



John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

9/21/2016

Certified Mail

Eric Lillyblad
 Graco - Ohio
 1112 Sibley St NE
 Minneapolis, MN 55413

No	TOXIC REVIEW
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MODELING SUBMITTED
No	SYNTHETIC MINOR TO AVOID TITLE V
No	FEDERALLY ENFORCABLE PTIO (FEPTIO)
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE

Facility ID: 1576175027
 Permit Number: P0121442
 Permit Type: Initial Installation
 County: Stark

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) 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. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**
- **What should you do if you notice a spill or environmental emergency?**

How to appeal this permit

The issuance of this PTIO 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
 77 South High Street, 17th Floor
 Columbus, OH 43215

How to save money, reduce pollution and reduce energy consumption

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. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: www.ohioairquality.org/clean_air

How to give us feedback on your permitting experience

Please complete a survey at www.epa.ohio.gov/survey.aspx and give us feedback on your permitting experience. We value your opinion.

How to get an electronic copy of your permit

This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

What should you do if you notice a spill or environmental emergency?

Any spill or environmental emergency which may endanger human health or the environment should be reported to the Emergency Response 24-HOUR EMERGENCY SPILL HOTLINE toll-free at (800) 282-9378. Report non-emergency complaints to the appropriate district office or local air agency.

If you have any questions regarding your permit, please contact Canton City Health Department at (330)489-3385 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael E. Hopkins, P.E.
Assistant Chief, Permitting Section, DAPC

Cc: Canton



FINAL

**Division of Air Pollution Control
Permit-to-Install and Operate
for
Graco - Ohio**

Facility ID:	1576175027
Permit Number:	P0121442
Permit Type:	Initial Installation
Issued:	9/21/2016
Effective:	9/21/2016
Expiration:	9/21/2026



**Division of Air Pollution Control
Permit-to-Install and Operate**

for
Graco - Ohio

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Final Permit-to-Install and Operate
Graco - Ohio
Permit Number: P0121442
Facility ID: 1576175027
Effective Date: 9/21/2016

Authorization

Facility ID: 1576175027
Application Number(s): A0056607
Permit Number: P0121442
Permit Description: Initial installation of spray booth K003 intended for intermittent use for training and demonstration events regarding the use of spray application and related equipment manufactured by Graco, and for internal R&D testing of equipment. The permit includes a voluntary emissions limitation of 0.193 tons VOC per month averaged over a 12-month rolling period.
Permit Type: Initial Installation
Permit Fee: \$200.00
Issue Date: 9/21/2016
Effective Date: 9/21/2016
Expiration Date: 9/21/2026
Permit Evaluation Report (PER) Annual Date: July 1 - June 30, Due Aug 15

This document constitutes issuance to:

Graco - Ohio
8400 Port Jackson Avenue NW
North Canton, OH 44720

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

Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Canton City Health Department
420 Market Avenue
Canton, OH 44702-1544
(330)489-3385

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


Craig W. Butler
Director



Authorization (continued)

Permit Number: P0121442

Permit Description: Initial installation of spray booth K003 intended for intermittent use for training and demonstration events regarding the use of spray application and related equipment manufactured by Graco, and for internal R&D testing of equipment. The permit includes a voluntary emissions limitation of 0.193 tons VOC per month averaged over a 12-month rolling period.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Emissions Unit ID:	K003
Company Equipment ID:	Training & Demonstration Spray Booth
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable



Final Permit-to-Install and Operate
Graco - Ohio
Permit Number: P0121442
Facility ID: 1576175027
Effective Date: 9/21/2016

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 of this permit 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 [DO/LAA] 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.



Final Permit-to-Install and Operate
Graco - Ohio
Permit Number: P0121442
Facility ID: 1576175027
Effective Date: 9/21/2016

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) 3. – Selected definitions.
 - 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.
2. The permittee is advised that this facility may be subject to the “Generally Available Control Technology” (GACT) requirements of one or both of the following federal rules:
 - a) the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources, 40 CFR part 63, subpart HHHHHH. Paint stripping operations using methylene chloride and spray application of coatings that contain compounds above a given concentration of the following target HAPs must be operated in compliance with this federal rule: chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd); and/or
 - b) the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Nine Metal Fabrication and Finishing Source Categories at Area Sources, 40 CFR part 63, subpart XXXXXX. Metal fabrication of finishing metals containing compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd) must be operated in compliance with this federal rule.

Although Ohio EPA has determined that one or both of these GACT rules *may* apply, at the time of this permit processing Ohio EPA does not have the delegated authority to enforce these rules. Instead, U.S. EPA responsible for the administration of the requirements of these rules at this time. Please be advised that all requirements associated with these rules are in effect and are enforceable by U.S. EPA.

The complete requirements of the above rules (including the Part 63 General Provisions) may be accessed via the Internet from the Electronic Code of Federal Regulations (e-CFR) website <http://www.ecfr.gov/> or by contacting the Canton City Health Department, Air Pollution Control Division. Also, for more information on the area source rules, please refer to the following U.S. EPA website: <http://www.epa.gov/ttn/atw/area/arearules.html>.

3. Selected definitions, as used in this permit:

As-applied: the formulation of a coating during the application on, or impregnation into a substrate, including any dilution solvents or thinners (or other components) added at the source before application of the coating. [OAC rule 3745-21-01(D)]

As-received: the formulation of a coating material or component (e.g., one-part coating, each component of two-part coatings, thinner, reducer, colorant, or other additive) as received from the supplier. As-received is equivalent to "as-supplied" and "as-purchased."

Atomized mechanical application: the application of resin or gel coat with spray equipment that separates the liquid into a fine mist. This fine mist may be created by forcing the liquid under high pressure through an elliptical orifice, bombarding a liquid stream with directed air jets, or a combination of these techniques. [OAC rule 3745-21-01(GG)]

Cleaning material or cleanup material: 1. When referring to coatings: a solvent used to remove contaminants and other materials such as dirt, grease, oil, and dried (e.g., depainting) or wet coating from a substrate before or after coating application; or from equipment associated with a coating operation, such as spray booths, spray guns, tanks, and hangers. Thus, it includes any cleaning material used on substrates or equipment or both. [OAC rule 3745-21-01(D)] 2. When referring to composites: a solvent used to remove composite materials, such as cured and uncured resin or gel coat from equipment, finished surfaces, floors, hands of employees, or any other surfaces. [OAC rule 3745-21-01(GG)]

Coating or surface coating: a material applied onto or saturated within a substrate for decorative, protective or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, adhesives, and inks. *For the purpose of this permit, "coating" shall also include NVH foam and two-component silicone, polyurethane, polysulfide, urethane, and epoxy materials, and any other similar material categories that emit VOC or Exempt Solvent organic compounds during or after application.*[adapted from OAC rule 3745-21-01(D)]

Composite: a shaped and cured part produced by using "composite materials." *Note: "plastic composite" means the same as "composite."*[OAC rule 3745-21-01(GG)]

Composite materials: the raw materials used to make composites, including styrene-containing resins and gel coats, or less frequently, methyl methacrylate-containing gel coats. In general, composite materials may also include catalyst, pigment, filler, and reinforcement materials, *but for the purpose of emissions calculations in this permit, these materials shall be excluded from recordkeeping requirements; i.e., only resins and gel coats shall be included.*[adapted from OAC rule 3745-21-01(GG)]

Exempt Solvent: 1. volatile matter in a coating or cleaning material other than VOC or water. [OAC rule 3745-21-10(B)(5)] 2. any of the organic compounds that are specifically identified as exempt under the definition of "volatile organic compound" in paragraph (B)(17) of OAC rule 3745-21-01.

Gel coat: a quick-setting resin used to improve surface appearance and/or performance of composites. It can be used to form the surface layer of any composites other than those used for molds in tooling operations. (Tooling gel coat is a specialized a gel coat used to form the surface layer of molds. It generally has high heat distortion temperature, low shrinkage, high barcol hardness, and high dimensional stability.) [OAC rule 3745-21-01(GG)]

Hazardous air pollutant (HAP): any air pollutant listed under Section 112(b) of the Clean Air Act (USC Section 7412).

Monomer: an organic compound that combines with itself or other similar compounds by a cross-linking reaction to become part of a cured thermoset resin. [OAC rule 3745-21-01(GG)]

Monomer content: the percent, by weight, of monomer (styrene, methyl methacrylate, and/or any other monomer) contained in the resin or gel coat prior to the addition of fillers, catalyst, and promoters. [OAC rule 3745-21-01(GG)]

Non-atomized mechanical application: the use of application tools other than brushes to apply resin and gel coat where the application tool has documentation provided by its manufacturer or user that this design of the application tool has been VOC emissions tested, and the test results showed that use of this application tool results in VOC emissions that are no greater than the VOC emissions predicted by the applicable nonatomized application equation(s) in table 1 to subpart WWWW of 40 CFR 63. In addition, the device shall be operated according to the manufacturer's directions, including instructions to prevent the operation of the device at excessive spray pressures. Examples of nonatomized application include flow coaters, pressure fed rollers, and fluid impingement spray guns. [OAC rule 3745-21-01(GG)]

Open molding: a process for fabricating composites in a way that VOC containing materials are exposed to the atmosphere. Open molding includes processes such as manual resin application, mechanical resin application, filament application, and gel coat application. Open molding also includes application of resins and gel coats to parts that have been removed from the open mold. *For the purpose of this permit, the processes defined here as open molding shall not also be defined as surface coating processes.* [OAC rule 3745-21-01(GG)]

One-part, or one-component coating: a coating that is ready for application as it comes out of its container to form an acceptable dry film. For the purpose of this definition, a thinner, necessary to reduce the viscosity, is not considered a component. [Adapted from OAC rule 3745-21-01(D)]

Organic compound (OC): any chemical compound containing carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates, ammonium carbonate, methane (except methane from landfill gases), and ethane. [OAC rule 3745-21-01(B)]

Resin: any of a class of organic polymers of natural or synthetic origin used in reinforced plastic composite products to surround and hold fibers, and is solid or semi-solid in the cured state. [OAC rule 3745-21-01(GG)]

Solids: all nonvolatile matter in a coating material. Percent solids + percent volatile matter = 100%.

Toxic air contaminant (TAC): an air contaminant that has been identified by the Ohio EPA as having known toxicological effects, pursuant to ORC 3704.03(F)(3)(c). The complete list of toxic air contaminants regulated in Ohio can be found in OAC rule 3745-114-01.

Transfer efficiency (TE): the percentage of total coating solids employed by a coating applicator which adheres to the object being coated. [OAC rule 3745-21-01(D)]

Two-part, or two-component coating: a coating requiring the addition of a separate reactive component, commonly known as a catalyst or hardener, before application to form an acceptable dry film (as a surface coating) or, *for the purpose of this permit, a finished product such as, but not limited to, NVH foam and two-component silicone, polyurethane, polysulfide, urethane, and epoxy materials.* May also be known as a multi-component coating, especially if the as-applied mixture includes another additive material in addition to the catalyst or hardener. [Adapted from OAC rule 3745-21-01(D)]

Vapor-suppressed resin: a resin containing a vapor suppressant added for the purpose of reducing styrene (or other monomer) emissions during curing. [adapted from OAC rule 3745-21-01(GG)]



Final Permit-to-Install and Operate

Graco - Ohio

Permit Number: P0121442

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Effective Date: 9/21/2016

Volatile matter: all non-solid matter in a coating material, including water. Percent solids + percent volatile matter = 100%.

Volatile organic compounds (VOC): a subset of organic compounds (OC) that participate in atmospheric photochemical reactions. Organic compounds that are specifically identified as *not* being "volatile organic compounds" are listed under the definition of "volatile organic compound" in paragraph (B)(17) of OAC rule 3745-21-01. When used in coating or cleaning materials, those compounds in the list just described are known as "Exempt Solvents."



Final Permit-to-Install and Operate
Graco - Ohio
Permit Number: P0121442
Facility ID: 1576175027
Effective Date: 9/21/2016

C. Emissions Unit Terms and Conditions

1. K003, Training & Demonstration Spray Booth

Operations, Property and/or Equipment Description:

Fully enclosed manual spray booth used for product training events, demonstration of equipment use, and internal R&D testing of equipment. Includes small, heated, make-up air unit fired with natural gas (1.125 mmBtu/hr) and passive dry particulate filters.

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. b)(1)b., b)(1)f., and d)(8)

(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 operation(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 are identified below. 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) [Best Available Technology (BAT)]	Emissions of volatile organic compounds (VOC) shall not exceed 0.193 tons per month averaged over a twelve-month rolling period (or averaged over the actual number of months during the first 12 months of operation). Particulate emissions with an aerodynamic diameter less than or equal to ten micrometers (PM ₁₀) shall be controlled by installing a dry filter system with a design control efficiency of at least 99% for PM ₁₀ . See b)(2)a. below. See c)(1) – c)(2) below.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
b.	OAC rule 3745-31-05(A)(3)(a)(ii) [less than 10 tpy BAT exemption]	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the VOC emissions from this air contaminant source, since the calculated annual emission rate is less than ten tons per year. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PE/PM ₁₀ emissions from this air contaminant source, since the calculated annual emission rate is less than ten tons per year taking into account the requirements from OAC rule 3745-17-11(C). See b)(2)b. below.
c.	OAC rule 3745-31-05(F) [Voluntary limits on allowable emissions]	See b)(2)b.i. and c)(3) below.
d.	OAC rule 3745-17-07(A) [Visible particulate emission limitations for stack emissions]	The visible particulate emissions limitations established pursuant to paragraph (A)(1) of this rule do not apply to the stack serving this emissions unit. See b)(2)c. below.
e.	OAC rule 3745-17-11(C) [Restrictions on particulate emissions from industrial processes; requirements for surface coating processes]	The requirements specified by this rule are less stringent than the requirements for controlling particulate emissions established pursuant to OAC rule 3745-31-05(A)(3). See b)(2)(a) and b)(2)(b)ii. below.
f.	ORC 3704.03(F)(4) OAC rule 3745-114-01 [Toxic Air Contaminants]	N/A - see d)(8) below.

(2) Additional Terms and Conditions

- a. The Best Available Technology (BAT) requirements in b)(1)a. above apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).

- b. The exemptions described in b)(1)b. above applies once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) as part of the Ohio SIP. In that case only, the following Terms and Conditions shall apply:
- i. The following emissions limitation shall still apply, not as a BAT requirement, but rather as a voluntary measure requested by the permittee pursuant to OAC rule 3745-31-05(F): emissions of volatile organic compounds (VOC) shall not exceed 0.193 tons per month averaged over a twelve-month rolling period (or averaged over the actual number of months during the first 12 months of operation). Accordingly, all associated monitoring, recordkeeping, and reporting requirements in d)(1), d(2), and e)(1)a. shall also still apply.
 - ii. Surface coating processes performed in this emissions unit that are not otherwise exempt under paragraphs (A)(1)(h) – (A) (1)(k) of OAC rule 3745-17-11 shall be subject to paragraph (C) of OAC rule 3745-17-11. Accordingly, all associated operational restriction, monitoring, recordkeeping, and reporting requirements in c)(1)-c(2), d)(3)-d(7), and e)(1)b. shall apply regardless of whether the BAT requirements in b)(1)a. are in effect or the <10 tpy BAT exemption in b)(1)b. is in effect, which in turn means that particulate emissions are controlled by OAC rule 3745-17-11(C).

Comment: Effectively, the only change for the permittee once the less than 10 tons per year BAT exemption applies is that dry particulate filtration system will not have to meet a design requirement of 99% minimum control efficiency for PE/PM₁₀. As emphasized in the paragraph above, all associated operational restriction, monitoring, recordkeeping, and reporting requirements will still apply.
- c. The following is an explanation of why the visible particulate emissions limitations in paragraph (A)(1) of OAC rule 3745-17-07 do not apply to the stack serving this emissions unit:
- i. All of the processes that may be performed in this emissions unit, as described in the permit application, are exempt pursuant to paragraph (A)(3)(h) of OAC rule 3745-17-07, because none of the processes are subject to any mass emission limitations in paragraphs (B)(3) and (B)(4) of rule 3745-17-08 of the Administrative Code, or rule 3745-17-09, 3745-17-10 or 3745-17-11 of the Administrative Code.
 - ii. OAC rule 3745-17-11 is the only rule listed in “i” above which might have had a mass emission limitation applicable to a process performed in this emissions unit, but this is not the case for the following reasons:
 - (a) Some types of surface coating processes that may be performed in this emissions unit are exempt entirely from OAC rule 3745-17-11 under paragraphs (A)(1)(h) – (A) (1)(k) of that rule.

- (b) Surface coating processes that are not otherwise exempt under paragraphs (A)(1)(h) – (A) (1)(k) of OAC rule 3745-17-11 are therefore subject to paragraph (C) of that rule, but paragraph (C) contains no mass emission limitations.
- (c) Open molding of composite materials may also be performed in this emissions unit. AP-42 Section 4.4, *Polyester Resin Plastic Products Fabrication*, strongly implies that spray application of resin and gel coat is not a source of particulate emissions, regardless of whether the spray is categorized as atomized or non-atomized. The only mention of particulate emissions is for automatic glass-fiber chopping, for which AP-42 states “there may be some release of particulate emissions...but these emissions have not been quantified.” For the purpose of this permit, therefore, emissions of particulate matter from open molding of composite materials shall be considered negligible with respect to the establishment of a mass emission limitation under OAC rule 3745-17-11.

Comment: Despite the information and assumptions presented in the above paragraph, the permittee was intending to use replaceable paint spray booth-type filters for open molding of composites in order to keep larger-size resin particulate matter and if applicable, glass particulate matter out of the exhaust duct system as a good engineering practice and as a good housekeeping practice.

- d. The potential emissions of particulate matter (PE/PM), nitrogen oxides (NO_x), sulfur dioxide (SO₂), and carbon monoxide (CO) associated with the combustion of natural gas in the heated make-up air unit (1.125 mmBtu/hr) are considered negligible, and therefore emissions limitations for these pollutants have not been established for this emissions unit. The potential emissions of volatile organic compounds (VOC) associated with the combustion of natural gas in the heated, make-up air unit are also considered negligible, and therefore have not been included in the emissions limitation for VOC for this emissions unit.

c) Operational Restrictions

- (1) The permittee shall operate a dry filtration system for the control of particulate emissions whenever this emissions unit is used for operations that produce particulate emissions, and shall maintain the dry particulate filter system in accordance with the manufacturer’s recommendations, instructions, and/or operating manual(s), with any modifications deemed necessary by the permittee.
- (2) In the event the dry particulate filter system is not operating in accordance with the manufacturer’s recommendations, instructions, and/or operating manual, with any modifications deemed necessary by the permittee, the dry particulate filter system shall be expeditiously repaired or otherwise returned to these documented operating conditions.
- (3) The permittee shall burn only natural gas in the make-up air unit for this emissions unit.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall collect and record the information in d)(1)a. – d)(1)d. each month*, as applicable, for all materials containing any volatile organic compound (VOC) that are employed in this emissions unit.**

* It may be more convenient to keep the records required in d)(1)a. – d)(1)d. on a daily basis, but the minimum required frequency is monthly, which corresponds to the requirements in d)(2) below to record a monthly summary of total VOC emissions, and to update the average monthly emissions based on a rolling 12-month summation (or as an average of the total number of months during the first 12 months of operation).

** See g)(2) below, under Miscellaneous Requirements, for recommended additional recordkeeping for emissions of total organic compounds (OC), which will exceed VOC emissions whenever Exempt Solvents (ES) are employed; i.e., $OC = VOC + ES$.

For open molding of composite materials, the permittee shall use the method in d)(1)a. below. For definitions of “open molding” and “composite materials” as used in this permit, see B.3. above in the Facility-Wide Terms and Conditions. If composite materials are applied in a closed, rather than open molding process, the permittee shall either use an appropriate emission factor or calculate closed molding emissions as if they were from an open molding process.

For coating materials, the permittee shall use either the “Coating As-Applied Option” in d)(1)b. below or the “Inventory Option” in d)(1)c. below. For the definition of “coating” as used in this permit, see B.3. above in the Facility-Wide Terms and Conditions.

For cleaning materials, the permittee shall use the method in d)(1)d. below.

a. Open Molding of Composite Materials:

- i. the identification and description of each process stream used in the open molding operations in this emissions unit, where process stream is defined as each individual combination of resin or gel coat and application technique. Each process stream description shall include the following:
 - (a) the appropriate material and application technique description from the first column of *EF Table 1: Unified Emission Factors for Open Molding of Composites* (the specific UEF document used for this permit is ANSI/ACMA/ICPA UEF-1-2011a, Revised and Approved 10/13/2009, further revised 10/05/201);
 - (b) the styrene content in the resin or gel coat material, in percent by weight, or if applicable, the methyl methacrylate (MMA) content in the gel coat, in percent by weight; and
 - (c) the applicable emission factor (EF) in pounds of styrene emitted per ton of resin or gel coat processed, or if applicable, the pounds of methyl methacrylate (MMA) emitted per ton of gel coat processed.
- ii. for each process stream identified in “i” above:

- (a) the amount of resin or gel coat used during the month, in tons; and
- (b) the styrene emissions (or if applicable, the MMA emissions), in pounds, calculated by multiplying the tons of resin or gel coat used from a.ii.(a) above by the emission factor in a.i.(c) above.

The styrene emissions (or if applicable, the MMA emissions), calculated above shall be assumed to represent the total VOC emissions from the given process stream. The records shall include a note regarding this assumption and the pounds of styrene or MMA shall be recorded as VOC.

- iii. If more than one process stream, as identified in “i” above, is employed during the month, the total monthly VOC emissions, in pounds, from all process streams shall be recorded.

b. Coating As-Applied Option:

This option requires monthly records to be kept on the amount, in gallons or pounds, as appropriate, of each coating or coating mixture “as-applied.” If choosing this option, the permittee shall collect and record the following information each month:

- i. the name and/or identification number of each individual coating-related material employed, as-received from the supplier (examples include one-part coatings, each component of two-part coatings, thinners, reducers, and other additives);
- ii. for each coating that is not applied in the as-received condition (e.g., two-part coatings or coatings to which a thinner, reducer, or any other additive is added prior to being applied), the volumetric fraction of each material in the coating mixture as-applied (or, if all components are measured by mass, the mass fraction of each material in the coating mixture as-applied). Also, the name and/or identification number of each coating mixture as-applied, if the as-applied mixture is uniquely identified by the permittee;
- iii. the VOC content, in pounds per gallon, of each coating as-applied. For mixtures, the VOC content shall be calculated based on the volume fraction of each material in the mixture. See g)(1) below;
- iv. or, if the coating material or all components in a mixture are measured by mass instead of volume, instead of “iii” above, the permittee shall record the VOC content in pounds of VOC per pound of coating, as-applied. For mixtures, the VOC content shall be calculated based on the mass fraction of each material in the mixture. See g)(2) below;
- v. the amount in gallons or pounds, whichever is applicable, of each coating as-applied during the month;

- vi. the monthly VOC emissions, in pounds, for each coating as-applied, to be calculated by multiplying the VOC content in lb/gal from “iii” above by the amount applied in gallons from “v” above; or where appropriate, to be calculated by multiplying the VOC content in lb/lb from “iv” above by the amount applied in pounds from “v” above; and
- vii. the total monthly VOC emissions, in pounds, from all coatings applied.

c. Inventory Option:

As an alternative to the Coating As-Applied Option in “b” above, this option requires monthly records to be kept on the amount, in gallons or pounds, as appropriate, of each individual coating-related material employed, in its as-received condition. If choosing this option, the permittee shall collect and record the following information each month:

- i. the name and/or identification number of each coating-related material employed, as-received from the supplier (examples include one-part coatings, each component of two-part coatings, thinners, reducers, and other additives). If the manufacturer of a two-part coating only provides material content data for the two parts as-mixed, then the records required in “i” – “vii” shall be kept on the same as-mixed basis rather than for each of the two parts individually;
- ii. for each material identified in “i” above that is measured by volume, the VOC content, in pounds per gallon. See g)(1) below;
- iii. for each material identified in “i” above that is measured by mass instead of volume, the permittee shall record the VOC content in pounds of VOC per pound of material. See g)(2) below;
- iv. for each material identified in “i” above that is measured by volume, the amount, in gallons, employed during the month;
- v. for each material identified in “i” above that is measured by mass instead of volume, the amount, in pounds, employed during the month;
- vi. the monthly VOC emissions, in pounds, for each material identified in “i” above, to be calculated by multiplying the VOC content in lb/gal from “ii” above by the amount employed in gallons from “iv” above, or where appropriate, to be calculated by multiplying the VOC content in lb/lb from “iii” above by the amount employed in pounds from “v” above; and
- vii. the total monthly VOC emissions, in pounds, from all coating-related materials employed.

d. Cleaning Materials:

The method for cleaning materials is nearly identical to the Inventory Option for coating materials in c. above, but is provided here as a separate section for clarity. The permittee shall collect and record the following information each month:

- i. the name and/or identification number of each cleaning material employed;
- ii. the VOC content, in pounds per gallon, of each cleaning material identified in "i" above. See g)(1) below;
- iii. the net volume, in gallons, of each cleaning material identified in "i" above that is employed during the month, where net volume means the amount that is lost through evaporation; i.e., the gross number of gallons used minus the number of gallons recovered and/or sent off-site for disposal during the month*;
- iv. the monthly VOC emissions, in pounds, from each cleaning material identified in "i" above, to be calculated by multiplying the VOC content from "ii" above by the net volume employed from "iii" above; and
- v. if more than one cleaning material is employed during the month, the total monthly VOC emissions, in pounds, from all cleaning materials employed.

* A daily log may be required for recovered waste cleaning materials in situations where a record of the monthly total volume or weight of the collected material cannot be accurately maintained. This amount shall be adjusted if the volume or weight shipped is less than the sum of the monthly recovered material added to the container.

- (2) The permittee shall maintain monthly records of VOC emissions from composite materials, coatings, and cleaning materials combined by computing and recording the following information:
 - a. the total monthly VOC emissions, in tons, to be calculated as the sum of the monthly emissions in pounds from d)(1)a. (Open Molding of Composite Materials), plus either d)(1)b. or d)(1)c. (Coating As-Applied Option or Inventory Option), plus d)(1)d. (Cleaning Materials), divided by 2000 lb/ton; and
 - b. the average monthly VOC emissions, in tons, averaged over a twelve-month rolling period (or averaged over the actual number of months during the first 12 months of operation).
- (3) The permittee shall maintain documentation of the manufacturer's recommendations, instructions, or operating manuals for the dry particulate filter system, along with documentation of any modifications deemed necessary by the permittee.
- (4) The permittee shall conduct periodic inspections of the dry particulate filter system to determine whether it is operating in accordance with the manufacturer's recommendations, instructions, or operating manuals, with any modifications deemed necessary by the permittee. These inspections shall be performed at a frequency that shall be based upon the recommendation of the manufacturer, and the permittee shall maintain a copy of the manufacturer's recommended inspection frequency.
- (5) In addition to the recommended periodic inspections described in (5) above, not less than once each calendar year the permittee shall conduct a comprehensive inspection of the dry particulate filter system while the emissions unit is shut down and perform any

needed maintenance and repair to ensure it is able to routinely operate in accordance with the manufacturer's recommendations.

- (6) The permittee shall document each inspection (periodic and annual) of the dry particulate filter system and shall maintain the following information:
 - a. the date of the inspection;
 - b. a description of each/any problem identified and the date it was corrected;
 - c. a description of any maintenance and repairs performed; and
 - d. the name of person who performed the inspection.
- (7) The permittee shall maintain records that document any time periods when the dry particulate filter system was not in service while operations that produce particulate emissions took place, or when the dry particulate filter system was not operated in accordance with the manufacturer's recommendations, instructions, and/or operating manual, with any modifications deemed necessary by the permittee.
- (8) Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute," ORC 3704.03(F)(4), was not necessary because the emissions unit's maximum annual emissions for each toxic air contaminant (TAC), as defined in OAC rule 3745-114-01, will be less than the Ohio Modeling Significant Emission Rate (SER) of 1.0 ton per year [Ohio EPA DAPC Engineering Guide #69, Table 3]. Based on inherent operational limitations and other information described in the permit application (No. A0056607, received 8/10/2016), a conservative estimate of the potential-to-emit for this emissions unit for all organic compounds is less than 1.0 ton/yr. Therefore, the potential-to-emit for TACs that are also organic compounds is also less than 1.0 ton/yr. For any TAC that is a non-organic particulate emission, the potential-to-emit is also less than 1.0 ton/yr taking into account the control requirements established pursuant to OAC rule 31-31-05(A)(3) and OAC rule 3745-17-11(C).

OAC Chapter 3745-31 requires a permittee to apply for and obtain a new or modified permit-to-install and operate (PTIO) prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, the use of new materials, or the amount of materials used in this emissions unit that would cause the emissions of any toxic air contaminant to exceed 1.0 ton per year may require the permittee to apply for and obtain a new permit-to-install and operate (PTIO).

- (9) For each day during which the permittee burns a fuel other than natural gas in the make-up air unit servicing this emissions unit, the permittee shall maintain a record of the type and quantity of fuel burned.
- e) Reporting Requirements
- (1) The permittee shall submit an annual Permit Evaluation Report (PER) by the due date identified in the Authorization section of this permit, either through the Ohio EPA's eBusiness Center: Air Services online web portal, or in hard copy form to the Canton City Health Department, Air Pollution Control Division via the U.S. postal service, by hand-delivery, or as a scanned e-mail attachment. Annual PER forms will be mailed to

the permittee at the end of the reporting period specified 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.

The permittee shall also provide the following information in the annual PER:

- a. all exceedances of the average monthly VOC emissions limitation of 0.193 tons per month, as recorded in d)(2)b. above;
- b. as recorded in d)(7) above, any time periods when the dry particulate filter system was not in service while operations that produce particulate emissions took place, or when the dry particulate filter system was not operated in accordance with the manufacturer's recommendations, instructions, and/or operating manual, with any modifications deemed necessary by the permittee; and
- c. as recorded in d)(9) above, all days during which a fuel other than natural gas was burned in the make-up air unit servicing this emissions unit, and the type and quantity of fuel burned on those days.

f) **Testing Requirements**

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

- a. Emissions Limitation:

Emissions of volatile organic compounds (VOC) shall not exceed 0.193 tons per month averaged over a twelve-month rolling period (or averaged over the actual number of months during the first 12 months of operation).

Applicable Compliance Method:

Compliance shall be determined based on the recordkeeping specified in d)(1) – d)(2) above.

This emissions limitation was established by calculating the maximum annual potential-to-emit after taking into account inherent operational limitations that were described in permit application No. A0056607, received 8/10/2016. The annual PTE was then divided by 12 to establish an average monthly value.

Potential-to-emit assumptions and calculations:

Potential VOC emissions were calculated for the following two types of processes combined:

- 1. material application processes; and
- 2. cleaning material usage.

Material application processes:

Based on information provided in the permit application, the theoretically worst material for potential emissions of VOC is the polyester resin identified as "C1 1001-15." This material is in the fiberglass resin/gel coat category, and according to the permit application, the applicable emission factor is 381 pounds of styrene emitted per ton of resin/gel coat processed. This factor comes from the Unified Emission Factors table* based on 44% styrene and "Gel coat Controlled Spray Application."

* *Unified Emission Factors for Open Molding of Composites*, the American Composites Manufacturers Association. The specific UEF document used for this permit is ANSI/ACMA/ICPA UEF-1-2011a.

Other assumptions:

- Styrene emissions from the polyester resin were assumed to represent total VOC. A very small amount of emissions of MEK from the catalyst was considered negligible (MEK is <1% of the catalyst, and the catalyst is only 2.82% of the resin+catalyst mixture).
- Based on the facility's history with an existing lab spray booth (which will be replaced by the new booth for training, demonstration, and some R&D activities), an estimate for the maximum resin usage in one day was provided as 10 gallons.
- The following inherent operational limitations were described in the permit application: the booth can only be used for a maximum of 9 training events, 9 demonstration events, and 9 R&D testing events per year. In other words, a total of just 27 days per year is the maximum operating schedule. For the purpose of the PTE calculations, the number of operating days per year was multiplied by 2 as a conservative measure and to account for some degree of uncertainty regarding the limitation estimates.

Calculations:

$$(8.67 \text{ lb/gal})_{\text{RESIN DENSITY}} \times (381 \text{ lb STYRENE}/2000 \text{ lb}_{\text{RESIN}})_{\text{EMISSION FACTOR}} = 1.65 \text{ lb STYRENE}/\text{gal}_{\text{RESIN}} = 1.65 \text{ lb}_{\text{VOC}}/\text{gal}_{\text{RESIN}} \text{ (ASSUMPTION)}$$

$$(1.65 \text{ lb}_{\text{VOC}}/\text{gal}_{\text{RESIN}}) \times (10 \text{ gal}/\text{day})_{\text{MAX USAGE RATE}} = 36.5 \text{ lb}_{\text{VOC}}/\text{day}$$

$$(16.5 \text{ lb}_{\text{VOC}}/\text{day}) \times (27 \text{ days}/\text{yr})_{\text{MAX SCHEDULE}} \times (2)_{\text{UNCERTAINTY FACTOR}} \div (2000 \text{ lb}/\text{ton}) = 0.45 \text{ ton}_{\text{VOC}}/\text{yr}$$

Cleaning material usage:

The primary cleanup solvent that will be used in this emissions unit is n-Propyl bromide, aka 1-Bromopropane (CAS No. 106-94-5). Acetone may also be used at times, but since acetone is an exempt solvent, a conservative



assumption was made that all of the cleanup solvent is n-Propyl bromide, which has a VOC content of 11.31 lb/gal.

Other assumptions:

- Based on the facility's history with the existing lab spray booth, a conservatively high estimate of the maximum annual usage of cleanup solvent for the new booth is 660 gallons (gross amount employed).
- Also based on the facility's history with liquid waste shipments from the existing lab spray booth, the recovery rate is approximately 50%, so an assumption was made that the net amount of cleaning solvent emitted will be $0.50 \times 660 \text{ gal/yr} = 330 \text{ gal/yr}$.

Calculations:

$$(11.31 \text{ lb}_{\text{VOC}}/\text{gal})_{\text{N-PROPYL BROMIDE}} \times (330 \text{ gal/yr})_{\text{MAX NET USAGE RATE}} = 3732 \text{ lb}_{\text{VOC}}/\text{yr}$$

$$(3732 \text{ lb}_{\text{VOC}}/\text{yr}) \div (2000 \text{ lb/ton}) = 1.87 \text{ ton}_{\text{VOC}}/\text{yr}$$

Total VOC from material application processes and cleaning material usage:

$$(0.45 \text{ ton}_{\text{VOC}}/\text{yr})_{\text{MAT'L APPLICATION}} + (1.87 \text{ ton}_{\text{VOC}}/\text{yr})_{\text{CLEANING MATL}} = 2.32 \text{ ton}_{\text{VOC}}/\text{yr}$$

$$(2.32 \text{ ton}_{\text{VOC}}/\text{yr}) \div (12 \text{ months/yr}) = 0.193 \text{ ton}_{\text{VOC}}/\text{month}$$

g) Miscellaneous Requirements

Values for material properties required in (1) – (2) below shall be determined either by the procedures set forth in U.S. EPA Method 24* or from formulation data provided by the manufacturer of the material, except for individual hazardous air pollutants (HAP), individual toxic air contaminants (TAC), and exempt solvents; because content information for these material categories can *only* be obtained from formulation data.

* Method 24, as described in 40 CFR Part 60, Appendix A, is applicable for the determination of volatile matter content, water content, density, volume solids, and weight solids of paint, varnish, lacquer, or other related surface coatings.

- (1) The following method shall be used to calculate the VOC content in pounds per gallon, of any liquid material. This value is designated $C_{\text{VOC},1}$ in paragraph (B) of OAC rule 3745-21-10.

$$C_{\text{VOC},1} = (D)(W_{\text{VOC}}) \quad \text{See Notes 1. and 2. below}$$

where:

D = the overall density of the material, in pounds per gallon.

W_{VOC} = the weight fraction of VOC in the material, in pounds of VOC per pound of material

$$= W_{\text{VM}} - W_{\text{W}} - W_{\text{ES}}$$

where:

W_{VM} = the weight fraction of volatile matter in the material, in pounds of volatile matter per pound of material.

[For coatings, if this weight fraction is determined by ASTM D2369-04, "Standard Test Method for Volatile Content of Coatings," the drying conditions shall be one hundred ten degrees Celsius for one hour, except where otherwise authorized by the director based on an alternate analytical procedure that is satisfactorily demonstrated to the director by the coating manufacturer to be more representative of the actual cure mechanism of the coating].

W_W = the weight fraction of water in the material, in pounds of water per pound of material.

W_{ES} = the weight fraction of exempt solvent(s) in the material, in pounds of exempt solvent(s) per pound of material.

Notes for g)(1):

1. For coatings, if the "as-applied" value is required for $C_{VOC,1}$, this will be the same as the "as-received" value only for the case of one-part coatings that are applied without the addition of any thinner, reducer or other additive. For all other cases, see Note 2.
2. For one-part coatings that are thinned or reduced before application (including dilution with water), and for all two-part coatings and two-part composite materials (which may also include thinners, reducers or other additives), the "as-applied" value for $C_{VOC,1}$ must be calculated as a volume-weighted average for the coating or material mixture, in which case the applicable parameter shall be identified as $(C_{VOC,1})_{MIX}$. The following formula shall be used to calculate $(C_{VOC,1})_{MIX}$:

$$(C_{VOC,1})_{MIX} = \sum_{i=1}^n (V_i) (C_{VOC,1i})$$

where:

i = subscript denoting a specific material in the coating mixture.

n = the total number of different materials in the coating mixture.

V_i = the volume fraction of each material "i" in the coating mixture, based on the volumetric mix ratio.

- (2) (Rarely used) The following method shall be used to calculate the VOC content in pounds of VOC per pound of material. This value is also known as the weight fraction of VOC in the material, and is designated W_{VOC} in paragraph (B) of OAC rule 3745-21-10:

W_{VOC} = the weight fraction of VOC in the material, in pounds of VOC per pound of material. See Notes 1. and 2. below

$$= W_{VM} - W_W - W_{ES}$$

where:

W_{VM} = the weight fraction of volatile matter in the material, in pounds of volatile matter per pound of material.

[For coatings, if this weight fraction is determined by ASTM D2369-04, "Standard Test Method for Volatile Content of Coatings," the drying conditions shall be one hundred ten degrees Celsius for one hour, except where otherwise authorized by the director based on an alternate analytical procedure that is satisfactorily demonstrated to the director by the coating manufacturer to be more representative of the actual cure mechanism of the coating].

W_W = the weight fraction of water in the material, in pounds of water per pound of material.

W_{ES} = the weight fraction of exempt solvent(s) in the material, in pounds of exempt solvent(s) per pound of material.

Notes for g)(2):

1. For coatings, if the "as-applied" value is required for W_{VOC} , this will be the same as the "as-received" value only for the case of one-part coatings that are applied without the addition of any thinner, reducer or other additive. For all other cases, see Note 2.

2. For one-part coatings that are thinned or reduced before application (including dilution with water), and for all two-part coatings and two-part composite materials (which may also include thinners, reducers or other additives), the "as-applied" value for W_{VOC} must be calculated as a weighted average for the coating or material mixture, in which case the applicable parameter shall be identified as $(W_{VOC})_{MIX}$. The following formula shall be used to calculate $(W_{VOC})_{MIX}$:

$$(W_{VOC})_{MIX} = \sum_{i=1}^n (W_i) (W_{VOCi})$$

where:

i = subscript denoting a specific material in the coating mixture.

n = the total number of different materials in the coating mixture.

W_i = the fraction of each material "i" in the coating mixture, based on the weight-based mix ratio.

- (3) Optional additional recordkeeping recommended for total organic compounds (OC).

As described in paragraph B.3 (definitions) in the Facility-Wide Terms and Conditions of this permit, some materials contain *exempt solvents*, which are *organic compounds* (OC) that have been identified as being exempt from the definition of *volatile organic compounds* (VOC). This is because exempt solvents do not participate in photochemical reactions, and thus are not regulated as precursors to ozone, which is an air contaminant for which a national ambient air quality standard has been adopted under the Clean Air Act. For this reason, this permit contains an emission limitation and associated recordkeeping requirements for only VOC rather than total OC.

However, as described in term A.4. of the Standard Terms and Conditions of this permit, Ohio EPA assesses an annual emissions fee based on the total annual emissions from a facility. Each facility is required to self-report its annual emissions (for non-Title V facilities, Fee Emissions Reports are required every other year, but include separate sections for each of the previous two calendar years). Pursuant to OAC Chapter 3745-78, total annual emissions include total organic compounds (OC), not just VOC. For this reason, it is highly recommended that the permittee maintain records of the total OC content and usage-based OC emissions for all OC-containing materials along with the recordkeeping required in this permit for VOC. This may include the need to keep records for some organic materials that contain *only* exempt solvents (i.e., zero VOC). For liquid materials that contain both VOC and exempt solvents, the total OC content equals the sum of the VOCs and the exempt solvents.