustic scrubber:

- a. the original sodium hydroxide concentration of the scrubber liquor;
    - b. the concentration, in percent, and the gallons of caustic solution (sodium hydroxide) to be added to the scrubber liquor;
    - c. the scrubber liquor level within the holding tank, in inches; and
    - d. the inlet gas vacuum pressure, in inches of water gauge, on a once per eight hour period basis.
  3. The permittee shall collect and record the packed bed scrubber (OC water scrubber) water inflow rate in gallons per minute, on a once per eight hour period basis.
  4. The permittee shall collect and record the following information each week for this emissions unit:
    - a. the dates of the weekly period;
    - b. the actual number of hours the emissions unit was in operation during the week;
    - c. the total raw materials throughput, in pounds per week; and
    - d. the average daily OC emission rate for all raw materials employed.
  5. The permit to install for this emissions unit was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant(s):
 

Pollutant: 4-methyl-2-pentanol  
 TLV (ug/m3): 104,496  
 Maximum Hourly Emission Rate (lbs/hr): 3.0067  
 Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 71  
 MAGLC (ug/m3): 2,488
  6. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:
    - a. changes in the composition of the materials used (typically for coatings or cleanup materials), or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
    - b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
    - c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).
  7. If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.
 

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

    - a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
    - b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
    - c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.
- D. Reporting Requirements**
1. The permittee shall submit quarterly deviation (excursion) reports that identify all consecutive 24-hour blocks of time during which the temperature of the R11 condenser exhaust and the R12 condenser exhaust exceeded the temperature limitation specified in sections B.1. and B.2., respectively.
  2. The permittee shall submit quarterly deviation (excursion) reports that identify all periods of time prior to the start of each batch when the resulting sodium hydroxide concentration of the caustic scrubber liquor did not comply with the requirement specified in section B.3.
  3. The permittee shall submit quarterly deviation (excursion) reports that identify all periods of time during which the caustic scrubber inlet gas vacuum pressure did not comply with the requirement specified in section B.4.
  4. The permittee shall submit quarterly deviation (excursion) reports that identify all periods of time during which the packed bed (OC water) scrubber inlet water flow did not comply with the requirement specified in section B.5.

5. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the 77.3 lbs/day OC emission limitation.

**E. Testing Requirements**

1. Compliance with the allowable emission limitations in section A.1. of these terms and conditions shall be determined in accordance with the following methods:  
Emission Limitation: 77.3 lbs OC/day.

Applicable Compliance Method: Compliance shall be demonstrated in accordance with the record keeping requirements specified in section C.4. Compliance may be determined based upon the following equation:

$$E(OC) = [\text{summation of } (Wi)]/HRS \times 24 \text{ hrs/day} \times EF(OC).$$

where:

E(OC) = OC emissions, in pounds per day, average.

Wi = the weight of raw material "i" processed, in pounds per week.

HRS = the actual number of hours the emissions unit was in operation during the week, as specified in section C.4.

EF(OC) = the emission factor for OC emissions, which is 0.00137 pound OC emissions per lb raw material, as developed from data collected during a U.S. EPA Method 25A stack test conducted on October 25 & 26, 2000 on this emissions unit.

If required, the permittee shall demonstrate compliance with this emission limitation through emission tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 25A. Alternative, equivalent U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.  
Emission Limitation: 14.1 TPY OC.

Applicable Compliance Method: Compliance shall be based on the sum of the daily OC emission rates, E(OC), as specified in section E.1.a. of this permit for the calendar year, and shall be divided by 2000 pounds/ton.  
Emission Limitation: 0.02 lb H2S/hr.

Applicable Compliance Method: Compliance was demonstrated by an average emissions rate of 0.0000027 lbs H2S/hr as determined from a U.S. EPA Method 15 test conducted on November 3, 1999 on this emissions unit. If required, the permittee shall demonstrate compliance with this emission limitation through emission tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 15. Alternative, equivalent U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.  
Emission Limitation: 0.09 TPY H2S.

Applicable Compliance Method: Compliance shall be based on the product of the hourly H2S emission rates, as specified in section E.1.c. of this permit, and the sum of the daily operating hours, as required by section C.4. for the calendar year, which shall be divided by 2000 pounds/ton.

2. Any determination of sodium hydroxide (NaOH) content (percent by weight) of the scrubber liquor shall be made prior to the addition of any concentrated caustic solution to the scrubber liquor holding tank. The permittee shall determine the NaOH content, prior to caustic solution addition, by the hydrochloric acid titration procedure for NaOH determination in sodium sulfhydrate (NaSH) method, as submitted on August 18, 1999. An equivalent, alternative method (as approved by Ohio EPA) may be performed on the scrubber liquor(s).

**F. Miscellaneous Requirements**

1. None