Ohio Environmental Protection Agency
John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

7/14/2011

Certified Mail

Facility ID: 0243000241
Permit Number: P0084861
County: Lake

Michael Contenza
Ricerca Biosciences, LLC
7528 AUBURN ROAD
CONCORD TOWNSHIP, OH 44077-1000

RE: FINAL AIR POLLUTION CONTROL TITLE V PERMIT
Permit Type: Renewal

Dear Permit Holder:

Enclosed is the Title V permit that allows you to operate the facility in the manner indicated in the permit. Because this permit may contain several conditions and restrictions, we urge you to read it carefully. Please complete a survey at www.epa.ohio.gov/dapc/permitsurvey.aspx and give us feedback on your permitting experience. We value your opinion.

The issuance of this Title V permit is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 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. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of $70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, OH 43215

The Ohio EPA is encouraging 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 Compliance Assistance and Pollution Prevention at (614) 644-3469. If you have any questions regarding this permit, please contact the Ohio EPA DAPC, Northeast District Office. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Issued Air Pollution Control Permits" link.

Sincerely,

Michael W. Ahern

Michael W. Ahern, Manager
Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA Region 5 *Via E-Mail Notification*
Ohio EPA DAPC, Northeast District Office

Ohio | Environmental Protection Agency

FINAL

Division of Air Pollution Control
Title V Permit
for
Ricerca Biosciences, LLC

Facility ID:	0243000241
Permit Number:	P0084861
Permit Type:	Renewal
Issued:	7/14/2011
Effective:	8/4/2011
Expiration:	8/4/2016

Ohio Environmental Protection Agency

Division of Air Pollution Control
Title V Permit
for
Ricerca Biosciences, LLC

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Authorization

Facility ID: 0243000241
Facility Description: Research and Development/Chemical & Biological
Application Number(s): A0015446, A0015447, A0015448, A0040595
Permit Number: P0084861
Permit Description: T5 renewal for Ricerca, a Bioscience Research and Development Facility
Permit Type: Renewal
Issue Date: 7/14/2011
Effective Date: 8/4/2011
Expiration Date: 8/4/2016
Superseded Permit Number: P0084860

This document constitutes issuance of an OAC Chapter 3745-77 Title V permit to:

Ricerca Biosciences, LLC
7528 AUBURN ROAD
Concord Twp., OH 44077-1000

Ohio EPA District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087
(330)425-9171

The above named entity is hereby granted a Title V permit pursuant to Chapter 3745-77 of the Ohio Administrative Code. This permit and the authorization to operate the air contaminant sources (emissions units) at this facility shall expire at midnight on the expiration date shown above. You will be sent a notice approximately 18 months prior to the expiration date regarding the renewal of this permit. If you do not receive a notice, please contact the Ohio EPA DAPC, Northeast District Office. If a renewal permit is not issued prior to the expiration date, the permittee may continue to operate pursuant to OAC rule 3745-77-08(E) and in accordance with the terms of this permit beyond the expiration date, if a timely renewal application is submitted. A renewal application will be considered timely if it is submitted no earlier than 18 months (540 days) and no later than 6 months (180 days) prior to the expiration date.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Scott J. Nally
Director

A. Standard Terms and Conditions

1. Federally Enforceable Standard Terms and Conditions

a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:

(1) Standard Term and Condition A. 24., Reporting Requirements Related to Monitoring and Record Keeping Requirements of State-Only Enforceable Permit Terms and Conditions

(2) Standard Term and Condition A. 25., Records Retention Requirements for State-Only Enforceable Permit Terms and Conditions

(3) Standard Term and Condition A. 27., Scheduled Maintenance/Malfunction Reporting

(4) Standard Term and Condition A. 29., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

(Authority for term: ORC 3704.036(A))

2. Monitoring and Related Record Keeping and Reporting Requirements

a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit (i.e., in section C. Emissions Unit Terms and Conditions of this Title V permit), the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:

(1) The date, place (as defined in the permit), and time of sampling or measurements.

(2) The date(s) analyses were performed.

(3) The company or entity that performed the analyses.

(4) The analytical techniques or methods used.

(5) The results of such analyses.

(6) The operating conditions existing at the time of sampling or measurement.

(Authority for term: OAC rule 3745-77-07(A)(3)(b)(i))

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 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.

(Authority for term: OAC rule 3745-77-07(A)(3)(b)(ii))

c) The permittee shall submit required reports in the following manner:

(1) All reporting required in accordance with OAC rule 3745-77-07(A)(3)(c) for deviations caused by malfunctions shall be submitted in the following manner:

Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be promptly reported to the Ohio EPA in accordance with OAC rule 3745-15-06. In addition, to fulfill the OAC rule 3745-77-07(A)(3)(c) deviation reporting requirements for malfunctions, written reports that identify each malfunction that occurred during each calendar quarter (including each malfunction reported only verbally in accordance with OAC rule 3745-15-06) shall be submitted (i.e., postmarked) by January 31, April 30, July 31, and October 31 of each year in accordance with Standard Term and Condition A.2.c)(2) below; and each report shall cover the previous calendar quarter. An exceedance of the visible emission limitations specified in OAC rule 3745-17-07(A)(1) that is caused by a malfunction is not a violation and does not need to be reported as a deviation if the owner or operator of the affected air contaminant source or air pollution control equipment complies with the requirements of OAC rule 3745-17-07(A)(3)(c).

In accordance with OAC rule 3745-15-06, a malfunction reportable under OAC rule 3745-15-06(B) is a deviation of the federally enforceable permit requirements. Even though verbal notifications and written reports are required for malfunctions pursuant to OAC rule 3745-15-06, the written reports required pursuant to this term must be submitted quarterly to satisfy the prompt reporting provision of OAC rule 3745-77-07(A)(3)(c).

In identifying each deviation caused by a malfunction, the permittee shall specify the emission limitation(s) (or control requirement(s)) for which the deviation occurred, describe each deviation, and provide the magnitude and duration of each deviation. For a specific malfunction, if this information has been provided in a written report that was submitted in accordance with OAC rule 3745-15-06, the permittee may simply reference that written report to identify the deviation. Nevertheless, all malfunctions, including those reported only verbally in accordance with OAC rule 3745-15-06, must be reported in writing on a quarterly basis.

Any scheduled maintenance, as referenced in OAC rule 3745-15-06(A)(1), that results in a deviation from a federally enforceable emission limitation (or control requirement) shall be reported in the same manner as described above for malfunctions.

(Authority for term: OAC rule 3745-77-07(A)(3)(c))

(2) Except as may otherwise be provided in the terms and conditions for a specific emissions unit (i.e., in section C. Emissions Unit Terms and Conditions of this Title V permit or, in some cases, in section B. Facility-Wide Terms and Conditions of this Title V permit), all reporting required in accordance with OAC rule 3745-77-07(A)(3)(c) for deviations of the emission limitations, operational restrictions, and control device operating parameter limitations shall be submitted in the following manner:

Written reports of (a) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures taken, shall be promptly made to the appropriate Ohio EPA District Office or

local air agency. Except as provided below, the written reports shall be submitted (i.e., postmarked) by January 31, April 30, July 31, and October 31 of each year; and each report shall cover the previous calendar quarter.

In identifying each deviation, the permittee shall specify the emission limitation(s), operational restriction(s), and/or control device operating parameter limitation(s) for which the deviation occurred, describe each deviation, and provide the estimated magnitude and duration of each deviation.

These written deviation reports shall satisfy the requirements of OAC rule 3745-77-07(A)(3)(c) pertaining to the submission of monitoring reports every six months and to the prompt reporting of all deviations. Full compliance with OAC rule 3745-77-07(A)(3)(c) requires reporting of all other deviations of the federally enforceable requirements specified in the permit as required by such rule.

If an emissions unit has a deviation reporting requirement for a specific emission limitation, operational restriction, or control device operating parameter limitation that is not on a quarterly basis (e.g., within 30 days following the end of the calendar month, or within 30 or 45 days after the exceedance occurs), that deviation reporting requirement satisfies the reporting requirements specified in this Standard Term and Condition for that specific emission limitation, operational restriction, or control device parameter limitation. Following the provisions of that non-quarterly deviation reporting requirement will also satisfy (for the deviations so reported) the requirements of OAC rule 3745-77-07(A)(3)(c) pertaining to the submission of monitoring reports every six months and to the prompt reporting of all deviations, and additional quarterly deviation reports for that specific emission limitation, operational restriction, or control device parameter limitation are not required pursuant to this Standard Term and Condition.

See A.29 below if no deviations occurred during the quarter.

(Authority for term: OAC rule 3745-77-07(A)(3)(c))

(3) All reporting required in accordance with the OAC rule 3745-77-07(A)(3)(c) for other deviations of the federally enforceable permit requirements which are not reported in accordance with Standard Term and Condition A.2)c)(2) above shall be submitted in the following manner:

Unless otherwise specified by rule, written reports that identify deviations of the following federally enforceable requirements contained in this permit; Standard Terms and Conditions: A.3, A.4, A.5, A.7.e), A.8, A.13, A.15, A.19, A.20, A.21, and A.23 of this Title V permit, as well as any deviations from the requirements in section C. Emissions Unit Terms and Conditions of this Title V permit, and any monitoring, record keeping, and reporting requirements, which are not reported in accordance with Standard Term and Condition A.2.c)(2) above shall be submitted (i.e., postmarked) to the appropriate Ohio EPA District Office or local air agency by January 31 and July 31 of each year; and each report shall cover the previous six calendar months. Unless otherwise specified by rule, all other deviations from federally enforceable requirements identified in this permit shall be submitted annually as part of the annual compliance certification, including deviations of federally enforceable requirements not specifically addressed by permit or rule for the insignificant activities or emissions levels (IEU) identified in section B. Facility-Wide Terms and Conditions of this Title V permit. Annual reporting of deviations is deemed

adequate to meet the deviation reporting requirements for IEUs unless otherwise specified by permit or rule.

In identifying each deviation, the permittee shall specify the federally enforceable requirement for which the deviation occurred, describe each deviation, and provide the magnitude and duration of each deviation.

These semi-annual and annual written reports shall satisfy the reporting requirements of OAC rule 3745-77-07(A)(3)(c) for any deviations from the federally enforceable requirements contained in this permit that are not reported in accordance with Standard Term and Condition A.2.c)(2) above.

If no such deviations occurred during a six-month period, the permittee shall submit a semi-annual report which states that no such deviations occurred during that period.

(Authority for term: OAC rules 3745-77-07(A)(3)(c)(i) and (ii) and OAC rule 3745-77-07(A)(13)(b))

(4) 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 (including any written malfunction reports required by OAC rule 3745-15-06 that are referenced in the deviation reports) are true, accurate, and complete."

(Authority for term: OAC rule 3745-77-07(A)(3)(c)(iv))

(5) Reports of any required monitoring and/or record keeping information shall be submitted to Ohio EPA DAPC, Northeast District Office.

(Authority for term: OAC rule 3745-77-07(A)(3)(c))

3. Scheduled Maintenance

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. Except as provided in OAC rule 3745-15-06(A)(3), any scheduled maintenance necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emissions unit(s) that is (are) served by such control system(s). Any scheduled maintenance, as defined in OAC rule 3745-15-06(A)(1), that results in a deviation from a federally enforceable emission limitation (or control requirement) shall be reported in the same manner as described for malfunctions in Standard Term and Condition A.2.c)(1) above.

(Authority for term: OAC rule 3745-77-07(A)(3)(c))

4. Risk Management Plans

If applicable, the permittee shall 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"); and, pursuant to 40 C.F.R. 68.215(a), the permittee shall submit either of the following:

a) a compliance plan for meeting the requirements of 40 C.F.R. Part 68 by the date specified in 40 C.F.R. 68.10(a) and OAC 3745-104-05(A); or

b) as part of the compliance certification submitted under 40 C.F.R. 70.6(c)(5), a certification statement that the source is in compliance with all requirements of 40 C.F.R. Part 68 and OAC Chapter 3745-104, including the registration and submission of the risk management plan.

(Authority for term: OAC rule 3745-77-07(A)(4))

5. 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.

(Authority for term: OAC rule 3745-77-07(A)(5))

6. 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.

(Authority for term: OAC rule 3745-77-07(A)(6))

7. 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, in accordance with Standard Term and Condition A.11 below. 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.

f) Except as otherwise indicated below, this Title V permit, or permit modification, is effective for five years from the original effective date specified in the permit. In the event that this facility becomes eligible for non-title V permits, this permit shall cease to be enforceable when:

(1) the permittee submits an approved facility-wide potential to emit analysis supporting a claim that the facility no longer meets the definition of a "major source" as defined in OAC rule 3745-77-01(W) based on the permanent shutdown and removal of one or more emissions units identified in this permit; orthe permittee no longer meets the definition of a "major source" as defined in OAC rule 3745-77-01(W) based on obtaining restrictions on the facility-wide potential(s) to emit that are federally enforceable or legally and practically enforceable ; ora combination of (1) and (2) above.

The permittee shall continue to comply with all applicable OAC Chapter 3745-31 requirements for all regulated air contaminent sources once this permit ceases to be enforceable. The permittee shall comply with any residual requirements, such as quarterly deviation reports, semi-annual deviation reports, and annual compliance certifications covering the period during which this Title V permit was enforceable. All records relating to this permit must be maintained in accordance with law.

(Authority for term: OAC rule 3745-77-01(W), OAC rule 3745-77-07(A)(3)(b)(ii), OAC rule 3745-77(A)(7))

8. 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.

(Authority for term: OAC rule 3745-77-07(A)(8))

9. Marketable Permit Programs

No revision of this permit is required under any approved economic incentive, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in this permit.

(Authority for term: OAC rule 3745-77-07(A)(9))

10. Reasonably Anticipated Operating Scenarios

The permittee is hereby authorized to make changes among operating scenarios authorized in this permit without notice to the Ohio EPA, but, contemporaneous with making a change from one operating scenario to another, the permittee must record in a log at the permitted facility the scenario under which the permittee is operating. The permit shield provided in these standard terms and conditions shall apply to all operating scenarios authorized in this permit.

(Authority for term: OAC rule 3745-77-07(A)(10))

11. Reopening for Cause

This Title V permit will be reopened prior to its expiration date under the following conditions:

a) Additional applicable requirements under the Act become applicable to one or more emissions units covered by this permit, and this permit has a remaining term of three or more years. Such a reopening shall be completed not later than eighteen (18) months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to paragraph (E)(1) of OAC rule 3745-77-08.

b) This permit is issued to an affected source under the acid rain program and additional requirements (including excess emissions requirements) become applicable. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the permit, and shall not require a reopening of this permit.

c) The Director of the Ohio EPA or the Administrator of the U.S. EPA determines that the federally applicable requirements in this permit are based on a material mistake, or that inaccurate statements were made in establishing the emissions standards or other terms and conditions of this permit related to such federally applicable requirements.

d) The Administrator of the U.S. EPA or the Director of the Ohio EPA determines that this permit must be revised or revoked to assure compliance with the applicable requirements.

(Authority for term: OAC rules 3745-77-07(A)(12) and 3745-77-08(D))

12. 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.

(Authority for term: OAC rule 3745-77-07(B))

13. Compliance Requirements

a) Any document (including reports) required to be submitted and required by a federally applicable requirement in this Title V 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:

(1) 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.

(2) 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 paragraph (E) of OAC rule 3745-77-03.

(3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.

(4) 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:

(1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.

(2) 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.

d) Compliance certifications concerning the terms and conditions contained in this permit that are federally enforceable emission limitations, standards, or work practices, shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) and the Administrator of the U.S. EPA in the following manner and with the following content:

(1) Compliance certifications shall be submitted annually on a calendar year basis. The annual certification shall be submitted (i.e., postmarked) on or before April 30th of each year during the permit term.

(2) Compliance certifications shall include the following:

a. An identification of each term or condition of this permit that is the basis of the certification.

b. The permittee's current compliance status.

c. Whether compliance was continuous or intermittent.

d. The method(s) used for determining the compliance status of the source currently and over the required reporting period.

e. Such other facts as the Director of the Ohio EPA may require in the permit to determine the compliance status of the source.

(3) Compliance certifications shall contain such additional requirements as may be specified pursuant to sections 114(a)(3) and 504(b) of the Act.

(Authority for term: OAC rules 3745-77-07(C)(1),(2),(4) and (5) and ORC section 3704.03(L))

14. Permit Shield

a) Compliance with the terms and conditions of this permit (including terms and conditions established for alternate operating scenarios, emissions trading, and emissions averaging, but excluding terms and conditions for which the permit shield is expressly prohibited under OAC rule 3745-77-07) shall be deemed compliance with the applicable requirements identified and addressed in this permit as of the date of permit issuance.

b) This permit shield provision shall apply to any requirement identified in this permit pursuant to OAC rule 3745-77-07(F)(2), as a requirement that does not apply to the source or to one or more emissions units within the source.

(Authority for term: OAC rule 3745-77-07(F))

15. Operational Flexibility

The permittee is authorized to make the changes identified in OAC rule 3745-77-07(H)(1)(a) to (H)(1)(c) within the permitted stationary source without obtaining a permit revision, if such change is not a modification under any provision of Title I of the Act [as defined in OAC rule 3745-77-01(JJ)], and does not result in an exceedance of the emissions allowed under this permit (whether expressed therein as a rate of emissions or in terms of total emissions), and the permittee provides the Administrator of the U.S. EPA and the appropriate Ohio EPA District Office or local air agency with written notification within a minimum of seven days in advance of the proposed changes, unless the change is associated with, or in response to, emergency conditions. If less than seven days notice is provided because of a need to respond more quickly to such emergency conditions, the permittee shall provide notice to the Administrator of the U.S. EPA and the appropriate District Office of the Ohio EPA or local air agency as soon as possible after learning of the need to make the change. The notification shall contain the items required under OAC rule 3745-77-07(H)(2)(d).

(Authority for term: OAC rules 3745-77-07(H)(1) and (2))

16. Emergencies

The permittee shall have an affirmative defense of emergency to an action brought for noncompliance with technology-based emission limitations if the conditions of OAC rule 3745-77-07(G)(3) are met. This emergency defense provision is in addition to any emergency or upset provision contained in any applicable requirement.

(Authority for term: OAC rule 3745-77-07(G))

17. Off-Permit Changes

The owner or operator of a Title V source may make any change in its operations or emissions at the source that is not specifically addressed or prohibited in the Title V permit, without obtaining an amendment or modification of the permit, provided that the following conditions are met:

a) The change does not result in conditions that violate any applicable requirements or that violate any existing federally enforceable permit term or condition.

b) The permittee provides contemporaneous written notice of the change to the Director and the Administrator of the U.S. EPA, except that no such notice shall be required for changes that qualify as insignificant emissions levels or activities as defined in OAC rule 3745-77-01(U). Such written notice shall describe each such change, the date of such change, any change in emissions or pollutants emitted, and any federally applicable requirement that would apply as a result of the change.

c) The change shall not qualify for the permit shield under OAC rule 3745-77-07(F).

d) The permittee shall keep a record describing all changes made at the source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under the permit, and the emissions resulting from those changes.

e) The change is not subject to any applicable requirement under Title IV of the Act or is not a modification under any provision of Title I of the Act.

Paragraph (I) of rule 3745-77-07 of the Administrative Code applies only to modification or amendment of the permittee's Title V permit. The change made may require a permit-to-install under Chapter 3745-31 of the Administrative Code if the change constitutes a modification as defined in that Chapter. Nothing in paragraph (I) of rule 3745-77-07 of the Administrative Code shall affect any applicable obligation under Chapter 3745-31 of the Administrative Code.

(Authority for term: OAC rule 3745-77-07(I))

18. Compliance Method Requirements

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defenses otherwise available to the permittee, including but not limited to, any challenge to the Credible Evidence Rule (see 62 Fed. Reg. 8314, Feb. 24, 1997), in the context of any future proceeding.

(This term is provided for informational purposes only.)

19. Insignificant Activities or Emissions Levels

Each IEU that has one or more applicable requirements shall comply with those applicable requirements.

(Authority for term: OAC rule 3745-77-07(A)(1))

20. Permit to Install Requirement

Prior to the "installation" or "modification" of any "air contaminant source," as those terms are defined in OAC rule 3745-31-01, a permit to install must be obtained from the Ohio EPA pursuant to OAC Chapter 3745-31.

(Authority for term: OAC rule 3745-77-07(A)(1))

21. 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.

(Authority for term: OAC rule 3745-77-07(A)(1))

22. Permanent Shutdown of an Emissions Unit

The permittee may notify Ohio EPA of any emissions unit that is permanently shut down by submitting a certification from the responsible official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the responsible official that the emissions unit was permanently shut down.

After the date on which an emissions unit is permanently shut down (i.e., that has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31 and therefore ceases to meet the definition of an "emissions unit" as defined in OAC rule 3745-77-01(O)), rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the date of the certification and submission to Ohio EPA, to meet any Title V permit requirements applicable to that emissions unit, except for any residual requirements, such as the quarterly deviation reports, semi-annual deviation reports and annual compliance certification covering the period during which the emissions unit last operated. All records relating to the shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law.

No emissions unit certified by the responsible official as being permanently shut down may resume operation without first applying for and obtaining a permit to install pursuant to OAC Chapter 3745-31.

(Authority for term: OAC rule 3745-77-01)

23. Title VI Provisions

If applicable, the permittee shall comply with the standards for recycling and reducing emissions of ozone depleting substances pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners in Subpart B of 40 CFR Part 82:

a) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices specified in 40 CFR 82.156.

b) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment specified in 40 CFR 82.158.

c) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

(Authority for term: OAC rule 3745-77-01(H)(11))

24. Reporting Requirements Related to Monitoring and Record Keeping Requirements Under State Law Only

The permittee shall submit required reports in the following manner:

a) Reports of any required monitoring and/or record keeping 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 (i) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and record keeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) 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. In identifying each deviation, the permittee shall specify the applicable requirement for which the deviation occurred, describe each deviation, and provide the magnitude and duration of each deviation. 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 (i.e., postmarked) quarterly, 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.)

25. Records Retention Requirements Under State Law Only

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.

26. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. 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 verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

(Authority for term: OAC rule 3745-77-07(C))

27. 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 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. 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 emissions unit(s) that is (are) served by such control system(s).

28. 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.

(Authority for term: OAC rule 3745-77-01(C))

29. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

If no emission limitation (or control requirement), operational restriction and/or control device parameter limitation 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 (i.e., postmarked) by January 31, April 30, July 31, and October 31 of each year; and each report shall cover the previous calendar quarter.

The permittee is not required to submit a quarterly report which states that no deviations occurred during that quarter for the following situations:

a) where an emissions unit has deviation reporting requirements for a specific emission limitation, operational restriction, or control device parameter limitation that override the deviation reporting requirements specified in Standard Term and Condition A.2.c)(2); or

b) where an uncontrolled emissions unit has no monitoring, record keeping, or reporting requirements and the emissions unit's applicable emission limitations are established at the potentials to emit; or

c) where the company's responsible official has certified that an emissions unit has been permanently shut down.

B. Facility-Wide Terms and Conditions

1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

   a) None.

2. The following insignificant emissions units located at this facility are exempt from permit requirements because they are not subject to any applicable requirements [as defined in OAC rule 3745-77-01(H)] or because they meet the "deminimis" criteria established in OAC rule 3745-15-05):

B001	HQSB00001	HQ Steam Boiler; 6,300 MBTU/HR
B002	HQSB00002	HQ Steam Boiler; 6,300 MBTU/HR
B020	LSSB00006	LS Steam Boiler, 5,250 MBTU/HR
B021	HQSB00003	HQ Steam Boiler; 6.300 MBTU/HR
B022	PDWB00001	PD Water Boiler; 6,700 MBTU/HR
B023	PDWB00002	PD Water Boiler; 6,700 MBTU/HR
B024	LSSB00001	LS Steam Boiler; 4,000 MBTU/HR
B025	LSSB00002	LS Steam Boiler; 6,000 MBTU/HR
B026	LSSB00003	LS Steam Boiler; 4,500 MBTU/HR
B027	PDSB00004	PD Steam Boiler; 6,300 MBTU/HR
B028	PDSB00005	PD Steam Boiler; 6,300 MBTU/HR
B029	LSSB00004	LS Steam Boiler, 5,000 MBTU/HR
P001	Hoods	Lab hoods in HQ, PD, LS
P200	R-7500	10 gal GLS Reactor System
P201	R-7600	10 gal SS Reactor System
P202	R-7700	10 gal SS Reactor System
P203	S-9800	Single Cavity Bag Filter, SS, Carboruandum, 0.3 ft3
P204	S-9500	Single Cavity Bag Filter, SS, Carboruandum, 0.3 ft3
P205	S-9900	Jacketed Single Cavity Bag Filter, SS, American Felt and Filter,
P206	T-7900	Tank/Receiver, 200 gal, GLS
P207	T-3600	Tank/Receiver, 50 gal, GLS
P208	T-3800	pressure tank, 16 gal, SS
P209	T-3850	pressure tank, 5 gal, SS
P210	T-1700	Tank/Receiver, 50 gal, SS

P211	S-14400	Single Cavity Bag Filter, SS, American Felt and Filter, 0.5 ft3
P212	T-1203	Tank/Receiver, 60 gal, SS
P213	T-1501	Tank/Receiver, 25 gal, SS
P214	T-3825	pressure tank, 16 gal, SS
P215	T-4025	pressure tank, 5 gal, SS
P216	T-4050	pressure tank, 16 gal, SS
P217	T-14000	Tank/Receiver, 50 gal, GLS
P218	T-1100	Tank/Receiver, 100 gal GLS
P219	T-2400	Tank/Receiver, 25 gal, SS
P220	T-4075	pressure tank, 16 gal, SS
P221	D-61000	Lab Vacuum Oven, DP-63 (7.6 ft3)
P222	D-61100	Lab Vacuum Oven, DP-63 (7.6 ft3)
P223	D-61200	Lab Vacuum Oven, DP-63 (7.6 ft3)
P224	D-61600	Lab Vacuum Oven, DP-43 (3.2 ft3)
P225	D-61700	Lab Vacuum Oven, DP-43 (3.2 ft3)
P226	T-18520	pressure tank, 16 gal, SS
P227	T-18550	pressure tank, 3 gal, SS
P228	T-18560	pressure tank, 5 gal, SS
P229	HQ-EG-01	200 KW DIESEL GENER”TOR
P230	PD-EG-01	15 KW DIESEL GENER”TOR
P231	LS-EG-01	200 KW DIESEL GENER”TOR
P232	FM-EG-01	30 KW PROPANE GENER”TOR (welder)
P233	SI-FP-01	136 HP DIESEL GENER”TOR
P234	P-12005	APOVAC Vacuum System
P235	P-14500	APOVAC Vacuum System
P236	P-16100	APOVAC Vacuum System
P237	P-16200	APOVAC Vacuum System
P238	P-17100	APOVAC Vacuum System

P239	P-18000	APOVAC Vacuum System
P240	P-18100	APOVAC Vacuum System
P241	P-18200	APOVAC Vacuum System
P242	D-62700	Lab Vacuum Oven, DP-63 (7.6 ft3)
P243	Parts Washer	Parts Washer
P244	P1	pressure tank, 1 gal, SS
P245	P2	pressure tank, 1 gal, SS
P246	P3	pressure tank, 5 gal, SS
P247	P4	pressure tank, 5 gal, SS
P248	P5	pressure tank, 10 gal, SS
P249	OV-00001	Lab Vacuum Oven, DP-43 (3.2 ft3)
P250	OV-00002	Lab Vacuum Oven, DP-43 (3.2 ft3)
P251	P6	pressure tank, 5 gal, SS
P252	LS-EG-02	150 KW Diesel Generator
P253	OV-00003	Lab Vacuum Oven, DP-63 (7.6 ft3)
P254	OV-00004	Lab Vacuum Oven, DP-63 (7.6 ft3)
P255	P7	pressure tank, 5 gal, SS
P256	P8	pressure tank, 5 gal, SS
P257	P9	pressure tank, 10 gal, SS
P258	P10	pressure tank, 20 gal, SS
P259	LS-EG-03	300 KW Diesel Generator
P260	P11	pressure tank, 10 gal, SS
P261	KE-RE-60700	Buchi Model R-220
P262	KE-RE-60800	Buchi Model R-220
P263	KE-RE-60900	Buchi Model R-220
P264	KE-RE-62600	Buchi Model R-220
P265	KE-RE-62800	Buchi Model R-220
P266	PC-RE-00003	Buchi Model R-220

P267	PC-RE-00004	Buchi Model R-220
P268	PC-RE-00001	Buchi Model 152
P269	PC-RE-00002	Buchi Model 158
P270	PC-RE-00005	Heidolph Laboratory 20
P271	PC-RE-00006	Heidolph Laboratory 20
P272	PC-RE-00007	Heidolph Laboratory 20
T005	LS-T-00002	1000 gallon generator/boiler tank -- Number 2 Diesel

3. The following emissions units have been permanently shut down (removed from service) as of the most recent submittal date of the renewal Title V renewal application:

Z038 - R-5100 Reactive Extrusion System;

P013 - D-12000 Double Cone Rotary Dryer System (20 ft3);

P018 - R-400 50 gal Ni-clad Reactor System;

P020 - R-600 100 gal GLS Reactor System;

P021 - R-700 100 gal Ni-clad Reactor System;

B014 - PDSB00002 PD Steam Boiler; 5,250 mmBtu/hr;

B015 - PDSB00003 PD Steam Boiler; 5,250 mmBtu/hr;

T001 - LS Tank LS Fuel Oil Tank, 10,000 gal No. 2 Oil Tank;

T002 - PD Tank PD Fuel Oil Tank, 15,000 gal No. 2 Oil Tank;

Z026 - S-1600 Plate Filter, SS, Sparkler, 13";

Z031 - S-8000 Plate Filter, SS, Sparkler, 18";

Z046 - LSWB00002 LS Water Boiler; 6,000 mmBtu/hr;

Z063 - T-1800 Tank/Receiver, 100 gal, SS;

Z082 - T-2003 Tank/Receiver, 60 gal, SS;

Z084 - T-3875 pressure tank, 5 gal, SS;

Z087 - T-7800 Tank/Receiver, 50 gal, SS; and

Z110 - DF-EG-00002 Emergency Generator.

C. Emissions Unit Terms and Conditions

1. N001, INCINERATOR

Operations, Property and/or Equipment Description:

CONSUMAT C125P, MUTI-CHAMBER INCINERATOR EQUIPPED WITH AN AFTER BURNER AND RATED AT 350 POUNDS PER HOUR FOR TYPES 0 AND 4 WASTES

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) PTI 02-0293	The requirements of this rule are equivalent to the requirements of OAC rules 3745-17-07 and 3745-17-09.
b.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from the stack associated with this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
c.	OAC rule 3745-17-09(B)	Particulate emissions shall not exceed 0.10 pound per 100 pounds of refuse material charged.

(2) Additional Terms and Conditions

a. None.

c) Operational Restrictions

(1) Only properly trained personnel shall operate the incinerator.

(2) The permittee shall ignite the afterburner 30 minutes prior to ignition of refuse material and continue its use during the entire burn cycle.

(3) The permittee shall operate and maintain the incinerator and all associated equipment so as to prevent the emission of objectionable odors.

(4) The permittee shall not charge this emissions unit with “infectious waste” as defined in OAC rule 3745-75-01(C)(4).

(5) The secondary combustion chamber exhaust gas temperature shall be maintained at a minimum of 1400 degrees Fahrenheit.

(6) The waste material feed rate to this incinerator shall be limited to 350 pounds per hour.

[Authority for Term: OAC rule 3745-77-07(A)(1) and PTI-02-0293]

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall operate and maintain a continuous temperature monitor and recorder for the secondary combustion chamber exhaust gas temperatures when the emissions unit is in use. The temperature monitor and recorder shall be calibrated, operated, and maintained in accordance with the manufacturer's recommeandations, instructions,and applicable operating manual(s).

(2) The permittee shall keep a log of the material charged, in pounds per hour, for each day that the unit is in operation.

(3) The permittee shall maintain copies of the records for the secondary combustion chamber exhaust gas temperature and of the daily log of charge rates at the facility for a period of at least five years. Those records shall be made available for Ohio EPA or their representatives to review during normal working hours.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI-02-0293]

e) Reporting Requirements

(1) The permittee shall submit deviation (excursion) reports for all hours of operation during which the charge rate exceeded 350 pounds per hour, including the actual charge rates for all such hours of operation.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI-02-0293]

(2) The permittee shall submit deviation (excursion) reports which provide the following information for each period during which the secondary combustion chamber exhaust gas temperature falls below 1400 degrees Fahrenheit:

a. the date of the excursion;

b. the time interval over which the excursion occurred;

c. the temperature values during the excursion;

d. the cause(s) for the excursion; and

e. the corrective action which has been or will be taken to prevent similiar excursions in the future.

The permittee shall submit deviation (excursion) reports on a semi-annual basis, i.e., by January 31 and July 31 of each year for the previous six calendar months.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI-02-0293]

f) Testing Requirements

(1) Compliance with the emission limitations in Section b)1 of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

Visible particulate emissions from the stack associated with this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated through visible particulate emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appeandix A, Method 9 and OAC rule 3745-17-03(B)(1).

b. Emission Limitation:

Particulate emissions shall not exceed 0.10 pound per 100 pounds of refuse material charged.

Applicable Compliance Method:

If required, compliance shall be demonstrated through stack testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5 and OAC rule 3745-17-03(B)(10).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI-02-0293]

g) Miscellaneous Requirements

(1) None.

2. P007, S-12200

Operations, Property and/or Equipment Description:

PRESSURE FILTER, SS, 36"

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S.EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

C. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI-02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)]);

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P007) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists' (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P007

Equipment Identification: S-12200

Equipment Description: PRESSURE FILTER, SS, 36"

	Molecular	TLV	MAGLC	Potential to Emit	Ground Level Concentration (ug/m3)	
Compound	Weight	(ug/m^3)	(ug/m^3)	(lb/hr)	EF45	EF76
Acetic Acid	60.05	25000	2500	0.8	60	54
Acetone	58.08	1188000	118800	49.3	3609	3258
Acetonitrile	41.05	67000	6700	3.3	238	215
Chloroform	119.40	48834	4883	20.4	1496	1351
Cyclohexane	84.16	1030000	103000	7.2	530	479
Diethyl Ether	74.12	1212000	121200	146.8	10746	9701
Dimethylformamide	73.10	30000	3000	0.3	19	17
Ethyl Acetate	88.11	1440000	144000	7.2	523	473
Ethyl Alcohol	46.07	1880000	188000	2.4	175	158
Heptane	100.21	1640000	164000	4.0	291	262
Isopropyl Acetate	102.13	1044000	104400	5.4	393	355
Isopropyl Alcohol	60.10	983000	98300	2.4	174	157
Methyl Alcohol	32.04	262000	26200	3.5	258	233
Methylamyl Alchohol	102.18	104000	10400	0.2	13	11
Methyl Tert Butyl Ether	88.15	144000	14400	19.2	1405	1269
Methylene Chloride	84.93	174000	17400	32.4	2372	2141
Pyridine	79.10	16000	1600	1.4	105	95
Tetrahydrofuran	72.10	590000	59000	10.1	743	670

Toluene	92.14	188000	18800	2.3	168	151

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P007, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);and 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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

3. P008, S-1900

Operations, Property and/or Equipment Description:

PERFORATED BASKET FILTER, SS, 32"

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used togenerate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)]);

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P008) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “**X**” hours

per day and "**Y**" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P008

Equipment Identification: S-1900

Equipment Description: PERFORATED BASKET CENTRIFUGE, SS, 32"

	Molecular	TLV	MAGLC	Potential to Emit	Ground Level Concentration (ug/m3)	
Compound	Weight	(ug/m^3)	(ug/m^3)	(lb/hr)	EF45	EF76
Acetic Acid	60.05	25000	2500	1.3	94	85
Acetone	58.08	1188000	118800	18.4	1347	1216
Acetonitrile	41.05	67000	6700	5.1	376	339
Chloroform	119.40	48834	4883	0.0	0	0
Cyclohexane	84.16	1030000	103000	11.4	836	755
Diethyl Ether	74.12	1212000	121200	54.8	4011	3621
Dimethylformamide	73.10	30000	3000	0.4	30	27
Ethyl Acetate	88.11	1440000	144000	11.3	826	745
Ethyl Alcohol	46.07	1880000	188000	3.8	275	249
Heptane	100.21	1640000	164000	6.3	458	414
Isopropyl Acetate	102.13	1044000	104400	8.5	620	560
Isopropyl Alcohol	60.10	983000	98300	3.8	275	248
Methyl Alcohol	32.04	262000	26200	5.6	407	367
Methylamyl Alchohol	102.18	104000	10400	0.3	20	18
Methyl Tert Butyl Ether	88.15	144000	14400	30.3	2217	2001
Methylene Chloride	84.93	174000	17400	29.2	2138	1930
Pyridine	79.10	16000	1600	2.3	165	149
Tetrahydrofuran	72.10	590000	59000	16.0	1171	1057
Toluene	92.14	188000	18800	3.6	264	239

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P008, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV previously modeled; changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);and 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.).

b. If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

c. If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s)

modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.); the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F); a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit

exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

4. P009, S-9300

Operations, Property and/or Equipment Description:

PRESSURE FILTER, SS, 36"

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P009) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “X hours per day and “Y days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P009

Equipment Identification: S-9300

Equipment Description: PRESSURE FILTER, SS, 36"

	Molecular	TLV	MAGLC	Potential to Emit	Ground Level Concentration (ug/m3)	
Compound	Weight	(ug/m^3)	(ug/m^3)	(lb/hr)	EF45	EF76
Acetic Acid	60.05	25000	2500	0.5	39	35
Acetone	58.08	1188000	118800	32.9	2409	2174
Acetonitrile	41.05	67000	6700	2.1	156	141
Chloroform	119.40	48834	4883	13.4	979	884
Cyclohexane	84.16	1030000	103000	4.7	347	313
Diethyl Ether	74.12	1212000	121200	98.0	7171	6474
Dimethylformamide	73.10	30000	3000	0.2	12	11
Ethyl Acetate	88.11	1440000	144000	4.7	343	309
Ethyl Alcohol	46.07	1880000	188000	1.6	114	103
Heptane	100.21	1640000	164000	2.6	190	172
Isopropyl Acetate	102.13	1044000	104400	3.5	257	232
Isopropyl Alcohol	60.10	983000	98300	1.6	114	103
Methyl Alcohol	32.04	262000	26200	2.3	169	152
Methylamyl Alchohol	102.18	104000	10400	0.1	8	7
lethyl Tert Butyl Ether	88.15	144000	14400	12.6	920	830
Methylene Chloride	84.93	174000	17400	21.2	1552	1401
Pyridine	79.10	16000	1600	0.9	69	62
Tetrahydrofuran	72.10	590000	59000	6.6	486	439
Toluene	92.14	188000	18800	1.5	110	99

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P009, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of theemissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the

emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

5. P010, S-8400

Operations, Property and/or Equipment Description:

PRESSURE FILTER, SS, 30"

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S.EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P010) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OACrule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “**X**” hours per day and “**Y**” days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or worst case toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P010

Equipment Identification: S-8400

Equipment Description: PRESSURE FILTER, SS, 30"

	Molecular	TLV	MAGLC	Potential to Emit	Ground Level Concentration (ug/m3)	
Compound	Weight	(ug/m^3)	(ug/m^3)	(lb/hr)	EF45	EF76
Acetic Acid	60.05	25000	2500	0.3	23	21
Acetone	58.08	1188000	118800	19.7	1442	1302
Acetonitrile	41.05	67000	6700	1.3	93	84
Chloroform	119.40	48834	4883	8.0	586	529
Cyclohexane	84.16	1030000	103000	2.8	208	188
Diethyl Ether	74.12	1212000	121200	58.7	4294	3876
Dimethylformamide	73.10	30000	3000	0.1	7	7
Ethyl Acetate	88.11	1440000	144000	2.8	205	185
Ethyl Alcohol	46.07	1880000	188000	0.9	68	62
Heptane	100.21	1640000	164000	1.6	114	103
Isopropyl Acetate	102.13	1044000	104400	2.1	154	139
Isopropyl Alcohol	60.10	983000	98300	0.9	68	62
Methyl Alcohol	32.04	262000	26200	1.4	101	91
Methylamyl Alchohol	102.18	104000	10400	0.1	5	4
lethyl Tert Butyl Ether	88.15	144000	14400	7.5	551	497
Methylene Chloride	84.93	174000	17400	12.7	930	839
Pyridine	79.10	16000	1600	0.6	41	37
Tetrahydrofuran	72.10	590000	59000	4.0	291	263
Toluene	92.14	188000	18800	0.9	66	59

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P010, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the

emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

6. P011, D-1500

Operations, Property and/or Equipment Description:

VACUUM SHELF DRYER SYSTEM (48 SQFT)

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P011) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “X hours per day and “Y days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P011
Equipment Identification: D-1500
Equipment Description: Vacuum Shelf Dryer (48 ft^2)

Compound	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	EF76
Acetone	58.08	1188000	118800	0.9	69	62
Acetonitrile	41.05	67000	6700	0.3	19	17
Chloroform	29.75	48834	4883	0.4	30	27
Cyclohexane	84.16	1030000	103000	0.6	43	39
Diethyl Ether	74.12	1212000	121200	2.8	205	185
Dimethylformamide	73.10	30000	3000	0.0	2	1
Ethyl Acetate	88.11	1440000	144000	0.6	42	38
Ethyl Alcohol	46.07	1880000	188000	0.2	14	13
Heptane	100.21	1640000	164000	0.3	23	21
Isopropyl Acetate	102.13	1440000	144000	0.4	32	29
Isopropyl Alcohol	60.10	983000	98300	0.2	14	13
Methyl Alcohol	32.04	262000	26200	0.3	21	19
Methylamyl Alcohol	102.18	104000	10400	0.0	1	1
Methyl Tert Butyl Ether	88.15	144000	14400	1.5	113	102
Methylene Chloride	84.93	174000	17400	2.6	191	173
Pyridine	79.10	16000	1600	0.1	8	8
Tetrahydrofuran	72.10	590000	59000	0.8	60	54
Toluene	92.14	188000	18800	0.2	14	12

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P011, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the

emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

7. P012, D-2000

Operations, Property and/or Equipment Description:

10 CUFT SLANT CONE DRYER SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P012) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application;and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices” the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “**X**” hours per day and “**Y**” days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P012
Equipment Identification: D-2000
Equipment Description: Slant Cone Rotary Dryer (10 ft^3)

Compound	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	EF76
Acetone	58.08	1188000	118800	2.3	169	152
Acetonitrile	41.05	67000	6700	0.6	45	40
Chloroform	29.75	48834	4883	1.0	74	67
Cyclohexane	84.16	1030000	103000	1.3	97	88
Diethyl Ether	74.12	1212000	121200	9.4	690	623
Dimethylformamide	73.10	30000	3000	0.0	2	2
Ethyl Acetate	88.11	1440000	144000	1.2	91	82
Ethyl Alcohol	46.07	1880000	188000	0.3	25	22
Heptane	100.21	1640000	164000	0.7	49	44
Isopropyl Acetate	102.13	1440000	144000	0.9	67	61
Isopropyl Alcohol	60.10	983000	98300	0.3	23	21
Methyl Alcohol	32.04	262000	26200	0.6	42	38
Methylamyl Alcohol	102.18	104000	10400	0.0	1	1
Methyl Tert Butyl Ether	88.15	144000	14400	3.9	286	258
Methylene Chloride	84.93	174000	17400	6.8	497	449
Pyridine	79.10	16000	1600	0.2	16	14
Tetrahydrofuran	72.10	590000	59000	2.0	143	129
Toluene	92.14	188000	18800	0.4	27	25

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P012, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4)], OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4)], OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4)], OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4)], OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the

emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4)], OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

8. P014, D-13000

Operations, Property and/or Equipment Description:

VACUUM SHELF DRYER SYSTEM (183.3 SQFT)

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P014) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary ---Toxic Air Contaminant Statute

OEPA Emission Unit ID: P014
Equipment Identification: D-13000
Equipment Description: Vacuum Shelf Dryer (183.3 ft^2)

Compound	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	EF76
Acetone	58.08	1188000	118800	3.6	262	237
Acetonitrile	41.05	67000	6700	1.0	73	66
Chloroform	29.75	48834	4883	1.6	115	103
Cyclohexane	84.16	1030000	103000	2.2	163	147
Diethyl Ether	74.12	1212000	121200	10.7	781	705
Dimethylformamide	73.10	30000	3000	0.1	6	5
Ethyl Acetate	88.11	1440000	144000	2.2	161	145
Ethyl Alcohol	46.07	1880000	188000	0.7	54	48
Heptane	100.21	1640000	164000	1.2	89	81
Isopropyl Acetate	102.13	1440000	144000	1.7	121	109
Isopropyl Alcohol	60.10	983000	98300	0.7	53	48
Methyl Alcohol	32.04	262000	26200	1.1	79	72
Methylamyl Alcohol	102.18	104000	10400	0.1	4	3
Methyl Tert Butyl Ether	88.15	144000	14400	5.9	432	390
Methylene Chloride	84.93	174000	17400	10.0	729	658
Pyridine	79.10	16000	1600	0.4	32	29
Tetrahydrofuran	72.10	590000	59000	3.1	228	206
Toluene	92.14	188000	18800	0.7	51	46

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P014, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the

emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed on accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed on accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

9. P015, R-100

Operations, Property and/or Equipment Description:

100 GAL. GLS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

10. P016, R-200

Operations, Property and/or Equipment Description:

100 GAL SS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)a, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is photochemically reactive, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or for one or more of the products produced that day, in pounds (the summation of d)(3)e for all products, i.e., the pounds of OC in pounds per day); and

b. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(5) The permittee shall determine the total amount of organic compounds emitted for each cleaning of the emissions unit. The organic compound emissions shall be in units of pounds of organic compounds emitted and shall be determined by material balance.

The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials. The permittee's calculation of the organic compound emissions for each cleaning and record shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemicallyreactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c]; and

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)].

[Authority for Term: OAC rule 3745-77-07(C)(1)]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each day during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day; and

b. for each day during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emissions for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more that 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

g) Miscellaneous Requirements

(1) None.

11. P017, R-300

Operations, Property and/or Equipment Description:

20 GAL GLS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)a, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is photochemically reactive, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or for one or more of the products produced that day, in pounds (the summation of d)(3)e for all products); and

b. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(5) The permittee shall determine the total amount of organic compounds emitted for each cleaning of the emissions unit. The organic compound emissions shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based

upon the use of any photochemically reactive materials. The permittee's calculation of the organic compound emissions for each cleaning and record shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemicallyreactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c]; and

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)].

[Authority for Term: OAC rule 3745-77-07(C)(1)]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each day during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day; and

b. for each day during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emissions for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more that 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

g) Miscellaneous Requirements

(1) None.

12. P019, R-500

Operations, Property and/or Equipment Description:

50 GAL GLS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b.and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

13. P022, R-800

Operations, Property and/or Equipment Description:

500 GAL GLS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)a, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is photochemically reactive, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or for one or more of the products produced that day, in pounds (the summation of d)(3)e for all products); and

b. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(5) The permittee shall determine the total amount of organic compounds emitted for each cleaning of the emissions unit. The organic compound emissions shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based

upon the use of any photochemically reactive materials. The permittee's calculation of the organic compound emissions for each cleaning and record shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemicallyreactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c]; and

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)].

[Authority for Term: OAC rule 3745-77-07(C)(1)]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each day during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day; and

b. for each day during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emissions for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more that 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

g) Miscellaneous Requirements

(1) None.

14. P023, R-900

Operations, Property and/or Equipment Description:

100 GAL SS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)a, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is photochemically reactive, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or for one or more of the products produced that day, in pounds (the summation of d)(3)e for all products); and

b. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(5) The permittee shall determine the total amount of organic compounds emitted for each cleaning of the emissions unit. The organic compound emissions shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based

upon the use of any photochemically reactive materials. The permittee's calculation of the organic compound emissions for each cleaning and record shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemicallyreactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed(not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c]; and

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)].

[Authority for Term: OAC rule 3745-77-07(C)(1)]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each day during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day; and

b. for each day during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emissions for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more that 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

g) Miscellaneous Requirements

(1) None.

15. P024, R-1000

Operations, Property and/or Equipment Description:

500 GAL GLS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b.and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P024) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P024
Equipment Identification: R-1000
Equipment Description: 500 gallon GLS Reaction System

Compound	Photochemically Reactive Organic Cmpd	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration ug/m3 EF45	EF76
Acetic Acid	No	60.05	25000	2500	1.7	124	112
Acetone	No	58.08	1188000	118800	24.2	1769	1597
Acetonitrile	No	41.05	67000	6700	6.7	494	446
t-Butylamine	No	73.14	11000	1100	0.05	4	3
Chlorine	No	70.91	1450	145	0.130	10	9
Chloroform	No	119.40	48834	4883	42.3	3099	2798
Cyclohexane	No	84.16	1030000	103000	15.0	1098	991
Diethyl Ether	No	74.12	1210000	121000	71.9	5267	4754
Dimethylformamide	No	73.10	30000	3000	0.5	39	35
Ethyl Acetate	No	88.11	1440000	144000	14.8	1085	979
Ethyl Alcohol	No	46.07	1880000	188000	4.9	362	327
Heptane	No	100.21	1640000	164000	8.2	602	544
Hydrogen Bromide	No	80.92	7300	730	1.28	94	85
Hydrogen Chloride	No	36.47	5500	550	0.15	11	10
Isopropyl Acetate	No	102.13	1044000	104400	11.1	815	736
Isopropyl Alcohol	No	60.10	983000	98300	4.9	361	326
Methyl Alcohol	No	32.04	262000	26200	7.3	535	483

Methylamyl Alcohol	No	102.18	104000	10400	0.4	26	23
hyl Tert Butyl Ether	No	88.15	144000	14400	20.6	1506	1359
Methylene Chloride	No	84.93	174000	17400	35.5	2598	2345
Pyridine	No	79.10	16000	1600	3.0	217	196
Tetrahydrofuran	No	72.10	590000	59000	21.0	1538	1389
Toluene	Yes	92.14	188000	18800	4.7	347	313

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P024, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall assure that the pH of the scrubber liquor is adequate when the emission unit is being operated using chlorine, hydrogen chloride, hydrogen bromide, and/or t-butylamine, to assure that these compounds are effectively removed from the vent. This would typically be a pH greater than or equal to 10 for chlorine, hydrogen chloride, and hydrogen bromide; and a pH less than or equal to 4 for butylamine.

The following may be used to assure control of the above compound emissions:

a. measuring the pH of the scrubber liquor before and after each reaction; or

b. continuously monitoring and recording the pH of the scrubber liquor using equipment that is properly operated and maintained; or

c. when the stoichiometry and operational specifics are known, document the quantity of acid or base charged along with the stoichiometry.

Whenever the monitored value of the pH deviates from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted; and

d. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date it was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation; and

e. the pH readings immediately after the corrective action.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The acceptable range for the pH of the scrubber liquor is 10 or greater, except for t-butylamine where the acceptable range of pH is 4 or less.

The permittee shall record and maintain a log or record of operating time for the emissions unit and the scrubber.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall submit quarterly reports that identify the following information concerning the operation of the control equipment during the operation of this emissions unit:

a. each period of time when the pH of the scrubber liquor was outside the acceptable range;

b. an identification of each incident of deviation described in e)(3)a where a prompt investigation was not conducted;

c. an identification of each incident of deviation described in e)(3)a where prompt corrective action, that would bring the pH into compliance with the acceptable range, was determined to be necessary and was not taken; and

d. an identification of each incident of deviation described in e)(3)a where proper records were not maintained for the investigation and/or the corrective action.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the

emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

16. P025, R-1300

Operations, Property and/or Equipment Description:

100 GAL GLS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P025) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “X hours per day and “Y days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P025
Equipment Identification: R-1300
Equipment Description: 100 gallon GLS Reaction System

Compound	Photochemically Reactive Organic Cmpd	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	EF76
Acetic Acid	No	60.05	25000	2500	0.5	33	30
Acetone	No	58.08	1188000	118800	6.5	475	429
Acetonitrile	No	41.05	67000	6700	1.8	133	120
t-Butylamine	No	73.14	11000	1100	0.05	4	3
Chlorine	No	70.91	1450	145	0.026	2	2
Chloroform	No	29.75	48834	4883	2.8	207	187
Cyclohexane	No	84.16	1030000	103000	4.0	295	266
Diethyl Ether	No	74.12	1210000	121000	19.3	1413	1276
Dimethylformamide	No	73.10	30000	3000	0.1	11	10
Ethyl Acetate	No	88.11	1440000	144000	4.0	291	263
Ethyl Alcohol	No	46.07	1880000	188000	1.3	97	88
Heptane	No	100.21	1640000	164000	2.2	162	146
Hydrogen Bromide	No	80.92	7300	730	0.26	19	17
Hydrogen Chloride	No	36.47	5500	550	0.03	2	2
Isopropyl Acetate	No	102.13	1044000	104400	3.0	219	197
Isopropyl Alcohol	No	60.10	983000	98300	1.3	97	87
Methyl Alcohol	No	32.04	262000	26200	2.0	143	130
Methylamyl Alcohol	No	102.18	104000	10400	0.1	7	6

Methyl Tert Butyl Ether	No	88.15	144000	14400	5.5	404	365
Methylene Chloride	No	84.93	174000	17400	9.5	697	629
Pyridine	No	79.10	16000	1600	0.8	58	53
Tetrahydrofuran	No	72.10	590000	59000	5.6	413	373
Toluene	Yes	92.14	188000	18800	1.3	93	84

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P025, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application); 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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit

application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute, ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall assure that the pH of the scrubber liquor is adequate when the emission unit is being operated using chlorine, hydrogen chloride, hydrogen bromide, and/or t-butylamine, to assure that these compounds are effectively removed from the vent. This would typically be a pH greater than or equal to 10 for chlorine, hydrogen chloride, and hydrogen bromide; and a pH less than or equal to 4 for butylamine.

The following may be used to assure control of the above compound emissions:

a. measuring the pH of the scrubber liquor before and after each reaction; or

b. continuously monitoring and recording the pH of the scrubber liquor using equipment that is properly operated and maintained; or

c. when the stoichiometry and operational specifics are known, document the quantity of acid or base charged along with the stoichiometry.

Whenever the monitored value of the pH deviates from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted; and

d. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date it was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation; and

e. the pH readings immediately after the corrective action.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The acceptable range for the pH of the scrubber liquor is 10 or greater, except for t-butylamine where the acceptable range of pH is 4 or less.

The permittee shall record and maintain a log or record of operating time for the emissions unit and the scrubber.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit quarterly reports that identify the following information concerning the operation of the control equipment during the operation of this emissions unit:

a. each period of time when the pH of the scrubber liquor was outside the acceptable range;

b. an identification of each incident of deviation described in e)(2)a where a prompt investigation was not conducted;

c. an identification of each incident of deviation described in e)(2)a where prompt corrective action, that would bring the pH into compliance with the acceptable range, was determined to be necessary and was not taken; and

d. an identification of each incident of deviation described in e)(2)a where proper records were not maintained for the investigation and/or the corrective action.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing

performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

17. P026, R-1400

Operations, Property and/or Equipment Description:

500 GAL SS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after the U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P026) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “**X**” hours per day and “**Y**” days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P026
Equipment Identification: R-1400
Equipment Description: 500 gallon SS Reaction System

Compound	Photochemically Reactive Organic Cmpd	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	Ground Level Concentration ug/m3 EF 76
Acetic Acid	No	60.05	25000	2500	1.7	124	112
Acetone	No	58.08	1188000	118800	24.2	1769	1597
Acetonitrile	No	41.05	67000	6700	6.7	494	446
t-Butylamine	No	73.14	11000	1100	0.05	4	3
Chloroform	No	119.40	48834	4883	42.3	3099	2798
Cyclohexane	No	84.16	1030000	103000	15.0	1098	991
Diethyl Ether	No	74.12	1210000	121000	71.9	5267	4754
Dimethylformamide	No	73.10	30000	3000	0.5	39	35
Ethyl Acetate	No	88.11	1440000	144000	14.8	1085	979
Ethyl Alcohol	No	46.07	1880000	188000	4.9	362	327
Heptane	No	100.21	1640000	164000	8.2	602	544
Isopropyl Acetate	No	102.13	1044000	104400	11.1	815	736
Isopropyl Alcohol	No	60.10	983000	98300	4.9	361	326
Methyl Alcohol	No	32.04	262000	26200	7.3	535	483
Methylamyl Alcohol	No	102.18	104000	10400	0.4	26	23
Methyl Tert Butyl Ether	No	88.15	144000	14400	20.6	1506	1359
Methylene Chloride	No	84.93	174000	17400	35.5	2598	2345
Pyridine	No	79.10	16000	1600	3.0	217	196

Tetrahydrofuran	No	72.10	590000	59000	21.0	1538	1389
Toluene	Yes	92.14	188000	18800	4.7	347	313

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P026, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

18. P027, R-8300

Operations, Property and/or Equipment Description:

750 GAL SS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b.and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P027) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P027
Equipment Identification: R-8300
Equipment Description: 750 gallon SS Reaction System

Compound	Photochemically Reactive Organic Cmpd	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	Ground Level Concentration (ug/m3 EF76
Acetic Acid	No	60.05	25000	2500	2.1	157	142
Acetone	No	58.08	1188000	118800	30.7	2244	2026
Acetonitrile	No	41.05	67000	6700	8.6	626	566
t-Butylamine	No	73.14	11000	1100	0.05	4	3
Chloroform	No	119.40	48834	4883	53.7	3931	3549
Cyclohexane	No	84.16	1030000	103000	19.0	1393	1257
Diethyl Ether	No	74.12	1210000	121000	91.2	6680	6030
Dimethylformamide	No	73.10	30000	3000	0.7	50	45
Ethyl Acetate	No	88.11	1440000	144000	18.8	1376	1242
Ethyl Alcohol	No	46.07	1880000	188000	6.3	459	414
Heptane	No	100.21	1640000	164000	10.4	764	689
Isopropyl Acetate	No	102.13	1044000	104400	14.1	1033	933
Isopropyl Alcohol	No	60.10	983000	98300	6.2	457	413
Methyl Alcohol	No	32.04	262000	26200	9.3	678	612
Methylamyl Alcohol	No	102.18	104000	10400	0.4	33	30
Methyl Tert Butyl Ether	No	88.15	144000	14400	26.1	1910	1724
Methylene Chloride	No	84.93	174000	17400	45.0	3295	2974
Pyridine	No	79.10	16000	1600	3.8	275	249

Tetrahydrofuran	No	72.10	590000	59000	26.7	1951	1762
Toluene	Yes	92.14	188000	18800	6.0	440	397

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P027, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit

exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

19. P028, R-10000

Operations, Property and/or Equipment Description:

500 GAL GLS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organiccompound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P028) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “**X**” hours per day and “**Y**” days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P028
Equipment Identification: R-10000
Equipment Description: 500 gallon GLS Reaction System

Compound	Photochemically Reactive Organic Cmpd	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	EF76
Acetic Acid	No	60.05	25000	2500	1.7	124	112
Acetone	No	58.08	1188000	118800	24.2	1769	1597
Acetonitrile	No	41.05	67000	6700	6.7	494	446
t-Butylamine	No	73.14	11000	1100	0.05	4	3
Chlorine	No	70.91	1450	145	0.130	10	9
Chloroform	No	119.40	48834	4883	42.3	3099	2798
Cyclohexane	No	84.16	1030000	103000	15.0	1098	991
Diethyl Ether	No	74.12	1210000	121000	71.9	5267	4754
Dimethylformamide	No	73.10	30000	3000	0.5	39	35
Ethyl Acetate	No	88.11	1440000	144000	14.8	1085	979
Ethyl Alcohol	No	46.07	1880000	188000	4.9	362	327
Heptane	No	100.21	1640000	164000	8.2	602	544
Hydrogen Bromide	No	80.92	7300	730	1.28	94	85
Hydrogen Chloride	No	36.47	5500	550	0.15	11	10
Isopropyl Acetate	No	102.13	1044000	104400	11.1	815	736
Isopropyl Alcohol	No	60.10	983000	98300	4.9	361	326
Methyl Alcohol	No	32.04	262000	26200	7.3	535	483
Methylamyl Alcohol	No	102.18	104000	10400	0.4	26	23
Methyl Tert Butyl Ether	No	88.15	144000	14400	20.6	1506	1359

Methylene Chloride	No	84.93	174000	17400	35.5	2598	2345
Pyridine	No	79.10	16000	1600	3.0	217	196
Tetrahydrofuran	No	72.10	590000	59000	21.0	1538	1389
Toluene	Yes	92.14	188000	18800	4.7	347	313

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P028, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall assure that the pH of the scrubber liquor is adequate when the emission unit is being operated using chlorine, hydrogen chloride, hydrogen bromide, and/or t-butylamine, to assure that these compounds are effectively removed from the vent. This would typically be a pH greater than or equal to 10 for chlorine, hydrogen chloride, and hydrogen bromide; and a pH less than or equal to 4 for butylamine.

The following may be used to assure control of the above compound emissions:

a. measuring the pH of the scrubber liquor before and after each reaction; or

b. continuously monitoring and recording the pH of the scrubber liquor using equipment that is properly operated and maintained; or

c. when the stoichiometry and operational specifics are known, document the quantity of acid or base charged along with the stoichiometry.

Whenever the monitored value of the pH deviates from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted; and

d. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date it was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation; and

e. the pH readings immediately after the corrective action.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The acceptable range for the pH of the scrubber liquor is 10 or greater, except for t-butylamine where the acceptable range of pH is 4 or less.

The permittee shall record and maintain a log or record of operating time for the emissions unit and the scrubber.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include thefollowing information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall submit quarterly reports that identify the following information concerning the operation of the control equipment during the operation of thisemissions unit:

a. each period of time when the pH of the scrubber liquor was outside the acceptable range;

b. an identification of each incident of deviation described in e)(3)a where a prompt investigation was not conducted;

c. an identification of each incident of deviation described in e)(3)a where prompt corrective action, that would bring the pH into compliance with the acceptable range, was determined to be necessary and was not taken; and

d. an identification of each incident of deviation described in e)(3)a where proper records were not maintained for the investigation and/or the corrective action.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the

emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

20. P029, R-17000

Operations, Property and/or Equipment Description:

500 GAL GLS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all productsproduced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P029) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “**X**” hours per day and “**Y**” days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC).

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P029
Equipment Identification: R-17000
Equipment Description: 500 gallon GLS Reaction System

Compound	Photochemically Reactive Organic Cmpd	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration ug/m3 EF45	EF76
Acetic Acid	No	60.05	25000	2500	1.7	124	112
Acetone	No	58.08	1188000	118800	24.2	1769	1597
Acetonitrile	No	41.05	67000	6700	6.7	494	446
t-Butylamine	No	73.14	11000	1100	0.05	4	3
Chlorine	No	70.91	1450	145	0.130	10	9
Chloroform	No	119.40	48834	4883	42.3	3099	2798
Cyclohexane	No	84.16	1030000	103000	15.0	1098	991
Diethyl Ether	No	74.12	1210000	121000	71.9	5267	4754
Dimethylformamide	No	73.10	30000	3000	0.5	39	35
Ethyl Acetate	No	88.11	1440000	144000	14.8	1085	979
Ethyl Alcohol	No	46.07	1880000	188000	4.9	362	327
Heptane	No	100.21	1640000	164000	8.2	602	544
Hydrogen Bromide	No	80.92	7300	730	1.28	94	85
Hydrogen Chloride	No	36.47	5500	550	0.15	11	10
Isopropyl Acetate	No	102.13	1044000	104400	11.1	815	736
Isopropyl Alcohol	No	60.10	983000	98300	4.9	361	326
Methyl Alcohol	No	32.04	262000	26200	7.3	535	483
Methylamyl Alcohol	No	102.18	104000	10400	0.4	26	23
Methyl Tert Butyl Ether	No	88.15	144000	14400	20.6	1506	1359

Methylene Chloride	No	84.93	174000	17400	35.5	2598	2345
Pyridine	No	79.10	16000	1600	3.0	217	196
Tetrahydrofuran	No	72.10	590000	59000	21.0	1538	1389
Toluene	Yes	92.14	188000	18800	4.7	347	313

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P029, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall assure that the pH of the scrubber liquor is adequate when the emission unit is being operated using chlorine, hydrogen chloride, hydrogen bromide, and/or t-butylamine, to assure that these compounds are effectively removed from the vent. This would typically be a pH greater than or equal to 10 for chlorine, hydrogen chloride, and hydrogen bromide; and a pH less than or equal to 4 for butylamine.

The following may be used to assure control of the above compound emissions:

a. measuring the pH of the scrubber liquor before and after each reaction; or

b. continuously monitoring and recording the pH of the scrubber liquor using equipment that is properly operated and maintained; or

c. when the stoichiometry and operational specifics are known, document the quantity of acid or base charged along with the stoichiometry.

Whenever the monitored value of the pH deviates from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date(s) the investigation was conducted; and

d. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

a. a description of the corrective action;

b. the date it was completed;

c. the date and time the deviation ended;

d. the total period of time (in minutes) during which there was a deviation; and

e. the pH readings immediately after the corrective action.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The acceptable range for the pH of the scrubber liquor is 10 or greater, except for t-butylamine where the acceptable range of pH is 4 or less.

The permittee shall record and maintain a log or record of operating time for the emissions unit and the scrubber.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall submit quarterly reports that identify the following information concerning the operation of the control equipment during the operation of thisemissions unit:

a. each period of time when the pH of the scrubber liquor was outside the acceptable range;

b. an identification of each incident of deviation described in e)(3)a where a prompt investigation was not conducted;

c. an identification of each incident of deviation described in e)(3)a where prompt corrective action, that would bring the pH into compliance with the acceptable range, was determined to be necessary and was not taken; and

d. an identification of each incident of deviation described in e)(3)a where proper records were not maintained for the investigation and/or the corrective action.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the

emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

21. P030, E-1200

Operations, Property and/or Equipment Description:

1.4 SQFT LUWA WIPED/THIN FILM EVAPORATOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. The permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Iandustry

(SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P030) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

$$TLV/10 \times 8/X \times 5/Y = 4\ TLV/XY = MAGLC$$

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P030
Equipment Identification: E-1200
Equipment Description: 1.4 ft^2 WFE System

Compound	Photochemically Reactive Organic Cmpd	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	EF76
Acetone	No	58.08	1188000	118800	3.5	255	230
Acetonitrile	No	41.05	67000	6700	1.0	71	64
Chloroform	No	119.40	48834	4883	6.1	447	403
Cyclohexane	No	84.16	1030000	103000	2.2	158	143
Dimethylformamide	No	73.10	30000	3000	0.1	6	5
Ethyl Acetate	No	88.11	1440000	144000	2.1	156	141
Ethyl Alcohol	No	46.07	1880000	188000	0.7	52	47
Heptane	No	100.21	1640000	164000	1.2	87	78
Isopropyl Acetate	No	102.13	1044000	104400	1.6	117	106
Isopropyl Alcohol	No	60.10	983000	98300	0.7	52	47
Methyl Alcohol	No	32.04	262000	26200	1.1	77	70
Methylamyl Alcohol	No	102.18	104000	10400	0.1	4	3
Methyl Tert Butyl Ether	No	88.15	144000	14400	5.7	419	379
Methylene Chloride	No	84.93	174000	17400	9.7	708	639
Pyridine	No	79.10	16000	1600	0.4	31	28
Tetrahydrofuran	No	72.10	590000	59000	3.0	222	200
Toluene	Yes	92.14	188000	18800	0.7	50	45

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P030, is calculated to be less than eighty per cent of the

maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application); 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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), linitially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014 P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit

exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

22. P031, R-2200

Operations, Property and/or Equipment Description:

PROCESS VESSEL,2000 GAL SS

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. The permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Iandustry

(SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P031) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

$$TLV/10 \times 8/X \times 5/Y = 4\ TLV/XY = MAGLC$$

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P031
Equipment Identification: R-2200
Equipment Description: 2000 gallon Tank

Compound	Photochemically Reactive Organic Cmpd	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	EF76
Acetic Acid	No	60.05	25000	2500	2.1	157	142
Acetone	No	58.08	1188000	118800	30.7	2244	2026
Acetonitrile	No	41.05	67000	6700	8.6	626	566
Chloroform	No	119.40	48834	4883	53.7	3931	3549
Cyclohexane	No	84.16	1030000	103000	19.0	1393	1257
Diethyl Ether	No	74.12	1210000	121000	91.2	6680	6030
Dimethylformamide	No	73.10	30000	3000	0.7	50	45
Ethyl Acetate	No	88.11	1440000	144000	18.8	1376	1242
Ethyl Alcohol	No	46.07	1880000	188000	6.3	459	414
Heptane	No	100.21	1640000	164000	10.4	764	689
Isopropyl Acetate	No	102.13	1044000	104400	14.1	1033	933
Isopropyl Alcohol	No	60.10	983000	98300	6.2	457	413
Methyl Alcohol	No	32.04	262000	26200	9.3	678	612
Methylamyl Alcohol	No	102.18	104000	10400	0.4	33	30
Methyl Tert Butyl Ether	No	88.15	144000	14400	26.1	1910	1724
Methylene Chloride	No	84.93	174000	17400	45.0	3295	2974
Pyridine	No	79.10	16000	1600	3.8	275	249
Tetrahydrofuran	No	72.10	590000	59000	26.7	1951	1762
Toluene	Yes	92.14	188000	18800	6.0	440	397

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P031, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or

processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application); 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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit

exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

23. P032, S-3900

Operations, Property and/or Equipment Description:

PERFORATED BASKET FILTER, SS, 24"

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic

compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

24. P033, S-7000

Operations, Property and/or Equipment Description:

PRESSURE FILTER, SS, 24"

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P033) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P033

Equipment Identification: S-7000

Equipment Description: PRESSURE FILTER, SS, 24"

	Molecular	TLV	MAGLC	Potential to Emit	Ground Level Concentration (ug/m3)	
Compound	Weight	(ug/m^3)	(ug/m^3)	(lb/hr)	EF45	EF76
Acetic Acid	60.05	25000	2500	0.2	15	14
Acetone	58.08	1188000	118800	12.8	937	846
Acetonitrile	41.05	67000	6700	0.8	61	55
Chloroform	119.40	48834	4883	5.2	383	346
Cyclohexane	84.16	1030000	103000	1.9	136	123
Diethyl Ether	74.12	1212000	121200	38.1	2790	2519
Dimethylformamide	73.10	30000	3000	0.1	5	4
Ethyl Acetate	88.11	1440000	144000	1.8	134	121
Ethyl Alcohol	46.07	1880000	188000	0.6	45	40
Heptane	100.21	1640000	164000	1.0	74	67
Isopropyl Acetate	102.13	1044000	104400	1.4	101	91
Isopropyl Alcohol	60.10	983000	98300	0.6	45	40
Methyl Alcohol	32.04	262000	26200	0.9	66	60
Methylamyl Alchohol	102.18	104000	10400	0.0	3	3
Methyl Tert Butyl Ether	88.15	144000	14400	4.9	360	325
Methylene Chloride	84.93	174000	17400	8.3	608	549
Pyridine	79.10	16000	1600	0.4	27	24
Tetrahydrofuran	72.10	590000	59000	2.6	190	172
Toluene	92.14	188000	18800	0.6	43	39

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P033, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), Initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the

emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

25. P034, S-7100

Operations, Property and/or Equipment Description:

PRESSURE FILTER, GLS, 24"

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P034) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “**X**” hours per day and “**Y**” days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P034

Equipment Identification: S-7100

Equipment Description: PRESSURE FILTER, GLS, 24"

	Molecular	TLV	MAGLC	Potential to Emit	Ground Level Concentration (ug/m3)	
Compound	Weight	(ug/m^3)	(ug/m^3)	(lb/hr)	EF45	EF76
Acetic Acid	60.05	25000	2500	0.2	16	14
Acetone	58.08	1188000	118800	13.2	966	872
Acetonitrile	41.05	67000	6700	0.9	63	56
Chloroform	119.40	48834	4883	5.4	392	354
Cyclohexane	84.16	1030000	103000	1.9	139	126
Diethyl Ether	74.12	1212000	121200	39.3	2877	2597
Dimethylformamide	73.10	30000	3000	0.1	5	4
Ethyl Acetate	88.11	1440000	144000	1.9	137	124
Ethyl Alcohol	46.07	1880000	188000	0.6	46	41
Heptane	100.21	1640000	164000	1.0	76	69
Isopropyl Acetate	102.13	1044000	104400	1.4	103	93
Isopropyl Alcohol	60.10	983000	98300	0.6	46	41
Methyl Alcohol	32.04	262000	26200	0.9	68	61
Methylamyl Alchohol	102.18	104000	10400	0.0	3	3
Methyl Tert Butyl Ether	88.15	144000	14400	5.0	369	333
Methylene Chloride	84.93	174000	17400	8.5	622	562
Pyridine	79.10	16000	1600	0.4	27	25
Tetrahydrofuran	72.10	590000	59000	2.7	195	176
Toluene	92.14	188000	18800	0.6	44	40

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P034, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s)

modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit

not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

26. P035, S-14600

Operations, Property and/or Equipment Description:

PRESSURE FILTER, SS, 24"

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all productsproduced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(9) The permit to install application for this emissions unit (P035) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) ‘Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “X” hours per day and “Y” days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P035

Equipment Identification: S-14600

Equipment Description: PRESSURE FILTER, SS, 24"

	Molecular	TLV	MAGLC	Potential to Emit	Ground Level Concentration (ug/m3)	
Compound	Weight	(ug/m^3)	(ug/m^3)	(lb/hr)	EF45	EF76
Acetic Acid	60.05	25000	2500	0.2	15	14
Acetone	58.08	1188000	118800	12.8	937	846
Acetonitrile	41.05	67000	6700	0.8	61	55
Chloroform	119.40	48834	4883	5.2	383	346
Cyclohexane	84.16	1030000	103000	1.9	136	123
Diethyl Ether	74.12	1212000	121200	38.1	2790	2519
Dimethylformamide	73.10	30000	3000	0.1	5	4
Ethyl Acetate	88.11	1440000	144000	1.8	134	121
Ethyl Alcohol	46.07	1880000	188000	0.6	45	40
Heptane	100.21	1640000	164000	1.0	74	67
Isopropyl Acetate	102.13	1044000	104400	1.4	101	91
Isopropyl Alcohol	60.10	983000	98300	0.6	45	40
Methyl Alcohol	32.04	262000	26200	0.9	66	60
Methylamyl Alchohol	102.18	104000	10400	0.0	3	3
Methyl Tert Butyl Ether	88.15	144000	14400	4.9	360	325
Methylene Chloride	84.93	174000	17400	8.3	608	549
Pyridine	79.10	16000	1600	0.4	27	24
Tetrahydrofuran	72.10	590000	59000	2.6	190	172
Toluene	92.14	188000	18800	0.6	43	39

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P035, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application); 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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the

emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

27. P036, S-9400

Operations, Property and/or Equipment Description:

FOUR CAVITY BAG FILTER, SS, 1.3 cubic feet

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-13904)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this missions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-13904]

g) Miscellaneous Requirements

(1) None.

28. P037, S-18300

Operations, Property and/or Equipment Description:

PRESSURE FILTER, GLS, 30"

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-18029)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic

compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(9) The permit to install application for this emissions unit (P037) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

   i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

   ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days per week, from that of 8 hours per day and 5 days per week. The resulting

calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P037

Equipment Identification: S-18300

Equipment Description: 30" GLS Pressure Filter

Compound	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	EF76
Acetic Acid	60.05	25000	2500	0.3	25	23
Acetone	58.08	1188000	118800	21.4	1568	1416
Acetonitrile	41.05	67000	6700	1.4	102	92
Chloroform	119.40	48834	4883	8.7	638	576
Cyclohexane	84.16	1030000	103000	3.1	226	204
Diethyl Ether	74.12	1212000	121200	63.7	4665	4211
Dimethylformamide	73.10	30000	3000	0.1	8	7
Ethyl Acetate	88.11	1440000	144000	3.0	223	202
Ethyl Alcohol	46.07	1880000	188000	1.0	74	67
Heptane	100.21	1640000	164000	1.7	124	112
Isopropyl Acetate	102.13	1044000	104400	2.3	168	151
Isopropyl Alcohol	60.10	983000	98300	1.0	74	67
Methyl Alcohol	32.04	262000	26200	1.5	110	99
Methylamyl Alchohol	102.18	104000	10400	0.1	5	5
Methyl Tert Butyl Ether	88.15	144000	14400	8.2	599	541
Methylene Chloride	84.93	174000	17400	13.8	1011	913
Pyridine	79.10	16000	1600	0.6	45	40
Tetrahydrofuran	72.10	590000	59000	4.3	317	286
Toluene	92.14	188000	18800	1.0	71	65

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P037, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s)

modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), Iinitially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit

not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

g) Miscellaneous Requirements

(1) None.

29. P038, S-17900

Operations, Property and/or Equipment Description:

FLASH 400 CHROMOTOGRAPHY SYSTEM, 50 liter

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-18029)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(9) The permit to install application for this emissions unit (P038) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “X” hours per day and “Y” days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P038

Equipment Identification: S-17900

Equipment Description: Flash 400 Chromatography System

	Molecular	TLV	MAGLC	Potential to Emit	Ground Level Concentration (ug/m3)	
Compound	Weight	(ug/m^3)	(ug/m^3)	(lb/hr)	EF45	EF76
Acetone	58.08	1188000	118800	13.2	968	874
Acetonitrile	41.05	67000	6700	3.7	270	244
Cyclohexane	84.16	1030000	103000	8.2	601	543
Ethyl Acetate	88.11	1440000	144000	8.1	593	536
Ethyl Alcohol	46.07	1880000	188000	2.7	198	179
Heptane	100.21	1640000	164000	4.5	330	297
Isopropyl Acetate	102.13	1044000	104400	6.1	446	403
Isopropyl Alcohol	60.10	983000	98300	2.7	197	178
Methyl Alcohol	32.04	262000	26200	4.0	293	264
Methylene Chloride	84.93	174000	17400	36.7	2689	2428
Toluene	92.14	188000	18800	2.6	190	172

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P038, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appenidx A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appenidx A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

g) Miscellaneous Requirements

(1) None.

30. P039, R-700

Operations, Property and/or Equipment Description:

200 GALLON, GLS REACTOR SYSTEM applicable rules OAC 3745-21-07(G)(2), OAC 3745-31-05(A)(3)

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13), d)(14), d)(15), and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-18029)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 37435-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) When using chlorine, hydrogen chloride, hydrogen bromide, and/or t-butyl amine in this emissions unit, a scrubber shall be employed. The pH of the scrubber liquor shall be maintained at a pH of 10 or greater when using chlorine, hydrogen chloride, and/or hydrogen bromide. The pH of the scrubber liquor shall be maintained at a pH of 3 or less when using t-butylamine.

[Authority for Term: OAC rule 3745-77-07(A)(1)]

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(9) The permit to install application for this emissions unit (P039) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P039
Equipment Identification: R-700
Equipment Description: 200 gallon GLS Reaction System

Compound	Photochemically Reactive Organic Cmpd	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	EF76
Acetic Acid	No	60.05	25000	2500	0.7	52	47
Acetone	No	58.08	1188000	118800	10.2	749	676
Acetonitrile	No	41.05	67000	6700	2.9	209	189
t-Butylamine	No	73.14	11000	1100	0.10	7	7
Chlorine	No	70.91	1450	145	0.052	4	3
Chloroform	No	119.40	48834	4883	17.9	1313	1185
Cyclohexane	No	84.16	1030000	103000	6.3	465	420
Diethyl Ether	No	74.12	1210000	121000	30.4	2231	2014
Dimethylformamide	No	73.10	30000	3000	0.2	17	15
Ethyl Acetate	No	88.11	1440000	144000	6.3	459	415
Ethyl Alcohol	No	46.07	1880000	188000	2.1	153	138
Heptane	No	100.21	1640000	164000	3.5	255	230
Hydrogen Bromide	No	80.92	7300	730	0.52	38	34
Hydrogen Chloride	No	36.47	5500	550	0.06	4	4
Isopropyl Acetate	No	102.13	1044000	104400	4.7	345	312
Isopropyl Alcohol	No	60.10	983000	98300	2.1	153	138
Methyl Alcohol	No	32.04	262000	26200	3.1	226	204

Methylamyl Alcohol	No	102.18	104000	10400	0.1	11	10
Methyl Tert Butyl Ether	No	88.15	144000	14400	8.7	638	576
Methylene Chloride	No	84.93	174000	17400	15.0	1100	993
Pyridine	No	79.10	16000	1600	1.3	92	83
Tetrahydrofuran	No	72.10	590000	59000	8.9	652	588
Toluene	Yes	92.14	188000	18800	2.0	147	133

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P039, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application); 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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(14) The permittee shall assure that the pH of the scrubber liquor is adequate when the emission unit is being operated using chlorine, hydrogen chloride, hydrogen bromide,

and/or t-butylamine, to assure that these compounds are effectively removed from the vent. This would typically be a pH greater than or equal to 10 for chlorine, hydrogen chloride, and hydrogen bromide; and a pH less than or equal to 4 for butylamine.

The following may be used to assure control of the above compound emissions:

a. measuring the pH of the scrubber liquor before and after each reaction; or

b. continuously monitoring and recording the pH of the scrubber liquor using equipment that is properly operated and maintained; or

c. when the stoichiometry and operational specifics are known, document the quantity of acid or base charged along with the stoichiometry.

Whenever the monitored value of the pH deviates from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

d. the date and time the deviation began;

e. the magnitude of the deviation at that time;

f. the date(s) the investigation was conducted; and

g. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

h. a description of the corrective action;

i. the date it was completed;

j. the date and time the deviation ended;

k. the total period of time (in minutes) during which there was a deviation; and

l. the pH readings immediately after the corrective action.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The acceptable range for the pH of the scrubber liquor is 10 or greater, except for t-butylamine where the acceptable range of pH is 4 or less.

The permittee shall record and maintain a log or record of operating time for the emissions unit and the scrubber.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-18029]

g) Miscellaneous Requirements

(1) None.

31. P040, R-600

Operations, Property and/or Equipment Description:

100 GALLON, GLS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13), d)(14), d)(15), d)(16) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-20383)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) When using chlorine, hydrogen chloride, hydrogen bromide, and/or t-butyl amine in this emissions unit, a scrubber shall be employed. The pH of the scrubber liquor shall be maintained at a pH of 10 or greater when using chlorine, hydrogen chloride, and/or hydrogen bromide. The pH of the scrubber liquor shall be maintained at a pH of 3 or less when using t-butylamine.

[Authority for Term: OAC rule 3745-77-07(A)(1)]

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions

factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(9) The permit to install application for this emissions unit (P040) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “X” hours per day and “Y” days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P040
Equipment Identification: R-600 (New)
Equipment Description: 100 gallon GLS Reaction System

Compound	Photochemically Reactive Organic Cmpd	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	EF76
Acetic Acid	No	60.05	25000	2500	0.5	33	30
Acetone	No	58.08	1188000	118800	6.5	475	429
Acetonitrile	No	41.05	67000	6700	1.8	133	120
t-Butylamine	No	73.14	11000	1100	0.05	4	3
Chlorine	No	70.91	1450	145	0.026	2	2
Chloroform	No	119.40	48834	4883	11.4	832	751
Cyclohexane	No	84.16	1030000	103000	4.0	295	266
Diethyl Ether	No	74.12	1210000	121000	19.3	1413	1276
Dimethylformamide	No	73.10	30000	3000	0.1	11	10
Ethyl Acetate	No	88.11	1440000	144000	4.0	291	263
Ethyl Alcohol	No	46.07	1880000	188000	1.3	97	88
Heptane	No	100.21	1640000	164000	2.2	162	146
Hydrogen Bromide	No	80.92	7300	730	0.26	19	17
Hydrogen Chloride	No	36.47	5500	550	0.03	2	2
Isopropyl Acetate	No	102.13	1044000	104400	3.0	219	197
Isopropyl Alcohol	No	60.10	983000	98300	1.3	97	87
Methyl Alcohol	No	32.04	262000	26200	2.0	143	130
Methylamyl Alcohol	No	102.18	104000	10400	0.1	7	6
Methyl Tert Butyl Ether	No	88.15	144000	14400	5.5	404	365

Methylene Chloride	No	84.93	174000	17400	9.5	697	629
Pyridine	No	79.10	16000	1600	0.8	58	53
Tetrahydrofuran	No	72.10	590000	59000	5.6	413	373
Toluene	Yes	92.14	188000	18800	1.3	93	84

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P040, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application); 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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(14) The permittee shall assure that the pH of the scrubber liquor is adequate when the emission unit is being operated using chlorine, hydrogen chloride, hydrogen bromide,

and/or t-butylamine, to assure that these compounds are effectively removed from the vent. This would typically be a pH greater than or equal to 10 for chlorine, hydrogen chloride, and hydrogen bromide; and a pH less than or equal to 4 for butylamine.

The following may be used to assure control of the above compound emissions:

a. measuring the pH of the scrubber liquor before and after each reaction; or

b. continuously monitoring and recording the pH of the scrubber liquor using equipment that is properly operated and maintained; or

c. when the stoichiometry and operational specifics are known, document the quantity of acid or base charged along with the stoichiometry.

Whenever the monitored value of the pH deviates from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

d. the date and time the deviation began;

e. the magnitude of the deviation at that time;

f. the date(s) the investigation was conducted; and

g. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

h. a description of the corrective action;

i. the date it was completed;

j. the date and time the deviation ended;

k. the total period of time (in minutes) during which there was a deviation; and

l. the pH readings immediately after the corrective action.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The acceptable range for the pH of the scrubber liquor is 10 or greater, except for t-butylamine where the acceptable range of pH is 4 or less.

The permittee shall record and maintain a log or record of operating time for the emissions unit and the scrubber.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

g) Miscellaneous Requirements

(1) None.

32. P041, R-400

Operations, Property and/or Equipment Description:

50 GALLON, GLS REACTOR SYSTEM

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13), d)(14), d)(15), d)(16) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-20383)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) When using chlorine, hydrogen chloride, hydrogen bromide, and/or t-butyl amine in this emissions unit, a scrubber shall be employed. The pH of the scrubber liquor shall be maintained at a pH of 10 or greater when using chlorine, hydrogen chloride, and/or hydrogen bromide. The pH of the scrubber liquor shall be maintained at a pH of 3 or less when using t-butylamine.

[Authority for Term: OAC rule 3745-77-07(A)(1)]

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions

factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(9) The permit to install application for this emissions unit (P041) 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 Toxic Air Contaminant Statute”, **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “X” hours per day and “Y” days

per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P041
Equipment Identification: R-400
Equipment Description: 50 gallon GLS Reaction System

Compound	Photochemically Reactive Organic Cmpd	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration(ug/m3) EF45	EF76
Acetic Acid	No	60.05	25000	2500	0.3	19	17
Acetone	No	58.08	1188000	118800	3.6	265	239
Acetonitrile	No	41.05	67000	6700	1.0	74	67
t-Butylamine	No	73.14	11000	1100	0.05	4	3
Chlorine	No	70.91	1450	145	0.013	1	1
Chloroform	No	119.40	48834	4883	6.3	464	419
Cyclohexane	No	84.16	1030000	103000	2.2	164	148
Diethyl Ether	No	74.12	1210000	121000	10.8	789	712
Dimethylformamide	No	73.10	30000	3000	0.1	6	5
Ethyl Acetate	No	88.11	1440000	144000	2.2	162	147
Ethyl Alcohol	No	46.07	1880000	188000	0.7	54	49
Heptane	No	100.21	1640000	164000	1.2	90	81
Hydrogen Bromide	No	80.92	7300	730	0.13	9	8
Hydrogen Chloride	No	36.47	5500	550	0.015	1	1
Isopropyl Acetate	No	102.13	1044000	104400	1.7	122	110
Isopropyl Alcohol	No	60.10	983000	98300	0.7	54	49
Methyl Alcohol	No	32.04	262000	26200	1.1	80	72
Methylamyl Alcohol	No	102.18	104000	10400	0.1	4	4

Methyl Tert Butyl Ether	No	88.15	144000	14400	3.1	225	204
Methylene Chloride	No	84.93	174000	17400	5.3	389	351
Pyridine	No	79.10	16000	1600	0.4	33	29
Tetrahydrofuran	No	72.10	590000	59000	3.1	230	208
Toluene	Yes	92.14	188000	18800	0.7	52	47

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P041, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(14) The permittee shall assure that the pH of the scrubber liquor is adequate when the emission unit is being operated using chlorine, hydrogen chloride, hydrogen bromide, and/or t-butylamine, to assure that these compounds are effectively removed from the

vent. This would typically be a pH greater than or equal to 10 for chlorine, hydrogen chloride, and hydrogen bromide; and a pH less than or equal to 4 for butylamine.

The following may be used to assure control of the above compound emissions:

a. measuring the pH of the scrubber liquor before and after each reaction; or

b. continuously monitoring and recording the pH of the scrubber liquor using equipment that is properly operated and maintained; or

c. when the stoichiometry and operational specifics are known, document the quantity of acid or base charged along with the stoichiometry.

Whenever the monitored value of the pH deviates from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

d. the date and time the deviation began;

e. the magnitude of the deviation at that time;

f. the date(s) the investigation was conducted; and

g. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

h. a description of the corrective action;

i. the date it was completed;

j. the date and time the deviation ended;

k. the total period of time (in minutes) during which there was a deviation; and

l. the pH readings immediately after the corrective action.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The acceptable range for the pH of the scrubber liquor is 10 or greater, except for t-butylamine where the acceptable range of pH is 4 or less.

The permittee shall record and maintain a log or record of operating time for the emissions unit and the scrubber.

[Authority for Term: OAC rule 3745-77-07(C)(1)]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-20383]

g) Miscellaneous Requirements

(1) None.

33. P042, S-19100

Operations, Property and/or Equipment Description:

24" GLASS LINED STEEL PRESSURE FILTER

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13), d)(14), d)(15), d)(16) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-22539)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic

compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

(9) The permit to install application for this emissions unit (P042) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

   i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

   ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days per week, from that of 8 hours per day and 5 days per week. The resulting

calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P042

Equipment Identification: S-19100

Equipment Description: 24" GLS Pressure Filter

	Molecular	TLV	MAGLC	Potential to Emit	Ground Level Concentration (ug/m3)	
Compound	Weight	(ug/m^3)	(ug/m^3)	(lb/hr)	EF45	EF76
Acetic Acid	60.05	25000	2500	0.1	10	10
Acetone	58.08	1188000	118800	2.1	137	139
Acetonitrile	41.05	67000	6700	0.6	38	39
Chloroform	119.40	48834	4883	3.7	240	244
Cyclohexane	84.16	1030000	103000	1.3	85	86
Diethyl Ether	74.12	1212000	121200	6.3	408	415
Dimethylformamide	73.10	30000	3000	0.05	3	3
Ethyl Acetate	88.11	1440000	144000	1.3	84	85
Ethyl Alcohol	46.07	1880000	188000	0.4	28	28
Heptane	100.21	1640000	164000	0.7	47	47
Isopropyl Acetate	102.13	1044000	104400	1.0	63	64
Isopropyl Alcohol	60.10	983000	98300	0.4	28	28
Methyl Alcohol	32.04	262000	26200	0.6	41	42
Methylamyl Alchohol	102.18	104000	10400	0.03	2	2
Methyl Tert Butyl Ether	88.15	144000	14400	3.5	225	229
Methylene Chloride	84.93	174000	17400	5.9	380	387
Pyridine	79.10	16000	1600	0.3	17	17
Tetrahydrofuran	72.10	590000	59000	1.8	119	121
Toluene	92.14	188000	18800	0.4	27	27

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P042, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application); 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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s)

modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit

not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22539]

g) Miscellaneous Requirements

(1) None.

34. P043, D-19300

Operations, Property and/or Equipment Description:

Vacuum Shelf Dryer, 105 ft2, D19300

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-22625)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic

compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

(9) The permit to install application for this emissions unit (P043) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

   i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

   ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days per week, from that of 8 hours per day and 5 days per week. The resulting

calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary ---Toxic Air Contaminant Statute

OEPA Emission Unit ID: P043
Equipment Identification: D-19300
Equipment Description: Vacuum Shelf Dryer (105 ft^2)

Compound	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration(ug/m3) EF45	EF76
Acetone	58.08	1188000	118800	2.1	154	141
Acetonitrile	41.05	67000	6700	0.6	42	39
Chloroform	29.75	48834	4883	0.9	66	60
Cyclohexane	84.16	1030000	103000	1.3	94	86
Diethyl Ether	74.12	1212000	121200	6.1	449	411
Dimethylformamide	73.10	30000	3000	0.0	3	3
Ethyl Acetate	88.11	1440000	144000	1.3	92	85
Ethyl Alcohol	46.07	1880000	188000	0.4	31	28
Heptane	100.21	1640000	164000	0.7	51	47
Isopropyl Acetate	102.13	1440000	144000	0.9	69	64
Isopropyl Alcohol	60.10	983000	98300	0.4	31	28
Methyl Alcohol	32.04	262000	26200	0.6	46	42
Methylamyl Alcohol	102.18	104000	10400	0.0	2	2
Methyl Tert Butyl Ether	88.15	144000	14400	3.4	248	227
Methylene Chloride	84.93	174000	17400	5.7	418	383
Pyridine	79.10	16000	1600	0.3	18	17
Tetrahydrofuran	72.10	590000	59000	1.8	131	120
Toluene	92.14	188000	18800	0.4	30	27

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P043, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s)

modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit

not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22625]

g) Miscellaneous Requirements

(1) None.

35. P044, S-19,400

Operations, Property and/or Equipment Description:

Pressure Filter, Glass Lined Steel, 30 inch diameter

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (PTI 02-22950)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic

compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

(9) The permit to install application for this emissions unit (P044) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

   i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

   ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days per week, from that of 8 hours per day and 5 days per week. The resulting

calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary --- Toxic Air Contaminant Statute

OEPA Emission Unit ID: P044

Equipment Identification: S-19400

Equipment Description: 30" GLS Pressure Filter

	Molecular	TLV	MAGLC	Potential to Emit	Ground Level Concentration (ug/m3)	
Compound	Weight	(ug/m^3)	(ug/m^3)	(lb/hr)	EF45	EF76
Acetic Acid	60.05	25000	2500	0.2	11	10
Acetone	58.08	1188000	118800	2.2	161	148
Acetonitrile	41.05	67000	6700	0.6	45	41
Chloroform	119.40	48834	4883	3.8	282	259
Cyclohexane	84.16	1030000	103000	1.4	100	92
Diethyl Ether	74.12	1212000	121200	6.5	479	440
Dimethylformamide	73.10	30000	3000	0.05	4	3
Ethyl Acetate	88.11	1440000	144000	1.3	99	90
Ethyl Alcohol	46.07	1880000	188000	0.4	33	30
Heptane	100.21	1640000	164000	0.7	55	50
Isopropyl Acetate	102.13	1044000	104400	1.0	74	68
Isopropyl Alcohol	60.10	983000	98300	0.4	33	30
Methyl Alcohol	32.04	262000	26200	0.7	49	45
Methylamyl Alchohol	102.18	104000	10400	0.03	2	2
Methyl Tert Butyl Ether	88.15	144000	14400	3.6	265	243
Methylene Chloride	84.93	174000	17400	6.1	447	410
Pyridine	79.10	16000	1600	0.3	20	18
Tetrahydrofuran	72.10	590000	59000	1.9	140	128
Toluene	92.14	188000	18800	0.4	32	29

Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P044, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s)

modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit

not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and PTI 02-22950]

g) Miscellaneous Requirements

(1) None.

36. P045, D-19600

Operations, Property and/or Equipment Description:

Vacuum Shelf Dryer System, 224 square feet; D 19600

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (P0104304)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound

Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic

compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

(9) The permit to install application for this emissions unit (P045) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days per week, from that of 8 hours per day and 5 days per week. The resulting

calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary ---Toxic Air Contaminant Statute

OEPA Emission Unit ID: P045
Equipment Identification: D-19600
Equipment Description: Vacuum Shelf Dryer (224 ft^2)

Compound	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	EF76
Acetone	58.08	1188000	118800	4.4	321	296
Acetonitrile	41.05	67000	6700	1.2	90	83
Chloroform	29.75	48834	4883	1.9	140	129
Cyclohexane	84.16	1030000	103000	2.7	199	184
Diethyl Ether	74.12	1212000	121200	13.1	957	882
Dimethylformamide	73.10	30000	3000	0.1	7	7
Ethyl Acetate	88.11	1440000	144000	2.7	197	182
Ethyl Alcohol	46.07	1880000	188000	0.9	66	61
Heptane	100.21	1640000	164000	1.5	109	101
Isopropyl Acetate	102.13	1440000	144000	2.0	148	136
Isopropyl Alcohol	60.10	983000	98300	0.9	66	60
Methyl Alcohol	32.04	262000	26200	1.3	97	89
Methylamyl Alcohol	102.18	104000	10400	0.1	5	4
Methyl Tert Butyl Ether	88.15	144000	14400	7.3	529	487
Methylene Chloride	84.93	174000	17400	12.3	893	823
Pyridine	79.10	16000	1600	0.5	39	36
Tetrahydrofuran	72.10	590000	59000	3.8	279	258
Toluene	92.14	188000	18800	0.9	63	58

Emissions unit will discharge through either egress point EF45 or EF76, but notboth simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P045, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded.

Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05.

If the change(s) meet(s) the definition of a “modification”, the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions unitsP007 through P012, P014, P024 through P031, P033 through P035 and P037 through P046 (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the

emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

<u>Applicable Compliance Method</u>:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0104304]

g) Miscellaneous Requirements

(1) None.

37. P046, D-21000

Operations, Property and/or Equipment Description:

Vacuum Shelf Dryer, 48 square feet; D-21000

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) d)(9), d)(10), d)(11), d)(12), d)(13) and e)(3)

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) (P0105189)	See b)(2)b and b)(2)c.
b.	OAC rule 3745-21-07(G)(2)	See b)(2)a.

(2) Additional Terms and Conditions

a. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, evaporated, or dried, the permittee shall emit not more than 40 pounds per day nor more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01. Emissions of organic materials from cleanup with photochemically reactive materials shall be included in the calculation of actual emissions when determining compliance with the 8 pounds per hour and 40 pounds per day limits.

b. On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are not employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

This emission limitation shall apply every day after U.S. EPA approves the SIP revision for OAC rule 3745-21-07. See b)(2)e.

c. The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

d. Based on the application for this permit to install, the permittee is exempted from the following federal requirements, as described:

i. NSPS-40 CFR Part 60-Standards for Performance for New Stationary Sources, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Iandustry (SOCMI) Reactor Processes; Exempt based on design/operation as batch. (See 40 CFR Part 60, Subpart RRR, Section 60.700 (c)(1).

ii. MACT-Research and Activity Exemption: OAC rule 3745-31-28(C)(5) and 40 CFR Part 63, Subpart B, Section 63.40(f).

e. On February 18, 2008, OAC rule 3745-21-07 was revised in its entirety; therefore, the 21-07 rule that was in effect prior to this date is no longer part of the State regulations. On April 4, 2008, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-07, the requirement to comply with the previous 21-07 rule provisions still exists as part of the federally-approved SIP for Ohio. The following terms and conditions shall become void after U.S. EPA approves the rule revision: b)(1)b, b)(2)a, e)(1)a, e)(1)b, f)(1)a and f)(1)b.

f. The emissions unit will be used in the preparation of complex organic materials on a contract basis primarily for Research and Development purposes. The materials are prepared by conducting batch chemical reactions. Organic (and sometimes inorganic) compounds are mixed together and are held at various conditions to perform the reaction in the reactor. The reactor is typically charged to a filter where the solids are separated away from the liquid solvent(s). The solvent wet solids are typically charged to a dryer where the solvent is removed from the desired solids. The solvent is recovered in a vacuum/solvent recovery system which is vented to one of two wet scrubbers.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall keep the following daily records for all materials used in this emissions unit:

a. the identification of the chemical compound and its physical state; and

b. for any liquid organic materials, whether or not each material is a photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5).

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

(2) The permittee shall develop an emission factor for the total amount of organic compounds emitted for each product generated in this emissions unit. The emissions factors shall be in units of pounds of organic compounds emitted per hour of operation for each product generated. The permittee shall indicate whether or not each emission factor is based upon the use of any photochemically reactive materials.

A condensed summary of the permittee's calculation and record of each emission factor shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

(3) The permittee shall collect and record the following information each day for each product generated in this emissions unit:

a. the company identification for the product;

b. whether or not any photochemically reactive materials were used to generate the product;

c. the hours of operation (during the day of record) to generate the product;

d. the emission factor for the product, in pounds of organic compounds emitted per hour of operation; and

e. the total organic compound emission rate, in pounds (c x d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

(4) The permittee shall collect and record the following information each day for all the products generated in this emissions unit:

a. for each day during which any photochemically reactive material was used as a cleanup material and/or raw material(s) for one or more of the products, the total organic compound emissions for the entire day;

b. for each day during which no photochemically reactive material was used as a cleanup material and/or for any of the products, the total emissions from all products produced that day, in pounds (the summation of d)(3)e); and

c. the total number of hours the emissions unit was in operation to produce all the products (not to exceed 24 hours minus the total hours for cleanup).

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

(5) The permittee shall determine the total amount of organic compounds emitted for each day for the cleaning of the emissions unit. The organic compounds shall be in units of pounds of organic compounds emitted and shall be determined by material balance. The permittee shall indicate whether or not each cleaning of the emissions unit is based upon the use of any photochemically reactive materials.

A condensed summary calculation of the organic compound emissions for each cleaning shall be submitted to the Ohio EPA Northeast District Office for review and approval. If agreed upon by Ohio EPA, the summaries may be furnished upon request.

Each cleaning of the emissions unit shall be performed in accordance with the procedures and assumptions used in the material balance calculations.

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

(6) The permittee shall collect and record the following information each day when cleaning of the emissions unit is performed:

a. the company identification for each cleanup material;

b. whether or not each cleanup material is a photochemically reactive material;

c. the total organic compound emissions from the cleanup materials that are photochemically reactive materials, in pounds per day;

d. the total organic compound emissions from the cleanup materials that are not photochemically reactive materials, in pounds per day;

e. the number of hours photochemically reactive materials were employed;

f. the number of hours nonphotochemically reactive materials were employed (not including hours when photochemically reactive materials and nonphotochemically reactive materials were employed at the same time); and

g. the total organic compound emissions from all cleanup materials, in pounds (c + d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

(7) The permittee shall collect and record the following information each day for this emissions unit:

a. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per day [d)(4)a + d)(6)c];

b. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total hourly organic compound emissions from all the cleanup materials that are photochemically reactive materials and all the products, in pounds per hour [d)(7)a / (d)(4)c + d)(6)e)];

c. for each day during which any photochemically reactive material was used for one or more of the products and/or as a cleanup material, the total daily organic compound emissions from all the cleanup materials that are not photochemically reactive materials, in pounds per day [d)(6)d];

d. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total daily organic compound emissions from all products and all cleanup materials, in pounds per day [d)(4)b + d)(6)d]; and

e. for each day during which no photochemically reactive material was used for any of the products and any of the cleanup materials, the total hourly organic

compound emissions from all products and all cleanup materials, in pounds per hour [d)(7)d / (d)(4)c + d)(6)f)].

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

(8) The permittee shall record annually the total organic compound emissions from emissions units P007 through P012, P014, P019, and P024 through P046, combined. The annual emissions (in tons) for this group of emissions units shall be calculated by summing the values from d)(7)a, d)(7)c and d)(7)d for the entire calendar year, and then dividing by 2000.

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

(9) The permit to install application for this emissions unit (P046) 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 Toxic Air Contaminant Statute", **ORC 3704.03(F)** was applied to this emissions unit for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3. AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

   i. threshold limit value (TLV) from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; or

   ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Iandustrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Iandices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "**X**" hours per day and "**Y**" days per week, from that of 8 hours per day and 5 days per week. The resulting

calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = 4 TLV/XY = MAGLC

The MAGLC presented (TLV/10) is based on an 8-hour workday and 40-hour workweek as a consequence of the emission unit being used primarily for batch processing which results in intermittent emissions. This approach is based on guidance previously provided in the Ohio EPA DAPC Air Toxic Review Guidance Document (December 1995).

d. The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

Note: TLVs have been rounded off to facilitate calculations and because distances of TLVs/10 (MAGLCS) from the predicted 1-hour Maximum Ground-Level Concentrations are large.

Screen3 Modeling Summary ---Toxic Air Contaminant Statute

OEPA Emission Unit ID: P046
Equipment Identification: D-21000
Equipment Description: Vacuum Shelf Dryer (48 ft^2)

Compound	Molecular Weight	TLV (ug/m^3)	MAGLC (ug/m^3)	Potential to Emit (lb/hr)	Ground Level Concentration (ug/m3) EF45	EF76
Acetone	58.08	1188000	118800	1.3	95	88
Acetonitrile	41.05	67000	6700	0.4	27	24
Chloroform	29.75	48834	4883	0.6	42	38
Cyclohexane	84.16	1030000	103000	0.8	59	54
Diethyl Ether	74.12	1212000	121200	3.9	283	261
Dimethylformamide	73.10	30000	3000	0.029	2	2
Ethyl Acetate	88.11	1440000	144000	0.8	58	54
Ethyl Alcohol	46.07	1880000	188000	0.3	19	18
Heptane	100.21	1640000	164000	0.4	32	30
Isopropyl Acetate	102.13	1440000	144000	0.6	44	40
Isopropyl Alcohol	60.10	983000	98300	0.3	19	18
Methyl Alcohol	32.04	262000	26200	0.4	29	26
Methylamyl Alcohol	102.18	104000	10400	0.019	1	1
Methyl Tert Butyl Ether	88.15	144000	14400	2.2	157	144
Methylene Chloride	84.93	174000	17400	3.6	264	243
Pyridine	79.10	16000	1600	0.2	12	11
Tetrahydrofuran	72.10	590000	59000	1.1	83	76
Toluene	92.14	188000	18800	0.3	19	17

*Emissions unit will discharge through either egress point EF45 or EF76, but not both simultaneously.

The permittee, has demonstrated that emissions of the individual toxic contaminants, modeled from emissions unit P046, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(10) Prior to making any physical changes to or changes in the method of operation of the emissions unit after its installation or modification that could impact the parameters or values used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded.

Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound or chemical with a lower Threshold Limit Value (TLV) than the lowest TLV 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 toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last application);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.).

If the permittee determines that the "Toxic Air Contaminate Statute" 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) solely due to a non restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminate Statute" ORC 3704.03(F), has been documented even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05.

If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit to install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(11) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

(12) The permittee shall sum the predicted 1-hour maximum ground-level concentrations for each pollutant from emissions units P007 through P012, P014, P024 through P031, P033 through P035, and P037 through P046, combined (that is all units subject to the "Toxic Air Contaminant Statute") to demonstrate compliance with the "Toxic Air Contaminant Statute". This sum shall take into account the actual equipment's operating schedule and equipment utilization. Comparison of the sum to the MAGLC shall be made to demonstrate compliance with the "Toxic Air Contaminant Statute".

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

(13) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that include the following information:

a. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 8 pounds per hour, and the actual average hourly organic compound emission rate for each such day;

b. for each during which a photochemically reactive material was employed for one or more of the products and/or as a cleanup material, an identification of each day during which the organic compound emissions from the emissions unit exceeded 40 pounds per day, and the actual organic compound emission rate for each such day; and

c. for each during which no photochemically reactive material was employed for any of the products and any of the cleanup materials, an identification of each day during which the average hourly organic compound emissions from the emissions unit exceeded 50 pounds per hour, and the actual average hourly organic compound emission rate for each such day.

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

(2) The permittee shall submit an annual report by April 30 of each year for the preceding calendar year. Each annual report shall specify the annual organic compound emissions for this emissions unit and for emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined.

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

(3) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[Authority for Term: ORC 3704.03(F)(3)(c) and F(4), OAC rule 3745-114-01, Option A, Engineering Guide #70]

f) Testing Requirements

(1) Compliance with the emission limitations in b)(1) and b)(2) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit not more than 40 pounds per day of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

b. Emission Limitation:

On the days that photochemically reactive materials, as defined in OAC rule 3745-21-01, are employed, applied, evaporated, or dried, the permittee shall emit not more than 8 pounds per hour of organic compounds, as defined in OAC rule 3745-21-01(B)(4).

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

c. Emission Limitation:

On the days that no photochemically reactive materials, as defined in OAC rule 3745-21-01(C)(5), are employed, applied, evaporated, or dried, the permittee shall emit no more than 50 pounds per hour of organic compounds.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d). If required, compliance shall be demonstrated by emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 25, 25A, or 18.

d. Emission Limitation:

The emissions of organic compounds from emissions units P007 through P012, P014, P015, P019 and P024 through P046, combined, shall be limited to 75 tons per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in d).

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

(2) Formulation data shall be used to determine the organic compound contents of the materials employed for each final product and each cleanup material.

[Authority for Term: OAC rule 3745-77-07(C)(1) and P0105189]

g) Miscellaneous Requirements

(1) None.