

Air Emission Summary

The air contaminant emissions units listed below comprise the Permit to Install for Detrex Corporation - Chemicals Div. located in Ashtabula County. The emission units listed below shall not exceed the emission limits/control requirements contained in the table. This condition in no way limits the applicability of any other state or federal regulations. Additionally, this condition does not limit the applicability of additional special terms and conditions of this permit.

| Ohio EPA Emission Unit No. | Emission Unit Identification Description  | BAT Determination               | Applicable Federal & OAC Rules   | Permit Allowable Mass Emissions and/or Control/Usage Requirements  |
|----------------------------|---|---------------------------------|--|--|
| P002                       | Pyrrole System #2:<br><br>0.75 MMBTU/hr natural gas-fired heater<br><br><br><br><br><br><br><br><br><br>pyrrole and n-methyl pyrrole production | Use of natural gas as the fuel. | 3745-17-07(A)(1)<br><br>3745-31-05<br><br>3745-17-10(B)(1)<br><br>3745-21-08(B)<br><br>3745-31-05<br><br>3745-23-06(B)<br><br>3745-31-05<br><br>3745-21-07(G)(2)<br><br>3745-31-05<br><br>3745-31-05 | *<br><br>No visible particulate emissions will be permitted.<br><br>PM emissions shall be limited to 0.020 lbs/MMBTU and 0.066 TPY.<br><br>*<br><br>CO emissions shall be limited to 0.066 TPY.<br><br>*<br><br>NO <sub>x</sub> emissions shall be limited to 0.31 TPY.<br><br>*<br><br>OC emissions shall be limited to 0.72 lbs/hr, 17.3 lbs/day and 3.16 TPY<br><br>Ammonia emissions shall be limited to 0.10 lbs/hr and 0.44 TPY. |

\* The emissions limit based on this applicable rule is less stringent than the limit established pursuant to OAC rule 3745-31-05.

**SUMMARY**

**TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS**

| <u>Pollutant</u> | <u>Tons/Year</u> |
|------------------|------------------|
| PM               | 0.066            |
| CO               | 0.066            |
| NO <sub>x</sub>  | 0.31             |
| OC               | 3.16             |
| Ammonia          | 0.44             |

ADDITIONAL SPECIAL TERMS AND CONDITIONSIntroduction

The company manufactures hydrochloric acid, pyrrole and n-methyl pyrrole. This permit is for the installation of a second pyrrole system (P002), where either pyrrole or n-methyl pyrrole can be made at a time.

A. Operational Requirements

1. Natural gas shall be employed as the fuel in a burner with a rated capacity of no more than 0.75 MMBTU/hr.
2. A pilot flame shall be maintained at all times in the flare's pilot light burner, associated with the gas recovery and condenser system.
3. Pursuant to Engineering Guide #69, modeling to demonstrate compliance with the Ohio EPA's Air Toxic Policy was not necessary since the emissions unit's maximum annual emissions for each toxic compound will be less than 1.0 ton. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant that has a listed TLV to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.

B. Record Keeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas in the 0.75 MMBTU/hr heater, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall properly install, operate, and monitor the pilot flame, at least once during each eight hour period, when the emissions unit is in operation. The permittee shall record the following information each day:
  - a. All periods during which there was no pilot flame.
  - b. The operating times for the flare and the associated emissions unit.

C. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit.
2. The permittee shall submit deviation (excursion) reports that identify all periods during which the pilot flame was not functioning properly. The reports shall include the date, time,

and duration of each such period.

3. The deviation (excursion) reports shall be submitted quarterly, I. e., by January 31, April 30, July 31 and October 31 of each year and shall cover the previous calendar quarter. If no deviations occur, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter.

D. Testing Requirements

1. Compliance with the emissions limitation(s) noted in the Air Emission Summary of this permit shall be determined in accordance with the following method(s):

- a. Emission Limitation: No visible PM emissions from the natural gas-fired heater.

Applicable Compliance Method: Compliance shall be determined based upon OAC rule 3745-17-03(B)(1) using the methods and procedures specified in U.S. EPA Reference Method 9.

- b. Emission Limitation: 0.72 lbs OC/hr from the production process

Applicable Compliance Method: To determine the actual worst case emission rate the permittee shall employ the following:

- i. Determination of maximum furan emissions, E(FURAN) in lbs/hr:

$$E(\text{FURAN}) = \text{PWR}(\text{FURAN}) \times \text{EF}(\text{FURAN}).$$

PWR(FURAN) = maximum process weight rate of available furan, 40 lbs/hr.

EF(FURAN) = emission factor, 0.001 pounds of furan per pound of available furan, as determined from engineering estimates submitted with the permit to install application.

- ii. Determination of maximum monomethylamine (MMA) emissions, E(MMA) in lbs/hr:

$$E(\text{MMA}) = \text{PWR}(\text{MMA}) \times \text{EF}(\text{MMA}).$$

PWR(MMA) = maximum process weight rate of available monomethylamine, 16 lbs/hr.

EF(FURAN) = emission factor, 0.01 pounds of monomethylamine per pound of available monomethylamine, as determined from engineering estimates submitted with the permit to install application.

- iii. Determination of maximum n-methylpyrrole (NMP) emissions, E(NMP) in lbs/hr:

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$$E(\text{NMP}) = \text{PWR}(\text{NMP}) \times \text{EF}(\text{NMP}).$$

$\text{PWR}(\text{MMA})$  = maximum process weight rate of available n-methylpyrrole, 40 lbs/hr.

$\text{EF}(\text{FURAN})$  = emission factor, 0.01 pounds of n-methylpyrrole per pound of available n-methylpyrrole, as determined from engineering estimates submitted with the permit to install application.

[Note:  $E(\text{PYRROLE}) = E(\text{NMP})$ . The pyrrole emission rate is equivalent to the n-methylpyrrole emission rate since the process weight rate and the emission factor is the same. Only one of these products can be manufactured at a time.]

- iv. Determination of maximum, total organic compound emissions from the production process,  $E(\text{OC}, \text{HR})$  in lbs/hr:

$$E(\text{OC}, \text{HR}) = E(\text{FURAN}) + E(\text{MMA}) + E(\text{NMP}).$$

If required, use of U.S. EPA Method 18, 25 or 25A shall be employed as appropriate.

- c. Emission Limitation: 17.3 lbs OC/day from the production process

Applicable Compliance Methods: To determine the maximum worst case emission rate for total organic compounds from the production process,  $E(\text{OC}, \text{DAY})$ , in lbs/day, the permittee shall employ the following:

$$E(\text{OC}, \text{DAY}) = E(\text{OC}, \text{HR}) \times 24 \text{ HR/DAY}.$$

- d. Emission Limitation: 3.16 TPY OC from the production process

Applicable Compliance Method: To determine the maximum worst case emission rate for total organic compounds from the production process,  $E(\text{OC}, \text{YR})$ , in tons/year, the permittee shall employ the following:

$$E(\text{OC}, \text{YR}) = [E(\text{OC}, \text{HR}) \times 8760 \text{ HR/YR}] / (2000 \text{ LBS/TON}).$$

2. Any determination of organic compound content, solids content, or density of a material shall be based on the material as employed, including the addition of any thinner or viscosity reducer to the material. The permittee shall determine the composition of the material by formulation data supplied by the manufacturer or from data determined by an analysis of each material, as received, by U.S. EPA Reference Method 24 as referenced in 40 CFR Part 60, Appendix A. If formulation data is employed, the Ohio EPA may require the permittee to have a Reference Method 24 analysis or an equivalent, alternative method (as approved by Ohio EPA) performed on the material(s).

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E. Miscellaneous Requirements

None.