



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL  
LUCAS COUNTY**

**CERTIFIED MAIL**

Street Address:

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov.  
Center

**Application No: 04-01164**

**DATE: 3/15/00**

Marsulex Inc  
DUANE ABBOTT  
6800 W CENTRAL AVE, STE L-1  
TOLEDO, OH 43617

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission  
236 East Town Street, Room 300  
Columbus, Ohio 43215

Very truly yours,

Thomas G. Rigo  
Field Operations and Permit Section  
Division of Air Pollution Control

CC: USEPA  
Don Waltermeyer Northwest District Office

TDES



STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

**Permit To Install**

**Issue Date: 3/15/00**

**FINAL PERMIT TO INSTALL 04-01164**

Application Number: 04-01164  
APS Premise Number: 0448020014  
Permit Fee: **\$300**  
Name of Facility: Marsulex Inc  
Person to Contact: DUANE ABBOTT  
Address: 6800 W CENTRAL AVE, STE L-1  
TOLEDO, OH 43617

Location of proposed air contaminant source(s) [emissions unit(s)]:

**1400 Otter Creek Rd  
Oregon, Ohio**

Description of proposed emissions unit(s):

**TWO SPENT SULFURIC ACID STORAGE TANKS**

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency



Director

## Part I - GENERAL TERMS AND CONDITIONS

### A. State and Federally Enforceable Permit To Install General Terms and Conditions

#### 1. Monitoring and Related Recordkeeping and Reporting Requirements

- a. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
  - i. The date, place (as defined in the permit), and time of sampling or measurements.
  - ii. The date(s) analyses were performed.
  - iii. The company or entity that performed the analyses.
  - iv. The analytical techniques or methods used.
  - v. The results of such analyses.
  - vi. The operating conditions existing at the time of sampling or measurement.
- b. Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.
- c. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
  - i. Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
  - ii. Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the appropriate Ohio EPA District Office or local air agency. The written 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 quarters. See B.11 below if no deviations occurred during the quarter.

- iii. Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the appropriate Ohio EPA District Office or local air agency every six months, i.e., by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
- iv. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

## 2. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

## 3. Risk Management Plans

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

## 4. Title IV Provisions

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.

## 5. Severability Clause

A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition

declared invalid.

## 6. General Requirements

- a. The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and reissuance, or modification, or for denial of a permit renewal application.
- b. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.
- c. This permit may be modified, reopened, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d. This permit does not convey any property rights of any sort, or any exclusive privilege.
- e. The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

## 7. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit To Install fees within 30 days after the issuance of this Permit To Install.

## 8. Federal and State Enforceability

Only those terms and conditions designated in this permit as federally enforceable, that are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA, the State, and citizens under the Act. All other terms and conditions of this permit shall not be federally enforceable and shall be enforceable under State law only.

## 9. Compliance Requirements

- a. Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.
- b. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
  - i. At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.
  - ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
  - iii. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
  - iv. As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- c. The permittee shall submit progress reports to the appropriate Ohio EPA District Office or local air agency concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually, or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:
  - i. Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
  - ii. An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

**10. Permit To Operate Application**

- a. If the permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77, the permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).
- b. If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this Permit To Install is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. Permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within thirty (30) days after commencing operation of the source(s) covered by this permit.

## **B. State Only Enforceable Permit To Install General Terms and Conditions**

### **1. Compliance Requirements**

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

### **2. Reporting Requirements Related to Monitoring and Recordkeeping Requirements**

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The 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 quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

### **3. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

### **4. Air Pollution Nuisance**

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

## 5. Termination of Permit To Install

This permit to install shall terminate within eighteen months of the effective date of the permit to install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

## 6. Construction of New Sources(s)

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources are inadequate or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities prove to be inadequate or cannot meet applicable standards.

## 7. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

**8. Applicability**

This Permit to Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

**9. Best Available Technology**

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

**10. Construction Compliance Certification**

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit To Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

**11. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations (See Section A of This Permit)**

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The 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 quarters.

**C. Permit To Install Summary of Allowable Emissions**

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

**SUMMARY (for informational purposes only)  
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS**

<u>Pollutant</u>	<u>Tons Per Year</u>
VOC	3.4

**Part II - FACILITY SPECIFIC TERMS AND CONDITIONS**

**A. State and Federally Enforceable Permit To Install Facility Specific Terms and Conditions**

None

**B. State Only Enforceable Permit To Install Facility Specific Terms and Conditions**

None

**Part III - SPE  
**CIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(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 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>
T004 - 21,775 GALLON FIXED ROOF STORAGE TANK W/CLOSED VENT & CONTROL SYSTEM	40 CFR Part 60 Subpart Kb  3745-21-09(L)  OAC 3745-31-05(A)(3)	See A.I.2.a through A.I.2.c  See A.I.2.d  1.7 TPY VOC See A.I.2.a through A.I.2.c

**2. Additional Terms and Conditions**

- 2.a The tank shall be equipped with a closed vent system and control device.
- 2.b The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in part 60, Subpart VV, 40 CFR 60.485(b).
- 2.c The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater.
- 2.d The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC

3745-31-05(A)(3).

## II. Operational Restrictions

1. The maximum annual throughput for the storage tank T004 shall not exceed 47,556,600 pounds, based upon a rolling, 12 month summation of the pounds of throughput.
2. The average combustion temperature within the control device, for any 3-hour block of time when the emissions unit is in operation, shall not be less than 816 degrees Celsius (1501 degrees Fahrenheit) and a minimum residence time of 0.75 seconds.

## III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within the control device. Units shall be in degrees Fahrenheit or Celsius. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.
2. The permittee shall collect and record the following information for each day:
  - a. All 3-hour blocks of time during which the average combustion temperature within the control device, when the emissions unit was in operation, was less than 816 degrees Celsius (1501 degrees Fahrenheit).
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
3. The permittee shall keep the following records.
  - a. A copy of the operating plan required by Section III.A.VI.1.
  - b. A record of the measured values of the parameters monitored in accordance with Section III.A.VI.1.
  - c. A record of the results of the inspections required by Section III.A.2.B.

4. The permittee shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel.
5. The permittee shall maintain monthly records of the following information:
  - a. The pounds of spent acid unloaded for each month.
  - b. The rolling, 12-month summation of the pounds of spent acid unloaded.

#### **IV. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports which identify all 3-hour blocks of time during which the average combustion temperature within the control device does not comply with the temperature limitation specified above. This semi-annual report shall be submitted to the Toledo Division of Environmental Services by February 1 and August 1 of each year and shall cover the previous six calendar months (July through December and January through June, respectively).
2. The permittee shall submit semi-annual deviation (excursion) reports that identify all exceedances of the rolling, 12-month production rate limitation. This semi-annual report shall be submitted to the Toledo Division of Environmental Services by February 1 and August 1 of each year and shall cover the previous six calendar months (July through December and January through June, respectively).

#### **V. Testing Requirements**

1. Emission Limitation:

1.7 TPY VOC

Applicable Compliance Method

Compliance will be assured by the monitoring and recordkeeping requirements of Section A.III of this permit. Compliance may also be demonstrated through calculations performed in accordance with Section 7.1 of AP-42, 9/97 edition.

2. The permittee shall demonstrate compliance with the test for the presence of leaking sources by an instrument reading of less than 500 ppm above background in accordance with Method 21. The instrument shall be calibrated before use each day of its use by the procedures specified in Method 21. The following calibration gases shall be used: (a) Zero air (less than 10 ppm of

Emissions Unit ID: T004

hydrocarbon in air); and (b) A mixture of methane or n-hexane and air at a concentration of about, but less than, 10,000 ppm methane or n-hexane. Testing shall be performed within 60 days of issuance of this permit to install and within 6 months of permit renewal. The permittee may elect to demonstrate compliance using equivalent testing procedures with written approval from the director.

3. Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
4. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

## **VI. Miscellaneous Requirements**

1. The permittee shall submit for approval by the Toledo Division of Environmental Services as an attachment to the notification required by 40 CFR 60.7(a)(1) an operating plan containing the information listed below.
  - a. Documentation that conditions will exist sufficient to meet the requirements of a minimum residence time of 0.75 seconds and a minimum temperature of 816 degrees Celsius (1501 degrees Fahrenheit).
  - b. A description of the parameter or parameters to be monitored to ensure that the control device will be operated in conformance with its design and an explanation of the criteria used for selection of that parameter (or parameters).

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

- 1. The specific operations(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 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>
T004 - 21,775 GALLON FIXED ROOF STORAGE TANK W/CLOSED VENT & CONTROL SYSTEM	None	None

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

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Marsulex Inc

PTI Application: 04 01164

**Issued**

Facility ID: 0448020014

Emissions Unit ID: T004

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(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 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>
T005 - 21,775 GALLON FIXED ROOF STORAGE TANK W/CLOSED VENT & CONTROL SYSTEM	40 CFR Part 60 Subpart Kb	See A.I.2.a through A.I.2.c
	3745-21-09(L)	See A.I.2.d
	OAC 3745-31-05(A)(3)	1.7 TPY VOC See A.I.2.a through A.I.2.c

**2. Additional Terms and Conditions**

- 2.a The tank shall be equipped with a closed vent system and control device.
- 2.b The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in part 60, Subpart VV, 40 CFR 60.485(b).
- 2.c The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater.
- 2.d The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC 3745-31-05(A)(3).

## II. Operational Restrictions

1. The maximum annual throughput for the storage tank T004 shall not exceed 47,556,600 pounds, based upon a rolling, 12 month summation of the pounds of throughput.
2. The average combustion temperature within the control device, for any 3-hour block of time when the emissions unit is in operation, shall not be less than 816 degrees Celsius (1501 degrees Fahrenheit) and a minimum residence time of 0.75 seconds.

## III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within the control device. Units shall be in degrees Fahrenheit or Celsius. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.
2. The permittee shall collect and record the following information for each day:
  - a. All 3-hour blocks of time during which the average combustion temperature within the control device, when the emissions unit was in operation, was less than 816 degrees Celsius (1501 degrees Fahrenheit).
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
3. The permittee shall keep the following records.
  - a. A copy of the operating plan required by Section III.A.VI.1.
  - b. A record of the measured values of the parameters monitored in accordance with Section III.A.VI.1.
  - c. A record of the results of the inspections required by Section III.A.2.B.
4. The permittee shall keep readily accessible records showing the dimension of the storage vessel

and an analysis showing the capacity of the storage vessel.

5. The permittee shall maintain monthly records of the following information:
  - a. The pounds of spent acid unloaded for each month.
  - b. The rolling, 12-month summation of the pounds of spent acid unloaded.

#### **IV. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports which identify all 3-hour blocks of time during which the average combustion temperature within the control device does not comply with the temperature limitation specified above. This semi-annual report shall be submitted to the Toledo Division of Environmental Services by February 1 and August 1 of each year and shall cover the previous six calendar months (July through December and January through June, respectively).
2. The permittee shall submit semi-annual deviation (excursion) reports that identify all exceedances of the rolling, 12-month production rate limitation. This semi-annual report shall be submitted to the Toledo Division of Environmental Services by February 1 and August 1 of each year and shall cover the previous six calendar months (July through December and January through June, respectively).

#### **V. Testing Requirements**

1. Emission Limitation:

1.7 TPY VOC

Applicable Compliance Method

Compliance will be assured by the monitoring and recordkeeping requirements of Section A.III of this permit. Compliance may also be demonstrated through calculations performed in accordance with Section 7.1 of AP-42, 9/97 edition.

2. The permittee shall demonstrate compliance with the test for the presence of leaking sources by an instrument reading of less than 500 ppm above background in accordance with Method 21. The instrument shall be calibrated before use each day of its use by the procedures specified in Method 21. The following calibration gases shall be used: (a) Zero air (less than 10 ppm of hydrocarbon in air); and (b) A mixture of methane or n-hexane and air at a concentration of

Emissions Unit ID: T005

about, but less than, 10,000 ppm methane or n-hexane. Testing shall be performed within 60 days of issuance of this permit to install and within 6 months of permit renewal. The permittee may elect to demonstrate compliance using equivalent testing procedures with written approval from the director.

3. Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
4. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

## **VI. Miscellaneous Requirements**

1. The permittee shall submit for approval by the Toledo Division of Environmental Services as an attachment to the notification required by 40 CFR 60.7(a)(1) an operating plan containing the information listed below.
  - a. Documentation that conditions will exist sufficient to meet the requirements of a minimum residence time of 0.75 seconds and a minimum temperature of 816 degrees Celsius (1501 degrees Fahrenheit).
  - b. A description of the parameter or parameters to be monitored to ensure that the control device will be operated in conformance with its design and an explanation of the criteria used for selection of that parameter (or parameters).

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(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 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>
T005 - 21,775 GALLON FIXED ROOF STORAGE TANK W/CLOSED VENT & CONTROL SYSTEM	None	None

**2. Additional Terms and Conditions**

2.a None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

23

Marsulex Inc

PTI Application: **01 01164**

**Issued**

Facility ID: **0448020014**

Emissions Unit ID: T005

None

**NEW SOURCE REVIEW FORM B**

PTI Number: 04-01164 Facility ID: 0448020014

FACILITY NAME MARSULEX, INC

FACILITY DESCRIPTION TWO SPENT SULFURIC ACID STORAGE TANKS CITY/TWP OREGON

SIC CODE 2819 SCC CODE 3-01-023-21 EMISSIONS UNIT ID T004

EMISSIONS UNIT DESCRIPTION 21,775 GALLON FIXED ROOF STORAGE TANK W/CLOSED VENT &amp; CONTROL SYSTEM

DATE INSTALLED 07/89

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter	N/A				
PM <sub>10</sub>	Unclassified				
Sulfur Dioxide	Non-Attainment				
Organic Compounds	Attainment	N/A	1.7	N/A	1.7
Nitrogen Oxides	Unclassified				
Carbon Monoxide	Unclassified				
Lead	Unclassified				
Other: Air Toxics					

APPLICABLE FEDERAL RULES:

NSPS? Kb

NESHAP?

PSD?

OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?

**Enter Determination** Use of a closed vent & control system - NSPS Kb

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? No

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT?

\$

**TOXIC AIR CONTAMINANTS**

Ohio EPA's air toxics policy applies to contaminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED\*? \_\_\_\_\_ YES X NO

IDENTIFY THE AIR CONTAMINANTS: \_\_\_\_\_

**NEW SOURCE REVIEW FORM B**

PTI Number: 04-01164 Facility ID: 0448020014

FACILITY NAME MARSULEX, INC

FACILITY DESCRIPTION TWO SPENT SULFURIC ACID CITY/TWP OREGON

Emissions Unit ID: T005

SIC CODE 2819 SCC CODE 3-01-023-21 EMISSIONS UNIT ID T005

EMISSIONS UNIT DESCRIPTION 21,775 GALLON FIXED ROOF STORAGE TANK W/CLOSED VENT & CONTROL SYSTEM

DATE INSTALLED 07/89

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Sulfur Dioxide	Attainment				
Organic Compounds	Attainment	N/A	1.7	N/A	1.7
Nitrogen Oxides	Unclassified				
Carbon Monoxide	Unclassified				
Lead	Unclassified				
Other: Air Toxics					

APPLICABLE FEDERAL RULES:

NSPS? Kb NESHAP? PSD? OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?

Enter Determination Use of a closed vent & control system - NSPS Kb

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? No

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? \$

**TOXIC AIR CONTAMINANTS**

Ohio EPA's air toxics policy applies to contaminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED\*? YES X NO

IDENTIFY THE AIR CONTAMINANTS:

**NEW SOURCE REVIEW FORM B**

PTI Number: 04-01164

Facility ID: 0448020014

FACILITY NAME MARSULEX, INC

FACILITY DESCRIPTION TWO SPENT SULFURIC ACID

CITY/TWP OREGON

Emissions Unit ID: T005

**Please describe any hard copy information is being submitted with this recommendation (Please send hard copy information to Pam McGraner, DAPC Central Office - Air Quality Modeling and Planning):**

**None**

**Please provide any additional permit specific notes as you deem necessary:**

**I. DESCRIPTION OF Emission Unit**

This PTI is for installation of **(2) 21,775 gallon fixed roof tanks with closed vent system and control.** These tanks will store spent sulfuric acid which contains organic compounds and will have a maximum vapor pressure of 28 psia at the maximum storage temperature.

**II. BEST AVAILABLE TECHNOLOGY**

Best available technology is compliance with the requirements of NSPS K<sub>b</sub> which requires that emissions be vented to a closed vent system and control device.

**III. APPLICABLE REGULATIONS**

OAC 3745-31-05 Best Available Technology  
OAC 3745-21-09(L) Fixed Roof Storage Tanks  
NSPS Subpart K<sub>b</sub> Petroleum Liquid Storage Vessels

**IV. EMISSIONS**

Emissions will be estimated by the TANKS program using vapor pressures estimated by the following "Lee-Kesler Method" (from The Properties of Gases & Liquids, Robert Reid, et. al., McGraw-Hill, 1987):

$$\ln(P_{vp}/P_c) = (1-x)^{-1}(Ax + Bx^{1.5} + Cx^3 + Dx^6)$$

with  $x = 1 - T/T_c$

where  $P_{vp}$  = vapor pressure in bars,

$P_c$  = critical pressure in bars,

$T_c$  = critical temperature in degrees Kelvin,

$T$  = temperature in degrees Kelvin, and

	ABCDCPcTc
dimethyl ether	-7.125971.81710-3.10058-0.9163852.4400
methyl chloride	-6.866721.52273-1.92919-2.6145967.0416.3
methanol	-8.547960.76982-3.108501.5448180.9512.6

resulting in pressure estimates (psi) of:

degrees Fahrenheit 405060708090100

2 NEW SC

PTI Num

FACILITY

FACILITY DESCRIPTION

TWO SPENT SULFURIC ACID STORAGE TANKS

Emissions Unit ID: T005 CITY/TWP OREGON

dimethyl ether 44.753.764.075.688.8104120
methyl chloride 43.452.162.173.586.5101117
methanol 0.7681.071.471.992.663.524.60
sulfuric acid (x10^5) 2.7213.433.461.598.2143197

where sulfuric acid information was interpolated from vapor pressure data for a 95% sulfuric acid concentration from Perry's Chemical Engineering Handbook (McGraw-Hill).

Since the TANKS program will not accept vapor pressure data above 14.7 psia, calculations were done manually using the calculational guidelines in AP-42 Section 7.1 dated 9/97.

The standing loss (Ls) and working loss (Lw) must be calculated using:

Ls = 365 Vv Wv Ke Ksand Lw = 0.0010 Mv Pva Q Kn Kp

where the variables and methodology are as described in AP-42 and calculated as follows:

Vv = pi/4 D^2 Hv where D must be considered an "equivalent" De = (L D/0.785)^1/2 with D = 10 and L = 37, De = 21.71 and Hvo = 1/2 D = 5 Vv = 1850 cuft

Wv = (Mv Pva)/(R Tla) from the Tanks program Tla = 512.51 R, R is a constant = 10.731 and Mv & Pva must be calculated.

Mv = sum Mi (Pi xi/Pva) from the table above for vapor pressure, interpolate component vapor pressures at 512.51 R for vapor pressures (Pi) equal to Pde = 56.3, Pmc = 54.6, Pma = 1.17 and Psa = 0.000184. Molecular weights Mi are Mde = 46.07, Mmc = 50, Mma = 32.04 and Msa = 98.9

calculate the mole fraction in the liquid xi as follows:

Table with 5 columns: Component, pounds in solution, Mi, moles in solution, xi. Rows include dimethyl ether, methyl chloride, methyl alcohol, sulfuric acid, and total.

calculate Pi and Pva as follows:

**28 NEW SOURCE REVIEW FORM B**

PTI Number: 04-01164

Facility ID: 0448020014

FACILITY NAME MARSULEX, INC

FACILITY DESCRIPTION TWO SPENT SULFURIC ACID

CITY/TWP OREGON

Emissions Unit ID: T005

	pure P at 512.51°R	xi	Pi
dimethyl ether	56.3	0.199	11.2
methyl chloride	54.6	0.033	1.80
methyl alcohol	1.17	0.052	0.0608
sulfuric acid	0.000184	0.716	0.000132
total		1.000	13.1 psia = Pva

substitute and solve for  $Mv = \sum Mi (Pi xi/Pva)$

	Mi	yi	Mvi
dimethyl ether	46.07	0.856	39.4
methyl chloride	50	0.138	6.9
methyl alcohol	32.04	0.006	0.2
sulfuric acid	98.9	0.000	0.0
total		1.000	46.5 = Mv

$Pva = 13.1$

$Mv = 46.5$

$$Wv = (Mv Pva)/(R Tla) = (46.5)(13.1)/(10.731)(512.51)$$

$$Wv = 0.111$$

$$Ke = (\Delta Tv/Tla) + (\Delta Pv - \Delta Pb)/(Pa - Pva) \text{ where } \Delta Tv = 27.13 \text{ and } Tla = 512.51 \text{ from Tanks, } \Delta Pb \text{ is the breather setting} = 0.22, Pa = 14.7 \text{ and } Pva = 13.1$$

$\Delta Pv = \text{the pressure at } (512.51^\circ R + \frac{1}{2}(27.13)) - \text{the pressure at } (512.51^\circ R - \frac{1}{2}(27.13)):$

	$P_{66.1}$	$P_{38.9}$	xi	$P_{i66.1}$	$P_{i38.9}$
dimethyl ether	71.1	43.71	0.199	14.1	8.70
methyl chloride	69.05	42.44	0.033	2.28	1.40
methyl alcohol	1.74	0.705	0.052	0.090	0.037
sulfuric acid	0.000505	0.0000155	0.716	0.000361	0.000011
total				$P_{66.1} = 16.5$	$P_{38.9} = 10.1$

$$\Delta Pv = 16.5 - 10.1$$

$$\Delta Pv = 6.4$$

$$Ke = (\Delta Tv/Tla) + (\Delta Pv - \Delta Pb)/(Pa - Pva) = (27.13/512.51) - (6.4 - 0.22)/(14.7 - 13.1)$$

$$Ke = 3.92$$

$$Ks = (1 + 0.053 Pva Hvo)^{-1} = (1 + 0.053(13.1)(5))^{-1}$$

$$Ks = 0.224$$

$$\text{Then, } Ls = 365 Vv Wv Ke Ks = 365(1850)(0.111)(3.92)(0.224)$$

$L_s =$  standing losses from the tank = 65,800 pounds per year

$L_w = 0.0010 M_v P_{va} Q K_n K_p$  where  $MV = 46.5$ ,  $P_{va} = 13.1$ ,  $Q = 10,000$  gallons per day = 8690 barrels per year,  $K_p = 1$  and

$K_n = (180 + N)/6N$  with  $N = 168$  turnovers per year  
 $K_n = 0.345$

Then,  $L_w = 0.0010 M_v P_{va} Q K_n K_p = 0.0010(46.5)(13.1)(8690)(0.345)(1)$

$L_w =$  working losses from the tank = 1,800 pounds per year

Therefore total annual losses per tank for a worse case scenario of 10,000 gallons added per tank per day results in emissions of 34 tons VOC per tank. With the stipulated 95% control (Marsulex anticipates better than 99.9% efficiency at actual conditions) this equates to 1.7 tons VOC each, for 3.4 tons total emissions. Since working losses are small compared to storage losses, no adjustment will be made for actual emissions due to reduced loading, however at 99.9% efficiency actual annual losses are estimated 0.03 tons per tank.

The break down of the vapor constituents is based on composition =  $y_i(M_i/M_v)(L_s+L_w)(1-95\%)$ :

	$M_i$	$y_i$	tons per year per tank	tons per year total
dimethyl ether*	46.07	0.856	1.44	2.88
methyl chloride	50	0.138	0.25	0.50
methyl alcohol	32.04	0.006	0.01	0.02
sulfuric acid	98.9	0.000	0.00	0.00
total		1.000	1.7	3.4

\*Dimethyl ether is not a listed HAP or air toxic. No modeling will be performed.

**V.FEE**

PTI(2) Tanks between 20,001 & 40,000 gallons installed without a PTI (2)(2)(\\$150)=\$600

**Permit To Install Synthetic Minor Write-Up**

NONE

**30 NEW SOURCE REVIEW FORM B**

PTI Number: 04-01164

Facility ID: 0448020014

FACILITY NAME MARSULEX, INC

FACILITY DESCRIPTION TWO SPENT SULFURIC ACID

CITY/TWP OREGON

Emissions Unit ID: T005

**Please fill in the following for this permit:**

**TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS**

Pollutant

Tons Per Year

VOC

3.4