State of Ohio Environmental Protection Agency

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Columbus, Ohio 43215

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P.O. Box 1049
Columbus, OH 43216-1049

Certified Mail

9/10/2009

| | |
|---|---|
| Yes | TOXIC REVIEW |
| No | PSD |
| No | SYNTHETIC MINOR |
| No | CEMS |
| No | MACT |
| No | NSPS |
| No | NESHAPS |
| No | NETTING |
| No | MAJOR NON-ATTAINMENT |
| No | MODELING SUBMITTED |

GARY STRASSELL
THE SHEPHERD COLOR CO.
4539 DUES DR
CINCINNATI, OH 45246

RE: FINAL AIR POLLUTION PERMIT-TO-INSTALL AND OPERATE
Facility ID: 1409000411
Permit Number: P0105225
Permit Type: OAC Chapter 3745-31 Modification
County: Butler

Dear Permit Holder:

Enclosed please find a final Air Pollution Permit-to-Install and Operate ("PTIO") which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very carefully.

Ohio EPA maintains a document entitled "Frequently Asked Questions about the PTIO". The document can be downloaded from the DAPC Web page, www.epa.state.oh.us/dapc, from the "Permits" link. This document contains additional information related to your permit, such as what activities are covered under the PTIO, who has enforcement authority over the permit and Ohio EPA's authorization to inspect your facility and records. Please contact the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469 if you need assistance.

The issuance of this PTIO is a final action of the Director and may be appealed to the Environmental Review Appeals Commission ("ERAC") under Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and describe the action complained of and the grounds for the appeal. The appeal must be filed with the ERAC within thirty (30) days after notice of the Director's action. A filing fee of $70.00 must be submitted to the ERAC with the appeal, although the ERAC, has discretion to reduce the amount of the filing fee if you can demonstrate (by affidavit) that payment of the full amount of the fee would cause extreme hardship. If you file an appeal of this action, you must notify Ohio EPA of the filing of the appeal (by providing a copy to the Director) within three (3) days of filing your appeal with the ERAC. Ohio EPA requests that a copy of the appeal also be provided to the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the ERAC at the following address:

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

If you have any questions regarding this permit, please contact the Hamilton County Dept. of Environmental Services. This permit has been posted to the Division of Air Pollution Control (DAPC) Web page www.epa.state.oh.us/dapc.

Sincerely,

Michael W. Ahern

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

Cc: HCDOES

**State of Ohio Environmental Protection Agency**
**Division of Air Pollution Control**

# FINAL

# Air Pollution Permit-to-Install and Operate
for
THE SHEPHERD COLOR CO.

Facility ID: 1409000411
Permit Number: P0105225
Permit Type: OAC Chapter 3745-31 Modification
Issued: 9/10/2009
Effective: 9/10/2009
Expiration: 12/1/2018

State of Ohio Environmental Protection Agency
Division of Air Pollution Control

# Air Pollution Permit-to-Install and Operate
for
THE SHEPHERD COLOR CO.

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# Authorization

Facility ID: 1409000411
Application Number(s): A0038008
Permit Number: P0105225
Permit Description: Modifications of permit for Emission Units P038 and P044 to include the use of LPG.
Permit Type: OAC Chapter 3745-31 Modification
Permit Fee: $400.00
Issue Date: 9/10/2009
Effective Date: 9/10/2009
Expiration Date: 12/1/2018
Permit Evaluation Report (PER) Annual Date: Apr 1 - Mar 31, Due May 15

This document constitutes issuance to:

THE SHEPHERD COLOR CO.
4539 DUES DRIVE
West Chester Twp., OH 45246

of a Permit-to-Install and Operate for the emissions unit(s) identified on the following page.

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

Hamilton County Dept. of Environmental Services
250 William Howard Taft Pkwy.
Cincinnati, OH 45219-2660
(513)946-7777

The above named entity is hereby granted this Permit-to-Install and Operate for the air contaminant source(s) (emissions unit(s)) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the described emissions unit(s) will operate in compliance with applicable State and federal laws and regulations.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Chris Korleski
Director

# Authorization (continued)

Permit Number: P0105225
Permit Description: Modifications of permit for Emission Units P038 and P044 to include the use of LPG.

Permits for the following emissions unit(s) or groups of emissions units are in this document as indicated below:

| | |
|---|---|
| **Emissions Unit ID:** | **P038** |
| Company Equipment ID: | Mixer Dryer Reactor #1 |
| Superseded Permit Number: | |
| General Permit Category and Type: | Not Applicable |
| **Emissions Unit ID:** | **P044** |
| Company Equipment ID: | Mixer Dryer Reactor #2 |
| Superseded Permit Number: | |
| General Permit Category and Type: | Not Applicable |

# A. Standard Terms and Conditions

1. **What does this permit-to-install and operate ("PTIO") allow me to do?**

   This permit allows you to install and operate the emissions unit(s) identified in this PTIO. You must install and operate the unit(s) in accordance with the application you submitted and all the terms and conditions contained in this PTIO, including emission limits and those terms that ensure compliance with the emission limits (for example, operating, recordkeeping and monitoring requirements).

2. **Who is responsible for complying with this permit?**

   The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.

   The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

3. **What records must I keep under this permit?**

   You must keep all records required by this permit, including monitoring data, test results, strip-chart recordings, calibration data, maintenance records, and any other record required by this permit for five years from the date the record was created. You can keep these records electronically, provided they can be made available to Ohio EPA during an inspection at the facility. Failure to make requested records available to Ohio EPA upon request is a violation of this permit requirement.

4. **What are my permit fees and when do I pay them?**

   There are two fees associated with permitted air contaminant sources in Ohio:

   - PTIO fee. This one-time fee is based on a fee schedule in accordance with Ohio Revised Code (ORC) section 3745.11, or based on a time and materials charge for permit application review and permit processing if required by the Director.

     You will be sent an invoice for this fee after you receive this PTIO and payment is due within 30 days of the invoice date. You are required to pay the fee for this PTIO even if you do not install or modify your operations as authorized by this permit.

   - Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. For facilities that are permitted as synthetic minor sources, the fee schedule is adjusted annually for inflation. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

5. **When does my PTIO expire, and when do I need to submit my renewal application?**

   This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

If a complete renewal application is submitted before the expiration date, Ohio EPA considers this a timely application for purposes of ORC section 119.06, and you are authorized to continue operating the emissions unit(s) covered by this permit beyond the expiration date of this permit until final action is taken by Ohio EPA on the renewal application.

**6. What happens to this permit if my project is delayed or I do not install or modify my source?**

This PTIO expires 18 months after the issue date identified on the "Authorization" page above unless otherwise specified if you have not (1) started constructing the new or modified emission sources identified in this permit, or (2) entered into a binding contract to undertake such construction. This deadline can be extended by up to 12 months, provided you apply to Ohio EPA for this extension within a reasonable time before the 18-month period has ended and you can show good cause for any such extension.

**7. What reports must I submit under this permit?**

An annual permit evaluation report (PER) is required in addition to any malfunction reporting required by OAC rule 3745-15-06 or other specific rule-based reporting requirement identified in this permit. Your PER due date is identified in the Authorization section of this permit.

**8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?**

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).

The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

**9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?**

You must perform scheduled maintenance of air pollution control equipment in accordance with OAC rule 3745-15-06(A). If scheduled maintenance requires shutting down or bypassing any air pollution control equipment, you must also shut down the emissions unit(s) served by the air pollution control equipment during maintenance, unless the conditions of OAC rule 3745-15-06(A)(3) are met. Any emissions that exceed permitted amount(s) under this permit (unless specifically exempted by rule) must be reported as deviations in the annual permit evaluation report (PER), including nonexempt excess emissions that occur during approved scheduled maintenance.

**10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?**

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the Hamilton County Dept. of Environmental Services in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

**11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?**

Yes. Under Ohio law, the Director or his authorized representative may inspect the facility, conduct tests, examine records or reports to determine compliance with air pollution laws and regulations and the terms and conditions of this permit. You must provide, within a reasonable time, any information Ohio EPA requests either verbally or in writing.

**12. What happens if one or more emissions units operated under this permit is/are shut down permanently?**

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means the emissions unit 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.

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emission unit once the certification has been submitted to Ohio EPA by the authorized official.

You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.

Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

**13. Can I transfer this permit to a new owner or operator?**

You can transfer this permit to a new owner or operator. If you transfer the permit, you must follow the procedures in OAC Chapter 3745-31, including notifying Ohio EPA or the local air agency of the

change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.

**14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?**

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

**15. What happens if a portion of this permit is determined to be invalid?**

If a portion of this permit is determined to be invalid, the remainder of the terms and conditions remain valid and enforceable. The exception is where the enforceability of terms and conditions are dependent on the term or condition that was declared invalid.

# B. Facility-Wide Terms and Conditions

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

   a) For the purpose of a permit-to-install document, the facility-wide terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

      (1) None.

   b) For the purpose of a permit-to-operate document, the facility-wide terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

      (1) None.

# C. Emissions Unit Terms and Conditions

**1. P038, Mixer Dryer Reactor #1**

**Operations, Property and/or Equipment Description:**

Mixer Dryer Reactor #1

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

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

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) | Volatile Organic Compounds (VOC) emissions shall not exceed 2.63 pounds per hour and 11.54 tons per year.<br>See b)(2)d. |
| b. | OAC rule 3745-31-05(A)(3)(a)(ii) | See b)(2)a. |
| c. | OAC rule 3745-31-05(A)(3)(a) | See b)(2)b. |
| d. | OAC rule 3745-17-07(A)(1) | Visible particulate emissions from any stack shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule. |
| e. | OAC rule 3745-17-11(B) | Particulate emissions (PE) shall not exceed 2.07 pounds/hour, based on Table I.<br>See b)(2)e. |

(2) Additional Terms and Conditions

a. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to particulate matter emissions 10 microns and less in diameter (PM10), sulfur dioxide (SO2), nitrogen oxides (NOx) and carbon

monoxide (CO) emissions from this air contaminant source since the uncontrolled potential to emit for PM10, SO2, NOx and CO emissions are less than 10 tons/year.

b. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PE from this air contaminant source because the calculated annual emission rate for PE is less than ten tons per year taking into account the federally enforceable requirements under OAC rule 3745-17-11(B).

c. Compliance with the Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) for VOC shall be demonstrated by compliance with the emission limitations.

d. The hourly VOC emission limitation outlined is based upon the emissions unit's Potential to Emit (PTE). Therefore, no hourly records are required to demonstrate compliance with this limit.

e. This emissions unit's potential to emit for PE is less than the allowable emission limitation established in OAC rule 3745-17-11(B). Therefore, no hourly records are required to demonstrate compliance with this limit.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The PTIO 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. 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(s) 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 Industrial Hygienists' (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Industrial Hygienists' (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; 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., 24 hours per day and 7 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):

$$TLV/10 \times 8/X \times 5/Y = 4\ TLV/XY = MAGLC$$

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):

Toxic Contaminant: Ammonia

TLV (mg/m3): 17430

Maximum Hourly Emission Rate (lbs/hr): 1.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 48.5

MAGLC (ug/m3): 415.0

The permittee, has demonstrated that emissions of ammonia, 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).

(2) Prior to making any physical changes to or changes in the method of operation of the emissions unit(s), that could impact the parameters or values that were 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 new toxic air contaminant 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(s) or its/their 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 Contaminant 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 solely due to a non-restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminant 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 PTI, PTIO, or FEPTIO (as applicable) 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.

(3) 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.

(4) 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.

e) Reporting Requirements

(1) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director by the due date identified in the Authorization section of this permit. The permit evaluation report shall

cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit.

f) Testing Requirements

(1) Compliance with the emission limitation(s) in these terms and condition shall be determined in accordance with the following method(s):

a. Emission Limitation:

Particulate emissions (PE) shall not exceed 2.07 pounds/hour.

Applicable Compliance Method:

The hourly PE were determined using the following methodology:

PE rate from the raw materials processed:

[maximum hourly production rate (720 lbs/hour)] x [the emission factor, as supplied by the permittee (0.001lb of PE/lb of product)] x [1 - the fractional control efficiency of (0.90)] = 0.072 lb of PE/hour

PE from natural gas used:

Maximum Hourly Natural Gas Usage = (6 MMBTU/hour)/(1 MMBTU/1,000 cubic feet) = 6 x (1,000 cubic feet/hour)*

[6 x (1,000 cubic feet/hour)] x [0.0076 lb of PE/1,000 cubic feet**] = 0.046 lb/hour of PM emissions

Total hourly PE = [0.072 lb/hour (from process) + 0.046 lb/hour (from natural gas)] = 0.12 of PE

Total annual PE = [0.072 lb/hour (from process) + 0.046 lb/hour (from natural gas)] x 8760 hours/year x 2000 lbs/ton = 0.53 ton/year of PE

* maximum hourly natural gas usage rate supplied by permittee
** emission factor from AP-42, Chapter 1.4, "Natural Gas Combustion", Tables 1.4-1, 2 and 3, dated July, 1998

b. Emission Limitation:

Particulate matter emissions 10 microns and less in diameter (PM10) shall not exceed 9.9 ton per year.

Applicable Compliance Method:

PM10 from natural gas used:

Maximum Hourly Natural Gas Usage = (6 MMBTU/hour)/(1 MMBTU/1,000 cubic feet) = 6 x (1,000 cubic feet/hour)*

[6 x (1,000 cubic feet/hour)] x [0.0076 lb of PM10/1,000 cubic feet**] = 0.046 lb/hour of PM10 emissions

Total hourly PM10 emissions = [0.072 lb/hour (from process) + 0.046 lb/hour (from natural gas)] = 0.12 lb/hr of PM10 emissions

Total annual PM10 emissions = [0.072 lb/hour (from process) + 0.046 lb/hour (from natural gas)] x 8760 hours/year x 2000 lbs/ton = 0.53 ton/year of PM10 emissions

* maximum hourly natural gas usage rate supplied by permittee
** emission factor from AP-42, Chapter 1.4, "Natural Gas Combustion", Tables 1.4-1, 2 and 3, dated July, 1998

c. Emission Limitation:

Carbon monoxide (CO) emissions shall not exceed 9.9 ton per year.

Applicable Compliance Method:

The annual CO emissions were determined using the following methodology:

CO emission rate from the raw materials processed:

[maximum hourly production rate (720 lbs/hour)] x [the emission factor, as supplied by the permittee (0.0004 lb of CO emissions/lb of product) = 0.3 lb of CO emissions/hour

CO emissions from LPG used:

33 gallons LPG/hour x 0.0075 lb of CO/ gallon LPG = 0.25 lb/hour of CO emissions.

Total annual CO Emissions = [0.3 (from process) + 0.25 (from natural gas)] x 8760 hours/year x 2000 lbs/ton = 2.41 tons/year of CO emissions

** emission factor from AP-42, Chapter 1.5, "Liquefied Petroleum Gas Combustion", Tables 1.5-1, dated July, 2008

d. Emission Limitation:

Sulfur Dioxide (SO2) emissions shall not exceed 9.9 ton per year.

Applicable Compliance Method:

The annual SO2 emissions were determined using the following methodology:

SO2 emission rate from the raw materials processed:

[maximum hourly production rate (720 lbs/hour)] x [the emission factor, as supplied by the permittee (0.00007 lb of SO2 emissions/lb of product) = 0.05 lb of SO2 emissions/hour

SO2 emissions from natural gas used:

[6 x (1,000 cubic feet/hour)] x [0.0006 lb of SO2 emissions/1,000 cubic feet**] = 0.004 lb/hour of SO2 emissions

Total annual SO2 Emissions = [0.05 (from process) + 0.004 (from natural gas)] x 8760 hours/year x 2000 lbs/ton = 0.24 ton/year of SO2 emissions

** emission factor from AP-42, Chapter 1.4, "Natural Gas Combustion", Tables 1.4-1, 2 and 3, dated July, 1998

e. Emission Limitation:

Volatile Organic Compounds (VOC) emissions shall not exceed 2.63 pounds per hour and 11.54 tons per year.

Applicable Compliance Method:

The hourly and the annual VOC emissions limitations were determined using the following methodology:

VOC emission rate from the raw materials processed:

[maximum hourly production rate (720 lbs/hour)] x [the emission factor, as supplied by the permittee (0.0036 lb of VOC emissions/lb of product) = 2.6 lbs of VOC emissions/hour

VOC emissions from natural gas used:

[6 x (1,000 cubic feet/hour)] x [0.0059 lb of VOC emissions/1,000 cubic feet**] = 0.035 lb/hour of VOC emissions

Total hourly VOC emissions = 2.6 (from process) + 0.035 (from natural gas) = 2.63 lb/hour of VOC emissions

The annual VOC emissions = 2.63 lb/hour of VOC emissions x 8760 hours/year x 2000 lbs/ton = 11.54 tons/year of VOC emissions

** emission factor from AP-42, Chapter 1.4, "Natural Gas Combustion", Tables 1.4-1, 2 and 3, dated July, 1998

f. Emission Limitation:

Nitrogen Oxide (NOx) emissions shall not exceed 9.9 tons per year.

Applicable Compliance Method:

The annual NOx emission limitation is based upon the emissions unit's potential to emit and was determined by using the following equation:

NOx emissions from natural gas used:

[6 x (1,000 cubic feet/hour)] x [0.1 lb of NOx emissions/1,000 cubic feet**] = 0.6 lb/hour of NOx emissions

The annual NOx emissions = 0.6 lb/hour of NOx emissions x 8760 hours/year x 2000 lbs/ton = 2.6 tons/year of NOx emissions

** emission factor from AP-42, Chapter 1.4, "Natural Gas Combustion", Tables 1.4-1, 2 and 3, dated July, 1998

g. Emission Limitation:

Visible PE from any stack shall not exceed 20% percent opacity, as a six-minute average.

Applicable Compliance Method:

Compliance shall be determined through visible emission observations performed in accordance U.S. EPA Method 9.

g) Miscellaneous Requirements

(1) None.

## 2. P044, Mixer Dryer Reactor #2

**Operations, Property and/or Equipment Description:**

Mixer Drier Reactor #2

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

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

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)(a)(ii) | See b)(2)a. |
| b. | OAC rule 3745-31-05(A)(3)(a) | See b)(2)b. |
| c. | OAC rule 3745-17-07(A)(1) | Visible particulate emissions from any stack shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule. |
| d. | OAC rule 3745-17-11(B) | Particulate emissions (PE) shall not exceed 1.39 pounds/hour, based on Table I.<br>See b)(2)c. |

(2) Additional Terms and Conditions

a. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to particulate matter emissions 10 microns and less in diameter (PM10), sulfur dioxide (SO2), nitrogen oxides (NOx), carbon monoxide (CO) and Volatile Organic Compound (VOC) emissions from this air contaminant source since the uncontrolled potential to emit for PM10, SO2, NOx, CO and VOC emissions are less than 10 tons/year.

b. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PE from this air contaminant source because the calculated annual emission rate for PE is less than ten tons per year taking into account the federally enforceable requirements under OAC rule 3745-17-11(B).

c. This emissions unit's potential to emit for PE is less than the allowable emission limitation established in OAC rule 3745-17-11(B). Therefore, no hourly records are required to demonstrate compliance with this limit.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The PTIO 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. 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(s) 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 Industrial Hygienists' (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Industrial Hygienists' (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; 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., 24 hours per day and 7 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

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):

Toxic Contaminant: Ammonia

TLV (mg/m3): 17430

Maximum Hourly Emission Rate (lbs/hr): 1.0

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 48.5

MAGLC (ug/m3): 415.0

The permittee, has demonstrated that emissions of ammonia, 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).

(2) Prior to making any physical changes to or changes in the method of operation of the emissions unit(s), that could impact the parameters or values that were 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 new toxic air contaminant 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(s) or its/their 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 Contaminant 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 solely due to a non-restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminant 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 PTI, PTIO, or FEPTIO (as applicable) 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.

(3) 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.

(4) 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.

e) Reporting Requirements

(1) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit.

f) Testing Requirements

(1) Compliance with the emission limitation(s) in these terms and condition shall be determined in accordance with the following method(s):

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

Particulate emissions (PE) shall not exceed 1.39 pounds/hour.

Applicable Compliance Method:

The hourly PE were determined using the following methodology:

PE rate from the raw materials processed:

[maximum hourly production rate (400 lbs/hour)] x [the emission factor, as supplied by the permittee (0.001lb of PE/lb of product)] x [1 - the fractional control efficiency of (0.90)] = 0.04 lb of PE/hour

PE from natural gas used:

Maximum Hourly Natural Gas Usage = (6 MMBTU/hour)/(1 MMBTU/1,000 cubic feet) = 6 x (1,000 cubic feet/hour)*

[6 x (1,000 cubic feet/hour)] x [0.0076 lb of PE/1,000 cubic feet**] = 0.046 lb/hour of PM emissions

Total hourly PE = [0.04 lb/hour (from process) + 0.046 lb/hour (from natural gas)] = 0.09 lb/hr of PE

Total annual PE = [0.04 lb/hour (from process) + 0.046 lb/hour (from natural gas)] x 8760 hours/year x 2000 lbs/ton = 0.38 ton/year of PE

* maximum hourly natural gas usage rate supplied by permittee
** emission factor from AP-42, Chapter 1.4, "Natural Gas Combustion", Tables 1.4-1, 2 and 3, dated July, 1998

b. Emission Limitation:

Particulate matter emissions 10 microns and less in diameter (PM10) shall not exceed 9.9 ton per year.

Applicable Compliance Method:

PM10 rate from the raw materials processed:

[maximum hourly production rate (400 lbs/hour)] x [the emission factor, as supplied by the permittee (0.001lb of PM10/lb of product)] x [1 - the fractional control efficiency of (0.90)] = 0.04 lb of PM10E/hour from natural gas used.

Maximum Hourly Natural Gas Usage = (6 MMBTU/hour)/(1 MMBTU/1,000 cubic feet) = 6 x (1,000 cubic feet/hour)*

[6 x (1,000 cubic feet/hour)] x [0.0076 lb of PM10/1,000 cubic feet**] = 0.046 lb/hour of PM10 emissions

Total hourly PM10 emissions = [0.04 lb/hour (from process) + 0.046 lb/hour (from natural gas)] = 0.09 lb/hr of PM10 emissions

Total annual PM10 emissions = [0.04 lb/hour (from process) + 0.046 lb/hour (from natural gas)] x 8760 hours/year x 2000 lbs/ton = 0.38 ton/year of PM10 emissions

* maximum hourly natural gas usage rate supplied by permittee
** emission factor from AP-42, Chapter 1.4, "Natural Gas Combustion", Tables 1.4-1, 2 and 3, dated July, 1998

c. Emission Limitation:

Carbon monoxide (CO) emissions shall not exceed 9.9 ton per year.

Applicable Compliance Method:

The annual CO emissions were determined using the following methodology:

CO emission rate from the raw materials processed:

[maximum hourly production rate (400 lbs/hour)] x [the emission factor, as supplied by the permittee (0.0004 lb of CO emissions/lb of product) = 0.16 lb of CO emissions/hour

CO emissions from LPG used:

33 gallons LPG/hour x 0.0075 lb of CO/ gallon LPG = 0.25 lb/hour of CO emissions.

Total annual CO Emissions = [0.16 (from process) + 0.25 (from natural gas)] x 8760 hours/year x 2000 lbs/ton = 1.80 tons/year of CO emissions

** emission factor from AP-42, Chapter 1.5, "Liquefied Petroleum Gas Combustion", Tables 1.5-1, dated July, 2008

d. Emission Limitation:

Sulfur Dioxide (SO2) emissions shall not exceed 9.9 ton per year.

Applicable Compliance Method:

The annual SO2 emissions were determined using the following methodology:

SO2 emission rate from the raw materials processed:

[maximum hourly production rate (400 lbs/hour)] x [the emission factor, as supplied by the permittee (0.00007 lb of SO2 emissions/lb of product) = 0.03 lb of SO2 emissions/hour

SO2 emissions from natural gas used:

[6 x (1,000 cubic feet/hour)] x [0.0006 lb of SO2 emissions/1,000 cubic feet**] = 0.004 lb/hour of SO2 emissions

Total annual SO2 Emissions = [0.03 (from process) + 0.004 (from natural gas)] x 8760 hours/year x 2000 lbs/ton = 0.15 ton/year of SO2 emissions

** emission factor from AP-42, Chapter 1.4, "Natural Gas Combustion", Tables 1.4-1, 2 and 3, dated July, 1998

e. Emission Limitation:

Volatile Organic Compounds (VOC) emissions shall not exceed 9.9 tons per year.

Applicable Compliance Method:

The annual VOC emissions were determined using the following methodology:

VOC emission rate from the raw materials processed:

[maximum hourly production rate (400 lbs/hour)] x [the emission factor, as supplied by the permittee (0.0036 lb of VOC emissions/lb of product) = 1.44 lbs of VOC emissions/hour

VOC emissions from natural gas used:

[6 x (1,000 cubic feet/hour)] x [0.0059 lb of VOC emissions/1,000 cubic feet**] = 0.035 lb/hour of VOC emissions

Total annual VOC emissions = [1.44 (from process) + 0.035 (from natural gas)] x 8760 hours/year x 2000 lbs/ton = 6.46 tons/year of VOC emissions

** emission factor from AP-42, Chapter 1.4, "Natural Gas Combustion", Tables 1.4-1, 2 and 3, dated July, 1998

f. Emission Limitation:

Nitrogen Oxide (NOx) emissions shall not exceed 9.9 tons per year.

Applicable Compliance Method:

The annual NOx emission limitation is based upon the emissions unit's potential to emit and was determined by using the following equation:

NOx emissions from natural gas used:

[6 x (1,000 cubic feet/hour)] x [0.1 lb of NOx emissions/1,000 cubic feet**] x 8760 hours/year x 2000 lb/ton = 2.63 ton/year of NOx emissions

** emission factor from AP-42, Chapter 1.4, "Natural Gas Combustion", Tables 1.4-1, 2 and 3, dated July, 1998

Compliance with the annual NOx emission limitation is ensured if compliance is maintained with the hourly NOx emission limitation.

g. Emission Limitation:

Visible PE from any stack shall not exceed 20% percent opacity, as a six-minute average.

Applicable Compliance Method:

Compliance shall be determined through visible emission observations performed in accordance U.S. EPA Method 9.

g) Miscellaneous Requirements

(1) None.