

John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Scott J. Nally, Director

12/24/2013

Certified Mail

Robert Naftanail  
Masco Cabinetry Middlefield LLC (KraftMaid Plant 3)  
15535 South State Ave.  
P.O. Box 1055  
Middlefield, OH 44062

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

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL AND OPERATE

Facility ID: 0204000360  
Permit Number: P0114970  
Permit Type: Renewal  
County: Ashtabula

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install and Operate (PTIO) for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the permit. A public notice will appear in the Ohio Environmental Protection Agency (EPA) Weekly Review and the local newspaper, The Star Beacon. A copy of the public notice and the draft permit are enclosed. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page, [www.epa.ohio.gov/dapc](http://www.epa.ohio.gov/dapc) by clicking the "Search for Permits" link under the Permitting topic on the Programs tab. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrew Hall  
Permit Review/Development Section  
Ohio EPA, DAPC  
122 South Front Street  
Columbus, Ohio 43215

and Ohio EPA DAPC, Northeast District Office  
2110 East Aurora Road  
Twinsburg, OH 44087

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published in the newspaper. You will be notified if a public hearing is scheduled. A decision on issuing a final permit-to-install will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Ohio EPA DAPC, Northeast District Office at (330)425-9171.

Sincerely,



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

Cc: U.S. EPA Region 5 Via E-Mail Notification  
Ohio EPA-NEDO; Pennsylvania; Canada





## Permit Strategy Write-Up

1. Check all that apply:

Synthetic Minor Determination

Netting Determination

2. Source Description:

Masco Cabinetry Middlefield LLC, Kraftmaid Plant 3 (MASCO Plant 3) operates under SIC code 2434 and manufactures wooden cabinets. The facility has 34 permitted coating operations (K007 – K041) which are located in 3 permanent total enclosures (PTE #1, #2, and #3) and are controlled by 3 regenerative thermal oxidizers (RTO #3, #4, and #5), 9 woodworking operations (P001 – P009) controlled each by a baghouse, 2 grinders (F001 and P011) controlled by a cyclone/baghouse, a sawdust silo and truck loading (F002) controlled by two baghouses, an emergency generator (B004) permitted under PBR, and other exempted or “de minimus” heaters and boilers.

3. Facility Emissions and Attainment Status:

MASCO Plant 3 is located at 150 Grand Valley Avenue, Orwell, Ashtabula County. Ashtabula County is an attainment area for the emissions of PM<sub>2.5</sub>, SO<sub>2</sub>, CO, and lead. Ashtabula County was redesignated on September 15, 2009 as an attainment area for ozone 1997 standard, but is a marginal non-attainment area for ozone 2008 standard. This facility will not be a “Major Source” for any single hazardous air pollutant (HAP) emissions and combined total HAPs emissions, as well as VOC emissions based upon the federally enforceable restrictions. Therefore, the requirements of Title V and Wood Furniture MACT, 40 CFR Part 63, subpart JJ, will not be applicable.

4. Source Emissions:

This FEPTIO contains terms and conditions that restrict the facility-wide emissions of VOC not to exceed 83.1 tons per rolling, 12-month period, each single HAP not to exceed 9.50 tons per rolling, 12-month period, and combined total HAPs not to exceed 24.80 tons per rolling, 12-month period. This facility is further restricted by federally enforceable limitations of coatings, cleanup, and other support materials usages, restrictions of using PTEs to 100% capture and RTOs to 99% control emissions from coating operations, as well as emissions from each RTO for VOC, each single HAP, and combined total HAPs.

All the woodworking operations, silo, and grinder in MASCO Plant 3 are restricted by federally enforceable emission limitations of PM<sub>10</sub> emissions.

MASCO Plant 3 is also restricted by this permit to track emissions, keep records, and submit reports.

5. Conclusion:

The emission limitations and operational restrictions contained in this FEPTIO are adequate to provide federally enforceable limitations to ensure that the applicable MACT and Title V thresholds will not be exceeded.



6. Please provide additional notes or comments as necessary:

None

7. Total Permit Allowable Emissions Summary (for informational purposes only):

<u>Pollutant</u>	<u>Tons Per Year</u>
VOC <sub>facility-wide</sub>	83.1
Each single HAP <sub>facility-wide</sub>	9.50
Combined Total HAPs <sub>facility-wide</sub>	24.80
VOC <sub>each RTO</sub>	27.70
Each single HAP <sub>each RTO</sub>	3.17
Combined Total HAPs <sub>each RTO</sub>	8.27
PM <sub>10</sub> F002	0.56 + 1.99
PM <sub>10</sub> P001	3.42
PM <sub>10</sub> P002	5.49
PM <sub>10</sub> P003	3.26
PM <sub>10</sub> P004	2.92
PM <sub>10</sub> P005	4.41
PM <sub>10</sub> P006	4.41
PM <sub>10</sub> P007	4.41
PM <sub>10</sub> P008	3.99
PM <sub>10</sub> P009	3.99
PM <sub>10</sub> P011	0.47

PUBLIC NOTICE

12/24/2013 Issuance of Draft Air Pollution Permit-To-Install and Operate

Masco Cabinetry Middlefield LLC (KraftMaid Plant 3)

150 GRAND VALLEY AVE.,

ORWELL, OH 44076

Ashtabula County

FACILITY DESC.: Wood Kitchen Cabinet and Countertop Manufacturing

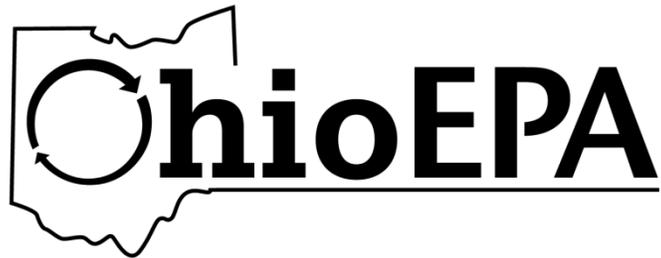
PERMIT #: P0114970

PERMIT TYPE: Renewal

PERMIT DESC: FEPTIO Renewal permit for all woodworking operations (P001 - P009), grinders (F001 and P011), and storage silo & truck loading (F002). Administrative modification to all coating operations (K007 - K042) for correcting RTO burners' sizes,

The Director of the Ohio Environmental Protection Agency issued the draft permit above. The permit and complete instructions for requesting information or submitting comments may be obtained at: <http://epa.ohio.gov/dapc/permitsonline.aspx> by entering the permit # or: Tracy Gu, Ohio EPA DAPC, Northeast District Office, 2110 East Aurora Road, Twinsburg, OH 44087. Ph: (330)425-9171





**DRAFT**

**Division of Air Pollution Control  
Permit-to-Install and Operate  
for  
Masco Cabinetry Middlefield LLC (KraftMaid Plant 3)**

Facility ID:	0204000360
Permit Number:	P0114970
Permit Type:	Renewal
Issued:	12/24/2013
Effective:	To be entered upon final issuance
Expiration:	To be entered upon final issuance





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

for  
Masco Cabinetry Middlefield LLC (KraftMaid Plant 3)

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**Draft Permit-to-Install and Operate**  
Masco Cabinetry Middlefield LLC (KraftMaid Plant 3)  
**Permit Number:** P0114970  
**Facility ID:** 0204000360  
**Effective Date:** To be entered upon final issuance

## Authorization

Facility ID: 0204000360  
Application Number(s): A0047621  
Permit Number: P0114970  
Permit Description: FEPTIO Renewal permit for all woodworking operations (P001 - P009), grinders (F001 and P011), and storage silo & truck loading (F002). Administrative modification to all coating operations (K007 - K042) for correcting RTO burners' sizes,  
Permit Type: Renewal  
Permit Fee: \$0.00 *DO NOT send payment at this time, subject to change before final issuance*  
Issue Date: 12/24/2013  
Effective Date: To be entered upon final issuance  
Expiration Date: To be entered upon final issuance  
Permit Evaluation Report (PER) Annual Date: To be entered upon final issuance

This document constitutes issuance to:

Masco Cabinetry Middlefield LLC (KraftMaid Plant 3)  
150 GRAND VALLEY AVE.  
ORWELL, OH 44076

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:

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

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

Scott J. Nally  
Director



## Authorization (continued)

Permit Number: P0114970

Permit Description: FEPTIO Renewal permit for all woodworking operations (P001 - P009), grinders (F001 and P011), and storage silo & truck loading (F002). Administrative modification to all coating operations (K007 - K042) for correcting RTO burners' sizes,

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

- |                                   |                                |
|-----------------------------------|--------------------------------|
| <b>Emissions Unit ID:</b>         | <b>F001</b>                    |
| Company Equipment ID:             | Grinder & Cyclone P4-83        |
| Superseded Permit Number:         | P0106466                       |
| General Permit Category and Type: | Not Applicable                 |
| <b>Emissions Unit ID:</b>         | <b>F002</b>                    |
| Company Equipment ID:             | Storage Silo and Truck Loading |
| Superseded Permit Number:         | P0106466                       |
| General Permit Category and Type: | Not Applicable                 |
| <b>Emissions Unit ID:</b>         | <b>P001</b>                    |
| Company Equipment ID:             | P3-20865                       |
| Superseded Permit Number:         | P0106466                       |
| General Permit Category and Type: | Not Applicable                 |
| <b>Emissions Unit ID:</b>         | <b>P011</b>                    |
| Company Equipment ID:             | P3-25641                       |
| Superseded Permit Number:         | P0108240                       |
| General Permit Category and Type: | Not Applicable                 |

**Group Name: Coating Operations with RTO #3**

<b>Emissions Unit ID:</b>	<b>K007</b>
Company Equipment ID:	Overhead Conveyor Line #3 - Spray Booth #1
Superseded Permit Number:	02-18558
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K008</b>
Company Equipment ID:	Overhead Conveyor Line #3 - Spray Booth #2
Superseded Permit Number:	02-18558
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K009</b>
Company Equipment ID:	Overhead Conveyor Line #3 - Spray Booth #3
Superseded Permit Number:	02-18558
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K010</b>
Company Equipment ID:	Overhead Conveyor Line #3 - Spray Booth #4
Superseded Permit Number:	02-18558
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K011</b>
Company Equipment ID:	Overhead Conveyor Line #3 - Spray Booth #5
Superseded Permit Number:	02-18558
General Permit Category and Type:	Not Applicable



<b>Emissions Unit ID:</b>	<b>K012</b>
Company Equipment ID:	Overhead Conveyor Line #3 - Spray Booth #6
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K013</b>
Company Equipment ID:	Overhead Conveyor Line #3 - Spray Booth #7
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K014</b>
Company Equipment ID:	Overhead Conveyor Line #3 - Spray Booth #8
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K015</b>
Company Equipment ID:	Off-line Specialty Booth #1
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K016</b>
Company Equipment ID:	Cefla #3
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable

**Group Name: Coating Operations with RTO #4**

<b>Emissions Unit ID:</b>	<b>K018</b>
Company Equipment ID:	Overhead Conveyor Line #4 - Spray Booth #1
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K019</b>
Company Equipment ID:	Overhead Conveyor Line #4 - Spray Booth #2
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K020</b>
Company Equipment ID:	Overhead Conveyor Line #4 - Spray Booth #3
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K021</b>
Company Equipment ID:	Overhead Conveyor Line #4 - Spray Booth #4
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K022</b>
Company Equipment ID:	Overhead Conveyor Line #4 - Spray Booth #5
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K023</b>
Company Equipment ID:	Overhead Conveyor Line #4 - Spray Booth #6
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K024</b>
Company Equipment ID:	Overhead Conveyor Line #4 - Spray Booth #7
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K025</b>
Company Equipment ID:	Overhead Conveyor Line #4 - Spray Booth #8
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable



<b>Emissions Unit ID:</b>	<b>K026</b>
Company Equipment ID:	Overhead Conveyor Line #4 - Spray Booth #9
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K027</b>
Company Equipment ID:	Cefla #4
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K028</b>
Company Equipment ID:	Cefla #5
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K029</b>
Company Equipment ID:	Glazing Booth and Oven #2
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable

**Group Name: Coating Operations with RTO #5**

<b>Emissions Unit ID:</b>	<b>K017</b>
Company Equipment ID:	Glaze Booth and Oven #1
Superseded Permit Number:	02-18558
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K030</b>
Company Equipment ID:	Overhead Conveyor Line #6 - Spray Booth #1
Superseded Permit Number:	02-19683
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K031</b>
Company Equipment ID:	Overhead Conveyor Line #6 - Spray Booth #2
Superseded Permit Number:	02-19683
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K032</b>
Company Equipment ID:	Overhead Conveyor Line #6 - Spray Booth #3
Superseded Permit Number:	02-19683
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K033</b>
Company Equipment ID:	Overhead Conveyor Line #6 - Spray Booth #4
Superseded Permit Number:	02-19683
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K034</b>
Company Equipment ID:	Overhead Conveyor Line #6 - Spray Booth #5
Superseded Permit Number:	02-19683
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K035</b>
Company Equipment ID:	Overhead Conveyor Line #6 - Spray Booth #6
Superseded Permit Number:	02-19683
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K036</b>
Company Equipment ID:	Overhead Conveyor Line #6 - Spray Booth #7
Superseded Permit Number:	02-19683
General Permit Category andType:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K037</b>
Company Equipment ID:	Overhead Conveyor Line #6 - Spray Booth #8
Superseded Permit Number:	02-19683
General Permit Category andType:	Not Applicable



<b>Emissions Unit ID:</b>	<b>K038</b>
Company Equipment ID:	Overhead Conveyor Line #6 - Spray Booth #9
Superseded Permit Number:	02-19683
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K039</b>
Company Equipment ID:	Cefla #6
Superseded Permit Number:	02-19683
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K040</b>
Company Equipment ID:	Repair Booth #1
Superseded Permit Number:	02-19683
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>K041</b>
Company Equipment ID:	Repair booth no. 2
Superseded Permit Number:	02-19683
General Permit Category and Type:	Not Applicable

**Group Name: Group A**

<b>Emissions Unit ID:</b>	<b>P003</b>
Company Equipment ID:	P3-12742
Superseded Permit Number:	P0106466
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P004</b>
Company Equipment ID:	P3-12743
Superseded Permit Number:	P0106466
General Permit Category and Type:	Not Applicable

**Group Name: Group C**

<b>Emissions Unit ID:</b>	<b>P002</b>
Company Equipment ID:	P3-20866
Superseded Permit Number:	P0106466
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P005</b>
Company Equipment ID:	P3-12740
Superseded Permit Number:	P0106466
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P006</b>
Company Equipment ID:	P3-12741
Superseded Permit Number:	P0106466
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P007</b>
Company Equipment ID:	P3-20879
Superseded Permit Number:	P0106466
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P008</b>
Company Equipment ID:	P008
Superseded Permit Number:	P0106466
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P009</b>
Company Equipment ID:	P009
Superseded Permit Number:	P0106466
General Permit Category and Type:	Not Applicable



**Draft Permit-to-Install and Operate**  
Masco Cabinetry Middlefield LLC (KraftMaid Plant 3)  
**Permit Number:** P0114970  
**Facility ID:** 0204000360  
**Effective Date:** To be entered upon final issuance

## **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 Ohio EPA DAPC, Northeast District Office 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.



**Draft Permit-to-Install and Operate**  
Masco Cabinetry Middlefield LLC (KraftMaid Plant 3)  
**Permit Number:** P0114970  
**Facility ID:** 0204000360  
**Effective Date:** To be entered upon final issuance

## **B. Facility-Wide Terms and Conditions**



**Draft Permit-to-Install and Operate**  
Masco Cabinetry Middlefield LLC (KraftMaid Plant 3)  
**Permit Number:** P0114970  
**Facility ID:** 0204000360  
**Effective Date:** To be entered upon final issuance

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.
2. Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.



**Draft Permit-to-Install and Operate**  
Masco Cabinetry Middlefield LLC (KraftMaid Plant 3)  
**Permit Number:** P0114970  
**Facility ID:** 0204000360  
**Effective Date:** To be entered upon final issuance

## **C. Emissions Unit Terms and Conditions**



**1. F001, Grinder & Cyclone P4-83**

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

Grinder with a 4968 cfm air return cyclone (P3-Grinder)

- 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 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)	Fugitive emissions of particulate matter less than or equal to 10 microns in diameter (PM <sub>10</sub> ) shall not exceed 1.53 tons per year from the grinder.  Fugitive particulate emissions (PE) shall not exceed 1.53 tons per year from the grinder.  Visible particulate emissions of fugitive dust from the grinder shall not exceed 20% opacity as a 3-minute average.  See b)(2)a and b)(2)b.
b.	OAC rule 3745-17-08(B) OAC rule 3745-17-07(B)	The requirements established pursuant to OAC rules 3745-17-08(B) and 3745-17-07(B) are less stringent than the requirements established pursuant to OAC rule 3745-31-05(A)(3).



(2) Additional Terms and Conditions

- a. The emissions from this emissions unit shall be vented to the cyclone at all times when this emissions unit is in operation.
- b. The cyclone exhaust does not vent into the atmosphere. Rather, the exhaust air from the cyclone is recirculated into the grinder and becomes process air in the grinder. The grinder has an opening through which excess air escapes.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions of fugitive dust from the grinder. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
  - a. the location and color of the emissions;
  - b. whether the emissions are representative of normal operations;
  - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
  - d. the total duration of any visible emission incident; and
  - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

- (2) Notwithstanding the frequency of reporting requirements specified above, the permittee may reduce the frequency of visual observations from daily to weekly for the grinder if the following conditions are met:
  - a. for 1 full quarter the facility's visual observations indicate no visible emissions; and



- b. the permittee continues to comply with all the record keeping and monitoring requirements specified above.

The permittee shall revert to daily readings if any visible emissions are observed.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be completed electronically and submitted via the Ohio EPA e-Business Center: Air Services by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.
- (2) The permittee shall submit annual written reports that (a) identify all days during which any visible particulate emissions of fugitive dust were observed from the grinder and (b) describe any corrective actions taken to minimize or eliminate the visible emissions. These reports shall be submitted to the Director (the Ohio EPA, Northeast District Office) in the annual PER and shall cover the previous 12-month period.

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. Emission Limitation:

Visible particulate emissions of fugitive dust from the grinder shall not exceed 20% opacity as a 3-minute average.

Applicable Compliance Method:

If required, compliance shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9 and OAC rule 3745-17-03(B)(3).

- b. Emission Limitations:

Fugitive emissions of PM<sub>10</sub> shall not exceed 1.53 tons per year from the grinder.

Fugitive PE shall not exceed 1.53 tons per year from the grinder.

Applicable Compliance Method:

Compliance is based upon the following calculation:

$$E = SU \times EF \times (1-CE)/(2,000 \text{ lbs/ton})$$

where:



E = annual emissions, in tons;

SU = amount of wood waste loaded per year, in tons [the potential annual wood waste loaded, in tons per year, was developed by multiplying the short-term potential throughput (5 tons/hour) by the maximum annual hours of operation (8,760 hours)];

EF = emission factor of 0.35 lb/ton from RACM Table 2.17, Fugitive dust Emission Factors for Woodworking Operations; and

CE = control efficiency estimated to be 80% for the cyclone.

g) Miscellaneous Requirements

- (1) The permittee shall submit an updated Emissions Unit Equipment Table for this emissions unit to the Director (the Ohio EPA, Northeast District Office) on an annual basis. The updated table shall include an updated demonstration of loading to the baghouse. The updated table shall include a complete list of equipment for each emissions unit (including an identification of all equipment that is/are permanently shut down and dismantled and new or replacement equipment) as of the end of the calendar year and shall highlight or otherwise flag the changes from the previous year. This report shall be submitted to the Director (the Ohio EPA, Northeast District Office) by February 28 of each year or may be included with the PER.

After this report is submitted, the Director (the Ohio EPA, Northeast District Office) may consider the changes to determine if a modification to the issued permit is necessary. In general, a few changes which are not significant and which do not affect the operation of the control equipment will not trigger a request for a submittal of an application to modify the issued permit.

The permittee shall also submit an updated table of equipment which is exempt from air permitting requirements to the Director (the Ohio EPA, Northeast District Office) on an annual basis. The updated table shall include the complete list of such equipment including any PTI exempt equipment installed during the last calendar year and an identification of all equipment permanently shut down and dismantled. This report shall be submitted to the Director (the Ohio EPA, Northeast District Office) by February 28 of each year or may be included in the PER.

F001- GRINDER 2/1/2010 PLANT 3 DUST COLLECTORS.XLS GRINDER			
Dust Collection Sizes and Reading			
<b>For:</b>	GRINDER		
<b>EPA ID#</b>	F001		
<b>KMC Asset #</b>	P3-Grinder		
Date: 02/09	KraftMaid Design Velocity =	5850	
Equipment:	Running Total for 5850 V		
HF13 25 HP 22 BHP 2369 RPM Fan Inlet 13"	5350 MAX CFM @ 5850 FPM		
5340 Max CFM @ 5850 fpm OV 11" SP	4595		
Size of pipe in inches	Amount of CFM in pipe		
1	GRINDER	12	4595
			4595



**2. F002, Storage Silo and Truck Loading**

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

Sawdust storage silo with a 6,000 cfm air return baghouse P3-13430, and truck loading with a 21,200 cfmbaghouse P1-13323

- 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. b)(1)a, b(2)a, f)(1)a and f)(1)b
- 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(D)	<p>Emissions of particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>) shall not exceed 0.0025 grain per dscf of exhaust gases from each baghouse stack.</p> <p>Emissions of PM<sub>10</sub> from loading into the storage silo (6,000 cfmbaghouse) shall not exceed 0.13 pound per hour and 0.56 ton per year from the baghouse stack.</p> <p>Emissions of PM<sub>10</sub> from loading into trucks from the storage silo (21,200 cfmbaghouse) shall not exceed 0.45 pound per hour and 1.99 tons per year from the baghouse stack.</p>



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		Visible particulate emissions (PE) from each baghouse stack shall not exceed 0% opacity as a 6-minute average.
b.	OAC rule 3745-31-05(A)(3)	<p>PE shall not exceed 0.005 grain per dscf of exhaust gases from each baghouse stack.</p> <p>PE from loading into the storage silo (6,000 cfmbaghouse) shall not exceed 0.26 pound per hour and 1.13 tons per year from the baghouse stack.</p> <p>PE from loading into trucks (21,200 cfmbaghouse) shall not exceed 0.91 pound per hour and 3.98 tons per year.</p> <p>Fugitive PE and PM<sub>10</sub> emissions from loading into trucks from the storage silo shall not exceed 0.68 ton per year.</p> <p>Visible emissions of fugitive dust from loading into trucks from the storage silo shall not exceed 10% opacity as a 3-minute average.</p> <p>See b)(2)a.</p>
c.	OAC rule 3745-17-11(B) OAC rule 3745-17-07(A) OAC rule 3745-17-08(B) OAC rule 3745-17-07(B)	The requirements established pursuant to OAC rules 3745-17-11(B), 3745-17-07(A), 3745-17-08(B) and 3745-17-07(B) are less stringent than the requirements established pursuant to OAC rule 3745-31-05(D) and OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The emissions from this emissions unit shall be vented to the dust collector system, which consists of a 6,000 cfmbaghouse (P3-13430) for storage silo and a 21,200 cfmbaghouse (P1-13323) for truck loading, at all times when this emissions unit is in operation.

c) Operational Restrictions

(1) None.



d) Monitoring and/or Recordkeeping Requirements

- (1) In order to maintain compliance with the applicable emission limitations contained in this permit, the acceptable range established for the pressure drop across each baghouse (P1-13323 and P3-13430) is between 1 to 5 inches of water. The listed pressure drop range applies at all times except following rebagging until sufficient filter cake has developed on the bags.
- (2) The permittee shall properly install, operate and maintain equipment to continuously monitor the pressure drop, in inches of water, across each baghouse when this emissions unit is in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across each baghouse on weekly basis. The monitoring equipment shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manual(s), with any modifications deemed necessary by the permittee.

Whenever the monitored value for the pressure drop deviates from the range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. the date and time the deviation began;
- b. the magnitude of the deviation at that time;
- c. the date the investigation was conducted;
- d. the name(s) of the personnel who conducted the investigation; and
- e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- f. a description of the corrective action;
- g. the date corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. the pressure drop readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.



Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

This range or limit on the pressure drop across each baghouse is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted limit or range for the pressure drop based upon information obtained during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

- (3) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from each stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
  - a. the color of the emissions;
  - b. the total duration of any visible emission incident; and
  - c. any corrective actions taken to eliminate the visible emissions.
- (4) The permittee shall also perform daily checks, when the emissions unit is in operation, for any visible particulate emissions of fugitive dust from loading into trucks. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
  - a. the color of the emissions;
  - b. the total duration of any visible emission incident; and
  - c. any corrective actions taken to eliminate the visible emissions.
- (5) Notwithstanding the frequency of reporting requirements specified above, the permittee may reduce the frequency of visual observations from daily to weekly for this emissions unit if the following conditions are met:
  - a. for 1 full quarter the facility's visual observations indicate no visible emissions; and
  - b. the permittee continues to comply with all the record keeping and monitoring requirements specified above.



The permittee shall revert to daily readings if any visible emissions are observed.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be completed electronically and submitted via the Ohio EPA e-Business Center: Air Services by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.
- (2) The permittee shall identify in the PER the following information concerning the operations of the baghouse during the 12-month reporting period for this emissions unit:
  - a. each period of time (start time and date and end time and date) when the pressure drop across the baghouse was outside of the acceptable range;
  - b. any period of time (start time and date and end time and date) when the emissions unit was in operation and the process emissions were not vented to the baghouse;
  - c. each incident of deviation described in "a" (above) where a prompt investigation was not conducted;
  - d. each incident of deviation described in "a" (above) where a prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and
  - e. each incident of deviation described in "a" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.
- (3) The permittee shall submit annual written reports that (a) identify all days during which any visible particulate emissions were observed from each baghouse stack serving this emissions unit and/or any visible particulate emissions of dust or fugitive dust were observed from the truck loading area; and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Director (the Ohio EPA, Northeast District Office) each year in the PER and shall cover the previous year.

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. Emission Limitation:  
  
Visible particulate emissions from each baghouse shall not exceed 0% opacity as a 6-minute average.



Applicable Compliance Method:

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

b. Emission Limitations:

Emissions of PM<sub>10</sub> shall not exceed 0.0025 grain per dscf of exhaust gases from each baghouse stack.

Emissions of PM<sub>10</sub> from loading into the storage silo (6,000 cfmbaghouse) shall not exceed 0.13 pound per hour and 0.56 ton per year from the baghouse stack.

Emissions of PM<sub>10</sub> from loading into trucks from the storage silo (21,200 cfmbaghouse) shall not exceed 0.45 pound per hour and 1.99 tons per year from the baghouse stack.

Applicable Compliance Method:

These limitations are based upon the design of the baghouses and compliance with the grain loading limitations. Compliance with the grain loading limitations has been demonstrated at similar, but larger, control equipment at this facility.

If required, compliance shall be demonstrated through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 51, Appendix M, Method 201 for PM<sub>10</sub>.

The tons per year emission limitations were developed by multiplying the short-term allowable PM<sub>10</sub> limitations (as appropriate) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitations, compliance shall also be shown with the annual emission limitations.

c. Emission Limitation:

Visible emissions of fugitive dust from loading into trucks from the storage silo shall not exceed 10% opacity as a 3-minute average.

Applicable Compliance Method:

If required, compliance shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9 and OAC rule 3745-17-03(B)(3).

d. Emission Limitations:

PE shall not exceed 0.005 grain per dscf of exhaust gases from each baghouse stack.



PE from loading into the storage silo (6000 cfmbaghouse) shall not exceed 0.26 pound per hour and 1.13 tons per year from the baghouse stack.

PE from loading into trucks (21,200 cfmbaghouse) shall not exceed 0.91 pound per hour and 3.98 tons per year.

Applicable Compliance Method:

These limitations are based upon the design of the baghouses and compliance with the grain loading limitations. Compliance with the grain loading limitations has been demonstrated at similar, but larger, control equipment at this facility.

If required, compliance shall be demonstrated through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5 for PE.

The tons per year emission limitations were developed by multiplying the short-term allowable PE limitations (as appropriate) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitations, compliance shall also be shown with the annual emission limitations.

e. Emission Limitation:

Fugitive PE and PM<sub>10</sub> emissions from loading into trucks from the storage silo shall not exceed 0.68 ton per year.

Applicable Compliance Method:

Compliance shall be demonstrated using the following equation:

$$E = SU \times EF \times (1-CE) / (2,000 \text{ lbs/ton})$$

where:

E = annual emissions, in tons;

SU = amount of sawdust unloaded per year, in tons;

EF = emission factor of 2 lbs PE/ton sawdust unloaded, taken from RACM Table 2.17-1, Fugitive Dust Emission Factors for Woodworking Operations; and

CE = control efficiency estimated to be 90% for the telescopic tube and 3-sided enclosure, as determined using RACM Table 2.17-3.

g) Miscellaneous Requirements

- (1) The permittee shall submit an updated Emissions Unit Equipment Table for this emissions unit to the Director (the Ohio EPA, Northeast District Office) on an annual basis. The updated table shall include an updated demonstration of loading to the baghouse. The updated table shall include a complete list of equipment for each



emissions unit (including an identification of all equipment that is/are permanently shut down and dismantled and new or replacement equipment) as of the end of the calendar year and shall highlight or otherwise flag the changes from the previous year. This report shall be submitted to the Director (the Ohio EPA, Northeast District Office) by February 28 of each year or may be included with the PER.

After this report is submitted, the Director (the Ohio EPA, Northeast District Office) may consider the changes to determine if a modification to the issued permit is necessary. In general, a few changes which are not significant and which do not affect the operation of the control equipment will not trigger a request for a submittal of an application to modify the issued permit.

The permittee shall also submit an updated table of equipment which is exempt from air permitting requirements to the Director (the Ohio EPA, Northeast District Office) on an annual basis. The updated table shall include the complete list of such equipment including any PTI exempt equipment installed during the last calendar year and an identification of all equipment permanently shut down and dismantled. This report shall be submitted to the Director (the Ohio EPA, Northeast District Office) by February 28 of each year or may be included in the PER.

F002 Silo Unloading F-002 - SILO UNLOADING						
Dust Collection Sizes and Reading						
<b>For:</b>			SILO UNLOADING DUST COLLECTOR			
<b>EPA ID#</b>			<b>F002</b>			
<b>KMC Asset #</b>			<b>P1-13323</b>			
Date: 07/09		KraftMaid Design Velocity =			4600	
Equipment:			Running Total for 4600 V			
HF29 75 HP 1750 RPM Fan Inlet 29"		21200 MAX CFM @ 4600 FPM			* Moved from Plant One - 7/09	
21200 Max CFM @ 4600 fpm OV 12" SP			<b>19193</b>			
Size of pipe in inches			Amount of CFM in pipe			
1	SOUTH TRUNK LINE	PICKUP	18	8129	8129	
2	NORTH TRUNK LINE	PICKUP	21	11064	19193	



**3. P001, P3-20865 (Cefla 5)**

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

Woodworking equipment (Cefla 5) with a 36,432 cfm Baghouse P3-20865

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. b)(1)a, f)(1)a, f)(1)b and f)(2)

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(D)	Emissions of particulate matter less than or equal to 10 microns in diameter (PM <sub>10</sub> ) shall not exceed 0.0025 grain per dscf of exhaust gases from the baghouse stack. Emissions of PM <sub>10</sub> shall not exceed 0.78 pound per hour and 3.42 tons per year from the baghouse stack.  Visible particulate emissions (PE) from the baghouse stack shall not exceed 0% opacity as a 6-minute average.
b.	OAC rule 3745-31-05(A)(3)	PE shall not exceed 0.005 grain per dscf of exhaust gases from the baghouse stack. PE shall not exceed 1.56 pounds per hour and 6.84 tons per year from the baghouse stack.  See b)(2)a .



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	OAC rule 3745-17-11(B) OAC rule 3745-17-07(A)	The requirements established pursuant to OAC rules 3745-17-11(B) and 3745-17-07(A) are less stringent than the requirements established pursuant to OAC rules 3745-31-05(D) and OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. The emissions from this emissions unit shall be vented to the baghouse P3-20865 at all times when this emissions unit is in operation.

c) Operational Restrictions

(1) None

d) Monitoring and/or Recordkeeping Requirements

(1) In order to maintain compliance with the applicable emission limitations contained in this permit, the acceptable range established for the pressure drop across the baghouse P3-20865 is between 1 to 5 inches of water. The listed pressure drop range applies at all times except following rebagging until sufficient filter cake has developed on the bags.

(2) The permittee shall properly install, operate and maintain equipment to continuously monitor the pressure drop, in inches of water, across the baghouse when the controlled emissions unit is in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across the baghouse on weekly basis. The monitoring equipment shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manual(s), with any modifications deemed necessary by the permittee.

Whenever the monitored value for the pressure drop deviates from the range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. the date and time the deviation began;
- b. the magnitude of the deviation at that time;
- c. the date the investigation was conducted;
- d. the name(s) of the personnel who conducted the investigation; and
- e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control



equipment within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- f. a description of the corrective action;
- g. the date corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. the pressure drop readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

This range or limit on the pressure drop across the baghouse is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted limit or range for the pressure drop based upon information obtained during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

- (3) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
  - a. the color of the emissions;
  - b. the total duration of any visible emission incident; and
  - c. any corrective actions taken to eliminate the visible emissions.
- (4) Notwithstanding the frequency of reporting requirements specified above, the permittee may reduce the frequency of visual particulate observations from daily to weekly for this emissions unit if the following conditions are met:
  - a. for 1 full quarter the facility's visual observations indicate no visible emissions; and



- b. the permittee continues to comply with all the record keeping and monitoring requirements specified above.

The permittee shall revert to daily readings if any visible emissions are observed.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be completed electronically and submitted via the Ohio EPA e-Business Center: Air Services by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.
- (2) The permittee shall identify in the PER the following information concerning the operations of the baghouse during the 12-month reporting period for this/these emissions unit:
  - a. each period of time (start time and date and end time and date) when the pressure drop across the baghouse was outside of the acceptable range;
  - b. any period of time (start time and date and end time and date) when the emissions unit was in operation and the process emissions were not vented to the baghouse;
  - c. each incident of deviation described in "a" (above) where a prompt investigation was not conducted;
  - d. each incident of deviation described in "a" (above) where a prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and
  - e. each incident of deviation described in "a" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.
- (3) The permittee shall submit annual written reports that (a) identify all days during which any visible particulate emissions were observed from the baghouse stack serving this emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Director (the Ohio EPA, Northeast District Office) each year in the PER and shall cover the previous year.

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. Emission Limitation:  
  
Visible PE from the baghouse stack shall not exceed 0% opacity as a 6-minute average.



Applicable Compliance Method:

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

b. Emission Limitations:

Emissions of PM<sub>10</sub> shall not exceed 0.0025 grain per dscf of exhaust gases from the baghouse stack.

Emissions of PM<sub>10</sub> shall not exceed 0.78 pound per hour and 3.42 tons per year from the baghouse stack.

Applicable Compliance Method:

Compliance with the grain loading and hourly limitations shall be demonstrated through emission tests performed in accordance with the methods and procedures specified 40 CFR Part 51, Appendix M, Method 201 for PM<sub>10</sub> and the requirements specified in f)(2).

The tons per year emission limitation was developed by multiplying the short-term allowable PM<sub>10</sub> limitation (0.78 lb/hr) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

c. Emission Limitations:

PE shall not exceed 0.005 grain per dscf of exhaust gases from the baghouse stack.

PE shall not exceed 1.56 pounds per hour and 6.84 tons per year from the baghouse stack.

Applicable Compliance Method:

Compliance with the grain loading and hourly limitations shall be demonstrated through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5 for PE and the requirements specified in f)(2).

The tons per year emission limitation was developed by multiplying the short-term allowable PE limitation (1.56 lbs/hr) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.



(2) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

a. For the purpose of emissions testing, some of the woodworking emissions units from MASCO's Plants 1, 2 and 3 have been grouped together as similar units based upon the size of the fabric filters: 36,000 cfm – 39,999 cfm. These units are listed below. This list of emissions units may change over time as units are installed, modified, or removed from the three plants. Regardless of the list below, any woodworking emissions units which are controlled by a fabric filter with an air exhaust between 36,000 cfm and 39,999 cfm are part of this group.

Plant 1

None

Plant 2

P006 (P2-10916) – 39,400 cfm  
P007 (P2-10911) – 39,400 cfm  
P008 (P2-21588) – 39,400 cfm  
P010 (P2-10904) – 36,432 cfm  
P012 (P2-10903) – 36,432 cfm  
P014 (P2-10905) – 39,400 cfm  
P019 (P2-10918) – 39,400 cfm  
P020 (P2-10915) – 39,400 cfm  
P021 (P2-10917) – 39,400 cfm

Plant 3

P001 (P3-20865) – 36,432 cfm

One of the emissions units from this group shall be selected for emissions testing every five years. The selection of the unit for testing shall be based upon considerations such as production, baghouse maintenance issues, performance and other considerations as may be pertinent. The selection of the unit to be tested shall be made jointly by MASCO and Ohio EPA, Northeast District Office.

Some of the emissions units in this group may exhaust only inside the plant. In some cases the configuration of the baghouse stack and/or the air conditioning unit will not allow for Reference Method 1 to be met. These emissions units shall not be considered for emissions testing.

The emissions unit P012 in Plant 2 was tested and demonstrated compliance on November 13, 2012. The emission testing for this group of emissions units shall be conducted again within 6 months of November 13, 2017.

b. The emission testing shall be conducted to demonstrate compliance with the PE limitation of 0.005 grain per dscf and 0.0025 grain PM<sub>10</sub> per dscf from the baghouse stack and with the PE and PM<sub>10</sub> hourly mass emission limitations specified in b)(1)a and b)(1)b.

c. The following test methods shall be employed to demonstrate compliance with the allowable emission rates:



for PE - 40 CFR Part 60, Appendix A, Methods 1 through 5; and

for PM<sub>10</sub> - 40 CFR Part 51, Appendix M, Method 201.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

- d. The test(s) shall be conducted while the emissions unit is at current operating conditions unless otherwise specified or approved by the Ohio EPA, Northeast District Office.
- e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Northeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s) and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Northeast District Office's refusal to accept the results of the emission test(s).
- f. Personnel from the Ohio EPA, Northeast District Office shall be permitted to witness the test(s), examine the testing equipment and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Northeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Northeast District Office.

g) **Miscellaneous Requirements**

- (1) The permittee shall submit an updated Emissions Unit Equipment Table for this emissions unit to the Director (the Ohio EPA, Northeast District Office) on an annual basis. The updated table shall include an updated demonstration of loading to the baghouse. The updated table shall include a complete list of equipment for each emissions unit (including an identification of all equipment that is/are permanently shut down and dismantled and new or replacement equipment) as of the end of the calendar year and shall highlight or otherwise flag the changes from the previous year. This report shall be submitted to the Director (the Ohio EPA, Northeast District Office) by February 28 of each year or may be included with the PER.

After this report is submitted, the Director (the Ohio EPA, Northeast District Office) may consider the changes to determine if a modification to the issued permit is necessary. In general, a few changes which are not significant and which do not affect the operation of the control equipment will not trigger a request for a submittal of an application to modify the issued permit.



**Draft Permit-to-Install and Operate**  
 Masco Cabinetry Middlefield LLC (KraftMaid Plant 3)  
**Permit Number:** P0114970  
**Facility ID:** 0204000360  
**Effective Date:** To be entered upon final issuance

The permittee shall also submit an updated table of equipment which is exempt from air permitting requirements to the Director (the Ohio EPA, Northeast District Office) on an annual basis. The updated table shall include the complete list of such equipment including any permit exempt equipment installed during the last calendar year and an identification of all equipment permanently shut down and dismantled. This report shall be submitted to the Director (the Ohio EPA, Northeast District Office) by February 28 of each year or may be included in the PER.

<b>P001- CEFLA#5 2/1/2010</b> PLANT 3 DUST COLLECTORS.XLS CEFLA #5 <b>Dust Collection Sizes and Reading</b>				
<b>For:</b>				<b>CEFLA #5</b>
<b>EPA ID#</b>				<b>P001</b>
<b>KMC Asset #</b>				<b>P3-20865</b>
Date: 02/09		KraftMaid Design Velocity =		5200
Running Total for 5200 V				
Equipment:				
HF33 100HP 91.4 BHP 825 RPM Fan Inlet 33"		31150 MAX CFM @ 5200 OV		<b>23143</b>
31150 Max CFM @ 5200 fpm OV 9" SP				
		Size of pipe ( inches)	Amount of CFM	Running Total CFM in Pipe
1	BRUSH ASSEMBLY DENNIBER P4-308	5	709	709
2	BRUSH ASSEMBLY DENNIBER P4-308	5	709	1418
3	BRUSH ASSEMBLY DENNIBER P4-308	5	709	2127
4	BRUSH ASSEMBLY DENNIBER P4-308	5	709	2836
5	BRUSH ASSEMBLY DENNIBER P4-308	6	1021	3857
6	BRUSH ASSEMBLY DENNIBER P4-308	6	1021	4878
7	DOWN DRAFT TABLE P4-309	10	2836	7714
8	SORBINI PANEL CLEANER P4-310	6	1021	8735
9	SORBINI PANEL CLEANER P4-310	6	1021	9756
10	SORBINI PANEL CLEANER P4-310	6	1021	10777
11	SORBINI PANEL CLEANER P4-310	8	1815	12592
12	BRUSH ASSEMBLY DENNIBER P4-318	5	709	13301
13	BRUSH ASSEMBLY DENNIBER P4-318	5	709	14010
14	BRUSH ASSEMBLY DENNIBER P4-318	5	709	14720
15	BRUSH ASSEMBLY DENNIBER P4-318	5	709	15429
16	BRUSH ASSEMBLY DENNIBER P4-318	6	1021	16450
17	BRUSH ASSEMBLY DENNIBER P4-318	6	1021	17471
18	DOWN DRAFT TABLE P4-319	10	2836	20307
19	DOWN DRAFT TABLE P4-320	10	2836	23143



**4. P011, P3-25641**

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

A Weima WI-15 grinder with a 4,968 cfm Baghouse P3-25641

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. b)(1)c, b)(2)c, d)(1), e)(2), f)(1)a and f)(1)c

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) as effective November 30, 2001	Particulate emissions (PE) shall not exceed 0.005 grain per dscf of exhaust gases from the baghouse stack.  PE shall not exceed 0.21 pound per hour and 0.93 ton per year from the baghouse stack.  See b)(2)a.
b.	OAC rule 3745-31-05 (A)(3)(a)(ii) as effective December 1, 2006	See b)(2)b.
c.	OAC rule 3745-31-05(D)	Emissions of particulate matter less than or equal to 10 microns in diameter (PM <sub>10</sub> ) shall not exceed 0.0025 grain per dscf of exhaust gases from the baghouse stack. Emissions of PM <sub>10</sub> shall not exceed 0.11 pound per hour and 0.47 ton per year from the baghouse stack.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		Visible particulate emissions (PE) from the baghouse stack shall not exceed 0% opacity as a 6-minute average.  See b)(2)c.
	OAC rule 3745-17-11(B) OAC rule 3745-17-07(A)	The emission limitations required by these applicable rules are less stringent than the emission limitations established pursuant to OAC rules 3745-31-05(A)(3) and 3745-31-05(D).

(2) Additional Terms and Conditions

a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to the Ohio Revised Code (ORC) changes effective August 3, 2006 (Senate Bill 265 changes), such that BAT is no longer required by State regulations for National Ambient Air Quality Standards (NAAQS) pollutant(s) less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, then these emission limitations/control measures no longer apply: b)(1)a and b)(2)a.

b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

The "Best Available Technology (BAT)" requirements under OAC rule 3745-31-05(A)(3)(a) are not applicable to the particulate emissions (PE) emitted from this emissions unit (PE is emitted in the form of filterable PM10 emissions). BAT is only applicable to emissions of an air contaminant or precursor of an air contaminant for which a national ambient air quality standard (NAAQS) has been adopted under the Clean Air Act. Particulate emissions (also referred to as total suspended particulate or particulate matter) are an air contaminant without an established NAAQS.

c. The emissions from this emissions unit shall be vented to baghouse P3-25641 at all times when this emissions unit is in operation.

c) Operational Restrictions

(1) None.



d) Monitoring and/or Recordkeeping Requirements

- (1) In order to maintain compliance with the applicable emission limitations contained in this permit, the acceptable range established for the pressure drop across the baghouse P3-25641 is between 1 to 5 inches of water. The listed pressure drop range applies at all times except following rebagging until sufficient filter cake has developed on the bags.
- (2) The permittee shall properly install, operate and maintain equipment to continuously monitor the pressure drop, in inches of water, across the baghouse when the controlled emissions unit is in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across the baghouse on weekly basis. The monitoring equipment shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manual(s), with any modifications deemed necessary by the permittee.

Whenever the monitored value for the pressure drop deviates from the range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. the date and time the deviation began;
- b. the magnitude of the deviation at that time;
- c. the date the investigation was conducted;
- d. the name(s) of the personnel who conducted the investigation; and
- e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- f. a description of the corrective action;
- g. the date corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. the pressure drop readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.



Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

This range or limit on the pressure drop across the baghouse is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted limit or range for the pressure drop based upon information obtained during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

- (3) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
  - a. the color of the emissions;
  - b. the total duration of any visible emission incident; and
  - c. any corrective actions taken to eliminate the visible emissions.
- (4) Notwithstanding the frequency of reporting requirements specified above, the permittee may reduce the frequency of visual observations from daily to weekly for this emissions unit if the following conditions are met:
  - a. for 1 full quarter the facility's visual observations indicate no visible emissions; and
  - b. the permittee continues to comply with all the record keeping and monitoring requirements specified above.

The permittee shall revert to daily readings if any visible emissions are observed.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be completed electronically and submitted via the Ohio EPA e-Business Center: Air Services by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.
- (2) The permittee shall identify in the annual PER the following information concerning the operations of the baghouse during the 12-month reporting period for this/these emissions unit:
  - a. each period of time (start time and date and end time and date) when the pressure drop across the baghouse was outside of the acceptable range;



- b. any period of time (start time and date and end time and date) when the emissions unit was in operation and the process emissions were not vented to the baghouse;
  - c. each incident of deviation described in “a” (above) where a prompt investigation was not conducted;
  - d. each incident of deviation described in “a” (above) where a prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and
  - e. each incident of deviation described in “a” where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.
- (3) The permittee shall submit annual written reports that (a) identify all days during which any visible particulate emissions were observed from the baghouse stack serving this emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Director (the Ohio EPA, Northeast District Office) each year in the PER and shall cover the previous year.
- 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. Emission Limitation:  
  
Visible PE from the baghouse stack shall not exceed 0% opacity as a 6-minute average.  
  
Applicable Compliance Method:  
  
If required, compliance shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9 and OAC rule 3745-17-03(B)(1).
  - b. Emission Limitations:  
  
PE shall not exceed 0.005 grain per dscf of exhaust gases from the baghouse stack.  
  
PE shall not exceed 0.21 pound per hour and 0.93 ton per year from the baghouse stack.  
  
Applicable Compliance Method:



This limitation is based upon the design of the baghouse and compliance with the grain loading limitation. Compliance with the grain loading limitation has been demonstrated at similar, but larger, control equipment at this facility.

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

The tons per year emission limitation was developed by multiplying the short-term allowable PE emission limitation (0.21 lb/hr) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

c. Emission Limitations:

Emissions of PM<sub>10</sub> shall not exceed 0.0025 grain per dscf of exhaust gases from the baghouse stack.

Emissions of PM<sub>10</sub> shall not exceed 0.11 pound per hour and 0.47 ton per year from the baghouse stack.

Applicable Compliance Method:

This limitation is based upon the design of the baghouse and compliance with the grain loading limitation. Compliance with the grain loading limitation has been demonstrated at similar, but larger, control equipment at this facility.

If required, compliance with the hourly limitation shall be demonstrated based upon the methods and procedures specified in 40 CFR Part 51, Appendix M, Method 201.

The tons per year emission limitation was developed by multiplying the short-term allowable PM<sub>10</sub> emission limitation (0.11 lb/hr) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

g) Miscellaneous Requirements

- (1) Nine.



**5. Emissions Unit Group -Coating Operations included in PTE #1 and controlled by RTO #3: K007, K008, K009, K010, K011, K012, K013, K014, K015, K016, and K017**

<b>EU ID</b>	<b>Operations, Property and/or Equipment Description</b>
K007	Spray booth 1 of overhead conveyor line 3, included in PTE #1 and controlled by RTO #3
K008	Spray booth 2 of overhead conveyor line 3, included in PTE #1 and controlled by RTO #3
K009	Spray booth 3 of overhead conveyor line 3, included in PTE #1 and controlled by RTO #3
K010	Spray booth 4 of overhead conveyor line 3, included in PTE #1 and controlled by RTO #3
K011	Spray booth 5 of overhead conveyor line 3, included in PTE #1 and controlled by RTO #3
K012	Spray booth 6 of overhead conveyor line 3, included in PTE #1 and controlled by RTO #3
K013	Spray booth 7 of overhead conveyor line 3, included in PTE #1 and controlled by RTO #3
K014	Spray booth 8 of overhead conveyor line 3, included in PTE #1 and controlled by RTO #3
K015	Off-line specialty booth 1, included in PTE #1 and controlled by RTO #3
K016	Cefla 3 with two spray booths and two ovens, included in PTE #1 and controlled by RTO #3

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)e, d)(6), d)(7), d)(8), d)(9) and e)(3)

(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. b)(1)d, b)(2)a, b)(2)b, b)(2)c, b)(2)d, b)(2)e, c)(3), c)(4), c)(5), d)(10), d)(15), d)(16), e)(1), f)(1)a, f)(1)b, f)(1)c, f)(1)f, f)(1)g and f)(2)

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 3745-17-11(C)	See c)(1), c)(2), d)(1), d)(2), d)(3), d)(4) and d)(5).
b.	OAC rule 3745-21-15	See b)(2)g, b)(2)h, d)(11), d)(12), d)(13), d)(14), d)(15) and e)(2).
c.	OAC rule 3745-31-05(A)(3)	Emissions from the combustion of natural gas in regenerative thermal oxidizer (RTO) #3 shall not exceed 3.20 pounds



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		per hour and 14.02 tons per year of nitrogen oxides (NO <sub>x</sub> ) and 2.69 pounds per hour and 11.77 tons per year of carbon monoxide (CO).  See b)(2)f.
d.	OAC rule 3745-31-05(D)	See b)(2)a, b)(2)b, b)(2)c, b)(2)d, b)(2)e, c)(3), c)(4) and c)(5).
e.	ORC 3704.03(F)(4)(c)	See d)(6), d)(7), d)(8), d)(9) and e)(3).
f.	40 CFR Part 63, Subpart JJ - National Emissions Standards for Wood Furniture Manufacturing Operations	See b)(2)i.

(2) Additional Terms and Conditions

- a. The permittee shall use an emissions control system, which consists of a permanent total enclosure (PTE #1) and RTO #3 (at 75,000 cfm), to capture and control emissions from emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016.
- b. The permittee shall design and maintain PTE #1 to house emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016 in such a manner as to function as a permanent total enclosure, as defined by 40 CFR Part 51, Appendix M, Reference Method 204, which shall provide for 100% capture efficiency for the emissions from these emissions units and emissions units contained within the PTE, including rag wipe operations, misc. aerosol can usage and the collection of waste and/or recovered VOC-containing materials.
- c. The permittee shall install and maintain RTO #3 to control the emissions, including from all coating operations, mixing of VOC-containing materials and cleanup operations that are captured by PTE #1. RTO #3 shall be used and achieve a VOC destruction efficiency of at least 99%, by weight. All associated emissions units shall be shut down if RTO #3 becomes inoperable.
- d. The emissions from RTO #3 shall be restricted in such a manner as to limit emissions from emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016, combined, to the following:
  - i. 151.8 pounds per day and 27.70 tons per rolling, 12-month period of Volatile Organic Compounds (VOC);
  - ii. 528 pounds per month and 3.17 tons per rolling, 12-month period of each individual Hazardous Air Pollutant (HAP); and
  - iii. 1,378 pounds per month and 8.27 tons per rolling, 12-month period of combined total HAPs.



- e. The facility-wide emissions shall not exceed the following:
    - i. 83.1 tons per rolling, 12-month period of VOC;
    - ii. 9.50 tons per rolling, 12-month period of each individual Hazardous Air Pollutant (HAP); and
    - iii. 24.80 tons per rolling, 12-month period of combined total HAPs.
  - f. The emission limitations specified in b)(1)c are based upon the emissions units' potential to emit. Therefore, no monitoring, record keeping and reporting requirements are necessary to ensure ongoing compliance with these emission limitations.
  - g. The requirements established pursuant to OAC rule 3745-21-15(D)(3) are less stringent than the requirements established pursuant to OAC rule 3745-31-05 (D).
  - h. In accordance with OAC rule 3745-21-15(F), the permittee shall prepare and maintain a written work practice implementation plan. The plan shall define environmentally desirable work practices for each wood furniture manufacturing operation and address each of the work practices contained in paragraphs (b) to (d) and (f) to (k) of 40 CFR 63.803.
  - i. This facility is not an affected source subject to the requirements of 40 CFR Part 63, Subpart JJ because it is not a major source, as defined in 40 CFR 63.2, for individual or total combined HAPs. The permittee shall not exceed the HAP emission limitations contained in this permit, without first obtaining a permit modification.
- c) Operational Restrictions
- (1) For emissions units K007, K008, K009, K010, K011, K012, K013, K014 and K015, the permittee shall operate the dry filtration system for the control of particulate emissions as follows:
    - a. Whenever the emissions unit is in operation, the dry particulate filter shall be maintained in accordance with the manufacturer's recommendations, instructions and/or operating manual(s), with any modifications deemed necessary by the permittee; and
    - b. In the event the particulate filter system is not operating in accordance with the manufacturer's recommendations, instructions, or operating manual, with any modifications deemed necessary by the permittee, the control device shall be expeditiously repaired or otherwise returned to these documented operating conditions.



- (2) For emissions unit K016, the permittee shall operate the water wash system for the control of particulate emissions as follows:
- a. Whenever this emissions unit is in operation, the water wash shall be maintained in accordance with the manufacturer's recommendations, instructions and/or operating manual(s), with any modifications deemed necessary by the permittee; and
  - b. In the event the water wash control system is not operating in accordance with the manufacturer's recommendations, instructions, or operating manual, with any modifications deemed necessary by the permittee, the control device shall be expeditiously repaired or otherwise returned to these documented operating conditions.
- (3) The permittee shall limit the total coatings, solvents and support materials usage for emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016, combined, as follows:
- a. 43,196 gallons per month of coatings, including stains, toners, glazes, topcoats and sealers; and
  - b. 15,300 gallons per month of solvents and support materials, including cleanup materials and booth buffers.
- (4) The PTE #1 shall be maintained under negative pressure whenever any of emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016 are in operation and shall be designed and maintained to have an average facial velocity of air through each natural draft opening of at least 200 feet per minute (3,600 m/hr). Compliance with the average facial velocity shall be demonstrated during the compliance test, by either using an air flow monitor or a differential pressure gauge at each natural draft opening and maintaining the required facial velocity or the corresponding negative pressure. The PTE #1 shall meet all of the following criteria if the capture efficiency of the enclosure and control device is assumed to be 100%:
- a. Any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point. An equivalent diameter is the diameter of a circle that has the same area as the opening. If the opening is not circular the equivalent diameter (ED) is calculated as follows:  
$$ED = (4 \text{ area} / \pi)^{0.5}$$
  - b. The total area of all natural draft openings ( $A_N$ ) shall not exceed 5 percent of the total surface area of the enclosure ( $A_T$ ), i.e, the four walls, floor and ceiling. The natural draft opening to enclosure area ratio (NEAR) is calculated as follows:  
$$NEAR = A_N / A_T$$



- c. The direction of air flow through all natural draft openings shall be into the enclosure, with an average facial velocity of no less than 200 feet per minute (3,600 m/hr) or a pressure drop of -0.013 mm Hg (-0.007 in. H<sub>2</sub>O), as a 3-hour block average value.
  - d. All access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations.
  - e. All VOC emissions shall be captured and contained for discharge through the control device.
- (5) In order to maintain compliance with the applicable emission limitations contained in section b) above, acceptable combustion temperature, at a 3-hour block average value, within RTO #3, during any period of time when emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016 are in operation, shall not be more than 50 degrees Fahrenheit below the average temperature measured during the most recent performance test that demonstrated the emissions units were in compliance, except during period of startup, shutdown and malfunction.
- d) **Monitoring and/or Recordkeeping Requirements**
- (1) The permittee shall maintain documentation of the manufacturer's recommendations, instructions, or operating manuals for the dry particulate filters for emissions units K007, K008, K009, K010, K011, K012, K013, K014 and K015 and water wash system for emissions unit K016, along with documentation of any modifications deemed necessary by the permittee. These documents shall be maintained at the facility and shall be made available to the appropriate Ohio EPA District Office or local air agency upon request.
  - (2) The permittee shall conduct periodic inspections of the dry particulate filters for emissions units K007, K008, K009, K010, K011, K012, K013, K014 and K015 and water wash system for emissions unit K016, 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 or operator. 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 and it shall be made available to the Ohio EPA upon request.
  - (3) In addition to the recommended periodic inspections, not less than once each calendar year the permittee shall conduct a comprehensive inspection of the dry particulate filters for emissions units K007, K008, K009, K010, K011, K012, K013, K014 and K015 and water wash system for emissions unit K016, while the emissions unit is shut down and perform any needed maintenance and repair to ensure that it is operated in accordance with the manufacturer's recommendations.



- (4) The permittee shall document each inspection (periodic and annual) of the dry particulate filter system for emissions units K007, K008, K009, K010, K011, K012, K013, K014 and K015 and water wash system for emissions unit K016 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.

These records shall be maintained at the facility for not less than five years from the date the inspection and any necessary maintenance or repairs were completed and shall be made available to the appropriate Ohio EPA District Office or local air agency upon request.

- (5) The permittee shall maintain records that document any time periods when the dry particulate filters for emissions units K007, K008, K009, K010, K011, K012, K013, K014 and K015 and water wash system for emissions unit K016, was not in service when the emissions unit(s) was/were in operation, as well as, a record of all operations during which the dry particulate filters for emissions units K007, K008, K009, K010, K011, K012, K013, K014 and K015 and water wash system for emissions unit K016, was not operated according to the manufacturer's recommendations with any documented modifications made by the permittee. These records shall be maintained for a period of not less than five years and shall be made available to the Ohio EPA upon request.
- (6) The federally enforceable permit-to-install-and-operate (FEPTIO) application for these emissions units was evaluated based on the actual materials and the design parameters of the emissions units' exhaust system, as specified by the permittee. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to these emissions units for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration results 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 emitted from the emissions units, (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 was divided by ten to adjust the standard from the working population to the general public (TLV/10).
- c. This standard was then adjusted to account for the duration of the exposure or the operating hours of the emissions units, i.e., "X" hours per day and "Y" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

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

- d. The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year):

Compound	TLV (ug/m <sup>3</sup> )	MAGLC (ug/m <sup>3</sup> )	EmissionRate(grams/sec)	Predicted 1-hr max ground level conc. (ug/m <sup>3</sup> )	MAGLC exceeded? (Y/N)
Formaldehyde	271	6	0.0011	0.12	N
Methanol	262,086	6,240	0.23	26.43	N
Acetone	1,187,116	28,264	0.01	1.15	N
MEK	589,775	14,042	0.32	35.88	N
Naphthalene	52,429	1,248	0.0001	0.008	N
Cumene	245,787	5,852	0.000001	0.0001	N
Ethylbenzene	4,343,192	10,338	0.22	25.35	N
MIBK	204,826	4,877	0.18	20.91	N
Toluene	188,405	4,486	0.57	65.11	N
Hexane	1,762,37		0.000001	0.0001	N



Compound	TLV (ug/m <sup>3</sup> )	MAGL C (ug/m <sup>3</sup> )	EmissionRate(grams/s ec)	Predicted 1-hr max ground level conc. (ug/m <sup>3</sup> )	MAGLC exceeded? (Y/N)
	2	41,961			
Xylene	434,192	10,338	1.03	116.63	N

The permittee, has demonstrated that above emissions from these emissions units are 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).

- (7) Prior to making any physical changes to or changes in the method of operation of the emissions units 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, from that which was modeled from the initial (or last) application; and
  - c. physical changes to the emissions units or 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 FEPTIO 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.

- (8) 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.
- (9) 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.
- (10) The permittee shall measure, document/calculate and maintain a permanent record of the following information for the permanent total enclosure, which may be the same record documented during the compliance test(s):
  - a. the measured diameter of each natural draft opening;
  - b. the distance measured from each natural draft opening to each VOC emitting point;
  - c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor and ceiling;
  - d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and



- e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor and ceiling.
- (11) In accordance with OAC rule 3745-21-15(H)(5), the permittee shall install, calibrate, maintain and operate, according to manufacturer's specifications, either one of the following:
- a. A pressure monitoring device equipped with a continuous recorder to measure the pressure drop, as a 3-hour block average value, across PTE #1 with an accuracy of at least 0.5 inch of water column or five per cent of the measured value, whichever is larger; or
  - b. A monitoring device equipped with a continuous recorder to measure the facial velocity of air through any natural draft opening into the PTE #1.

The permittee shall also keep a log or record of downtime for the capture (collection) system when the emissions unit was in operation.

- (12) In accordance with OAC rule 3745-21-15(H)(1)(a), the permittee shall properly install, calibrate, maintain and operate, according to manufacturer's specifications, a temperature monitoring device equipped with a continuous recorder that measures and records the combustion temperature within RTO #3 when the emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016 are in operation, including periods of startup and shutdown. Units shall be in degrees Fahrenheit. The accuracy for each thermocouple, monitor and recorder shall be guaranteed by the manufacturer to be within  $\pm 1$  percent of the temperature being measured or  $\pm 5$  degrees Fahrenheit, whichever is greater. The temperature monitoring device shall be located in the firebox or in the duct immediately downstream of the firebox in a position before any substantial heat exchange. The permittee shall collect and record the following information each day when the emissions unit(s) is/are in operation:
- a. all 3-hour blocks of time, when any of the associated emissions units controlled by RTO #3 was/were in operation, during which the average combustion temperature within RTO #3 was more than 50 degrees Fahrenheit below the average temperature measured during the most recent performance test that demonstrated the emissions unit(s) was/were in compliance; and
  - b. a log or record of the downtime for the capture (collection) system, thermal oxidizer and monitoring equipment, when the associated emissions unit(s) were in operation.
- (13) In accordance with OAC rule 3745-21-15(H)(12), the permittee shall inspect the VOC emission control system and monitoring equipment to assure that the VOC emission control system is operating properly and that no leaks or malfunctions have occurred or are occurring. The inspections shall be made at the frequency defined by the equipment manufacturer, or as otherwise appropriate for each VOC emission control system and monitoring equipment, but no less than monthly.



- (14) All records required under OAC rule 3745-21-15(K) shall be retained for a period of not less than five years and shall be made available to the Director or any authorized representative of the director for review during normal business hours. The following types of records shall be maintained by the permittee.
- a. Work practice implementation plan records:
    - i. records demonstrating that the operator training program required by 40 CFR 63.803(b) is in place;
    - ii. records collected in accordance with the inspection and maintenance plan required by 40 CFR 63.803(c);
    - iii. records associated with the cleaning solvent accounting system required by 40 CFR 63.803(d);
    - iv. records associated with the limitation on the use of conventional air spray guns showing total finishing material usage and the percentage of finishing materials applied with conventional air spray guns for each semi-annual period as required by 40 CFR 63.803(h); and
    - v. copies of documentation such as logs developed to demonstrate that the other provisions of the work practice implementation plan are followed.
  - b. Monitoring records for VOC emission control systems.
    - i. continuous records of the firebox temperature;
    - ii. records of all 3-hour block averages of the firebox temperature during operation of the emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015, and K016;
    - iii. a record of the firebox temperature operating limit established under section c)(5); and
    - iv. records of the times and durations of all periods during process or control operation when the monitoring device is not working.
  - c. For monthly (or more frequent) inspections of the VOC emission control system and monitoring equipment conducted pursuant to d)(13) above, a record of the results of each inspection.
- (15) The permittee shall collect and record the following information each month for emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016, combined, which are contained in PTE #1 and controlled by RTO #3:
- a. the name and identification number of each coating (stain, toner, glazes, topcoats and sealers), solvent and support material (cleanup materials and booth buffer);



- b. the VOC content of each coating, solvent and support material identified in “a”, in pounds per gallon;
- c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating, solvent and support material identified in “a”, in pounds per gallon;
- d. the number of gallons of each coating, solvent and support material employed, as identified in “a”;
- e. the total uncontrolled VOC emissions rate from all coatings, solvent and support materials employed, i.e.,  $(\sum b \times d)$  for all materials, in pounds;
- f. the total uncontrolled emission rates of each individual HAP from all coatings, solvents and support materials employed, i.e.,  $(\sum c \times d)$  for all materials, in pounds;
- g. the total uncontrolled emission rate of combined total HAPs from all coatings, solvents and support materials employed, i.e., the sum of “f” for all HAPs from all materials, in pounds;
- h. the controlled emission rate shall be calculated using the overall control efficiency for the VOC control system (PTE #1 and RTO #3) as determined during the most recent emission test that demonstrated that these emissions units were in compliance;
- i. the calculated, controlled VOC emissions for all coatings, solvents and support materials employed, in pounds per month;
- j. If a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.
- k. If a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e.,  $(i - j)$ , in pounds per month;
- l. the operating days for the month;
- m. the calculated, average controlled daily VOC emissions for all coatings, solvents and support materials employed, i.e.,  $(k/l)$ , in pounds per day;
- n. the calculated, controlled emission rate of each individual HAP for all coatings, solvents and support materials employed, in tons per month;
- o. the calculated, controlled emission rate of combined total HAPs for all coatings, solvents and support materials, in tons per month;



- p. the total number of gallons of coatings (including stains, toners, glazes, topcoats and sealers) employed, in gallons per month;
  - q. the total number of gallons of solvents and support materials (including cleanup materials and booth buffer) employed, in gallons per month;
  - r. the rolling, 12-month period controlled VOC emissions from all the coatings, solvents and support materials employed, in tons;
  - s. the rolling, 12-month period controlled each individual HAP emissions from all coatings, solvents and support materials employed, in tons; and
  - t. the rolling, 12-month period controlled combined total HAP emissions from all coatings, solvents and support materials employed, in tons.
- (16) The permittee shall collect and record the following facility-wide information each month:
- a. the rolling, 12-month period controlled VOC emissions, in tons;
  - b. the rolling, 12-month period controlled each individual HAP, in tons; and
  - c. the rolling, 12-month period controlled total combined HAPs emissions, in tons.
- (17) The permittee shall keep an operating downtime log when RTO #3 becomes inoperable during otherwise normal operation while the associated emissions units were in operation.



e) Reporting Requirements

- (1) The permittee shall submit written quarterly deviation reports that identify:
  - a. all deviations (excursions) of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:
    - i. For RTO #3:
      - (a) all 3-hour blocks of time during which the average combustion temperatures within RTO #3 did not comply with the temperature limitation specified in this permit; and
      - (b) all periods of downtime for the capture (collection) system, RTO #3 and/or monitoring equipment when any emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016 are in operation, including cleanup and mixing operations.
    - ii. any month during which the coating and/or the solvent/support material usage for emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016 exceeded the monthly usage limits of 43,196 gallons and 15,300 gallons, respectively;
    - iii. any month during which the calculated controlled emissions from RTO #3 exceeded the following:
      - (a) 151.8 pounds per day and 27.70 tons per rolling, 12-month period of VOC emissions;
      - (b) 528.0 pounds per month and 3.17 tons per rolling, 12-month period of each individual HAP; and
      - (c) 1,378 pounds per month and 8.27 tons per rolling, 12-month period of combined total HAPs.
    - iv. any month during which the rolling, 12-month period facility-wide emissions exceeded the following:
      - (a) 83.10 tons of VOC;
      - (b) 9.50 tons of each individual HAP; and
      - (c) 24.80 tons of combined total HAPs.
    - v. any 3-hour blocks of time, when any of emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016 was in operation, during which the PTE #1 was not maintained at the conditions under section c)(4) above.



- b. the probable cause of each deviation (excursion);
- c. any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and
- d. the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.

The quarterly reports shall be submitted, electronically through Ohio EPA Air Services, each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June) and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

- (2) In accordance with OAC rule 3745-21-15(L), the permittee shall submit semiannual compliance status reports no later than January 31 (covering period of July to December of previous year) and July 31 (covering period of January to June of the same year) to the Ohio EPA. For each semiannual compliance status report, the permittee shall submit the following information for the 6-month period covered by the report.

- a. The permittee shall state in the semi-annual compliance status report any changes to the previous reporting of which paragraphs of (D)(1) to (D)(5) of OAC rule 3745-21-15 is elected to be met.
- b. Any changes to monitoring devices previously reported and required under sections c)(5), d)(11), d)(12), d)(13) and d)(14) above.
- c. If any subsequent compliance tests of the VOC emission control system are conducted during the semiannual reporting period, the semiannual compliance status report shall include the results of each compliance test, a complete test report and the compliance test monitoring data as described under paragraphs (L)(2)(d)(ii) to (L)(2)(d)(iv) of OAC rule 3745-21-15.
- d. The permittee shall submit with the semiannual compliance status report the following compliance certifications:
  - i. The compliance certification shall state that the 3-hour block averages of monitoring parameters recorded pursuant to section d)(12)a and d)(11) above had complied with the operating limits (operating parameter values for the monitoring parameters established under section f)(2) below during of all periods of the operation of these emissions units; or should otherwise identify the times and durations of all periods of noncompliance and the reasons for noncompliance.
  - ii. The compliance certification shall identify the times and durations of all periods during process or control operation when the monitoring device is not working, as recorded pursuant to sections d)(11)b and d)(11)c above.



- iii. The compliance certification shall state that the overall reduction of VOC emissions, based on the most recent compliance test conducted in accordance with section f)(2) below, has met the overall reduction of VOC emissions required under sections b)(2)a and b)(2)b above during the semiannual reporting period, or should otherwise identify the periods of noncompliance and the reasons for noncompliance.
  - iv. The compliance certification shall state that the work practice implementation plan is being followed or should otherwise identify the provisions of the plan that have not been implemented and each day the provisions were not implemented.
  - v. The compliance certification shall identify and describe any corrective actions considered and implemented for any noncompliance being reported in the compliance certification.
  - vi. The compliance certification shall be signed by a responsible official of the company that owns or operates the wood furniture manufacturing operations.
- (3) The permittee shall submit annual reports to Ohio EPA documenting any change made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. These reports shall be submitted to the Director (the Ohio EPA, Northeast District Office) each year in the PER and shall cover the previous year.
- (4) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be completed electronically and submitted via the Ohio EPA e-Business Center: Air Services by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.
- f) **Testing Requirements**
- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) and c) of these terms and conditions shall be determined in accordance with the following methods:
- a. Emission Limitation:  
The use of PTE #1 confirms to U.S. EPA Method 204 for 100% capture.  
Applicable Compliance Method:  
Compliance shall be demonstrated through the monitoring and record keeping requirements specified in sections d)(10) and d)(11) above and the emission testing requirements specified in f)(2).



b. Emission Limitation:

VOC destruction efficiency for RTO #3 shall be at least 99%, by weight.

Applicable Compliance Method:

Compliance shall be demonstrated through the monitoring and record keeping requirements specified in sections d)(12), d)(13), d)(14)b and d)(14)c above and the emission testing requirements specified in f)(2).

c. Emission Limitations:

Emissions from RTO #3 shall be restricted in such a manner to limit emissions from emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015, and K016, combined, to the following:

- i. 151.8 pounds per day and 27.70 tons per rolling, 12-month period of Volatile Organic Compounds (VOC);
- ii. 528 pounds per month and 3.17 tons per rolling, 12-month period of each individual Hazardous Air Pollutant (HAP); and
- iii. 1,378 pounds per month and 8.27 tons per rolling, 12-month period of combined total HAPs.

Applicable Compliance Method:

Compliance shall be demonstrated through the monitoring and record keeping requirements specified in d)(15).

d. Emission Limitation:

The permittee shall prepare and maintain a written work practice implementation plan.

Applicable Compliance Method:

Compliance shall be demonstrated through the monitoring and record keeping requirements specified in d)(14)a.

e. Emission Limitation:

Nitrogen oxides (NO<sub>x</sub>) emissions from the combustion of natural gas in regenerative thermal oxidizers (RTO) #3 shall not exceed 3.20 pounds per hour and 14.02 tons per year.

Carbon monoxide (CO) emissions from the combustion of natural gas in RTO #3 shall not exceed 2.69 pounds per hour and 11.77 tons per year.



Applicable Compliance Method:

The hourly emission limitation shall be determined based upon the following equation:

$$E = (EF)(R)/(H)$$

where:

E = emission rate, in lbs/hr;

EF = emission factor, AP-42 "Compilation of Air Pollutant Emission Factors", 5<sup>th</sup> Edition, Section 1.4-6, Table 1.4-2 (9/98), for NO<sub>x</sub> emissions, 100 lbs/mmcf and for CO emissions, 84 lbs/mmcf;

R = maximum rating (heat input) of RTO #3, reported to be 32.0 mmBtu/hr; and

H = heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The tons per year emission limitations were developed by multiplying the short-term allowable emission limitation (3.20 lbs/hr of NO<sub>x</sub> and 2.69 lbs/hr of CO) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

The permittee shall limit the total coating and solvent/support materials usage from the emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016 as follows:

- i. 43,196 gallons per month of coatings, including stains, toners, glazes, topcoats and sealers; and
- ii. 15,300 gallons per month of solvents and support materials, including cleanup materials and booth buffers.

Applicable Compliance Method:

Compliance shall be demonstrated through the record keeping requirements specified in d)(15)p and d)(15)q, respectively.

g. Emission Limitations:

The facility-wide emissions shall not exceed the following:

- i. 83.1 tons per rolling, 12-month period of VOC;



- ii. 9.50 tons per rolling, 12-month period of each individual Hazardous Air Pollutant (HAP); and
- iii. 24.80 tons per rolling, 12-month period of combined total HAPs.

Applicable Compliance Method:

Compliance shall be demonstrated through the monitoring and record keeping requirements specified in d)(16).

- (2) The permittee shall conduct, or have conducted, emission testing for RTO #1 which controlled emissions from emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016 in accordance with the following requirements:
  - a. The emissions units K007, K008, K009, K010, K011, K012, K013, K014, K015 and K016, which are controlled by a VOC control system consisting with PTE #1 and RTO #3, were reported not in operation since mid-2009 due to substantially reduced demand for wooden cabinetry manufacturing. A stack test shall be performed for PTE #1 and RTO #3 and its controlled emissions units within 6 months after restarting RTO #3 and its associated emissions units. This requirements are based upon August 14, 2012 letter that MASCO sent to Ohio EPA. These emissions units shall be retested every 5 years thereafter.
  - b. The emission testing shall be conducted to demonstrate compliance with the VOC capture efficiency and control efficiency requirement specified in sections b)(2)b and b)(2)c above.
  - c. The capture efficiency test shall be conducted to demonstrate compliance with the 100% capture efficiency requirements for PTE #1 by using:
    - i. Methods 204 through 204F, as specified in 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the U.S. EPA's "Guideline for Determining Capture Efficiency," dated January 9, 1995. (The Ohio EPA will consider the request, including an evaluation of the applicability, necessity and validity of the alternative and may approve the use of the alternative if such approval does not contravene any other applicable requirement.)
    - ii. Method 2 from 40 CFR Part 60, Appendix A.
      - (a) Method 2 from 40 CFR Part 60, Appendix A shall be conducted to determine the volumetric flow rate of the exhaust stream(s) exiting the permanent total enclosure, corrected to standard conditions. If the building is being used as the permanent total enclosure, it may be necessary to measure the volumetric flow, corrected to standard conditions, of each gas stream entering the "enclosure" through a forced makeup air duct, using Method 2. The facial velocity (FV) shall be calculated using the following equation:



$$FV = (Q_o - Q_i) / A_n$$

where:

$Q_o$  = the sum of the volumetric flow from all gas streams exiting the enclosure through an exhaust duct or hood;

$Q_i$  = the sum of the volumetric flow from all gas streams into the enclosure through a forced makeup air duct and is equal to zero if there is no forced makeup air into the enclosure; and

$A_n$  = the total area of all natural draft openings in the enclosure.

- (b) If the average facial velocity is measured at greater than 500 feet per minute (9,000 m/hr), the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the average facial velocity is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meter(s) or through the use of streamers, smoke tubes, or tracer gases. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeters using smoke tubes or tracer gases.
- (c) The permittee shall also measure and record the following information for the permanent total enclosure and each natural draft opening:
  - (i) the diameter of each natural draft opening;
  - (ii) the distance measured from each natural draft opening to each VOC emitting point in the process;
  - (iii) the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening;
  - (iv) the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor and ceiling; and
  - (v) the ratio of the total surface area (sum) of all natural draft openings to the total surface area of the permanent total enclosure.
- d. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10 or an approved alternative test protocol. The test methods and procedures selected shall be



based on a consideration of the diversity of the organic species present and their total concentration and on a consideration of the potential presence of interfering gases.

- e. U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings, solvent and support materials and cleanup materials used during the performance test(s). If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A, an owner or operator determines that Method 24 cannot be used for a particular coating, solvent, support material, or cleanup material, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating, solvent, support material, or cleanup material to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24.
- f. Emission testing shall also be conducted to establish the operating limits (operating parameter values) for the monitoring devices required under sections d)(11) and d)(12) above as follows:
  - i. Monitor and record the combustion temperature either in the firebox of the RTO or immediately downstream of the firebox before any substantial heat exchange occurs at least once every fifteen minutes during each of the three runs of the compliance test.
  - ii. Calculate and record the average combustion temperature, at a 3-hour block average value, maintained during the compliance test. This average combustion temperature is used to determine the minimum operating limit for the RTO.
  - iii. The pressure drop across the permanent total enclosure shall be at least -0.007 inch of water, as a 3-hour block average value.
- g. The test(s) shall be conducted while the emissions units are operating at or near their maximum capacities, unless otherwise specified or approved by the Ohio EPA Northeast District Office.
- h. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s) and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emission test(s).
- i. Personnel from the Ohio EPA Northeast District Office shall be permitted to witness the test(s), examine the testing equipment and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.



**Draft Permit-to-Install and Operate**  
Masco Cabinetry Middlefield LLC (KraftMaid Plant 3)  
**Permit Number:** P0114970  
**Facility ID:** 0204000360  
**Effective Date:** To be entered upon final issuance

j. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA Northeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Northeast District Office.

g) Miscellaneous Requirements

(1) None.



**6. Emissions Unit Group - Coating Operations included in PTE #2 and controlled by RTO #4: K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, and K029**

<b>EU ID</b>	<b>Operations, Property and/or Equipment Description</b>
K018	Spray booth 1 of overhead conveyor line 4, included in PTE #2 and controlled by RTO #4
K019	Spray booth 2 of overhead conveyor line 4, included in PTE #2 and controlled by RTO #4
K020	Spray booth 3 of overhead conveyor line 4, included in PTE #2 and controlled by RTO #4
K021	Spray booth 4 of overhead conveyor line 4, included in PTE #2 and controlled by RTO #4
K022	Spray booth 5 of overhead conveyor line 4, included in PTE #2 and controlled by RTO #4
K023	Spray booth 6 of overhead conveyor line 4, included in PTE #2 and controlled by RTO #4
K024	Spray booth 7 of overhead conveyor line 4, included in PTE #2 and controlled by RTO #4
K025	Spray booth 8 of overhead conveyor line 4, included in PTE #2 and controlled by RTO #4
K026	Spray booth 9 of overhead conveyor line 4, included in PTE #2 and controlled by RTO #4
K027	Cefla 4 with two spray booths and two ovens, included in PTE #2 and RTO #4
K028	Cefla 5 with one spray booth and one oven, included in PTE #2 and controlled by RTO #4
K029	Glazing booth, spatter booth, and oven No. 2, included in PTE #2 and controlled by RTO #4

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)e, d)(6), d)(7), d)(8), d)(9) and e)(3)

(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. b)(1)d, b)(2)a, b)(2)b, b)(2)c, b)(2)d, b)(2)e, c)(3), c)(4), c)(5), d)(10), d)(15), d)(16), e)(1), f)(1)a, f)(1)b, f)(1)c, f)(1)f, f)(1)g and f)(2)

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 3745-17-11(C)	See c)(1), c)(2), d)(1), d)(2), d)(3), d)(4) and d)(5).
b.	OAC rule 3745-21-15	See b)(2)g, b)(2)h, d)(11), d)(12), d)(13), d)(14), d)(15) and e)(2).



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	OAC rule 3745-31-05(A)(3)	Emissions from the combustion of natural gas in regenerative thermal oxidizer (RTO) #2 shall not exceed 3.20 pounds per hour and 14.02 tons per year of nitrogen oxides (NO <sub>x</sub> ) and 2.69 pounds per hour and 11.77 tons per year of carbon monoxide (CO).  See b)(2)f.
d.	OAC rule 3745-31-05(D)	See b)(2)a, b)(2)b, b)(2)c, b)(2)d, b)(2)e, c)(3), c)(4) and c)(5).
e.	ORC 3704.03(F)(4)(c)	See d)(6), d)(7), d)(8), d)(9) and e)(3).
f.	40 CFR Part 63, Subpart JJ - National Emissions Standards for Wood Furniture Manufacturing Operations	See b)(2)i.

(2) Additional Terms and Conditions

- a. The permittee shall use an emissions control system, which consists of a permanent total enclosure (PTE #2) and RTO #4 (at 75,000 cfm), to capture and control emissions from emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029.
- b. The permittee shall design and maintain PTE #2 to house emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029 in such a manner as to function as a permanent total enclosure, as defined by 40 CFR, Part 51, Appendix M, Reference Method 204, which shall provide for 100% capture efficiency for the emissions from these emissions units and emissions units contained within the PTE, including rag wipe operations, miscellaneous aerosol can usage and the collection of waste and/or recovered VOC-containing materials.
- c. The permittee shall install and maintain RTO #4 to control the emissions, including from all coating operations, mixing of VOC-containing materials and cleanup operations, that are captured by PTE #2. RTO #4 shall be used and achieve a VOC destruction efficiency of at least 99%, by weight. All associated emissions units shall be shut down if RTO #4 becomes inoperable.
- d. The emissions from RTO #4 shall be restricted in such a manner as to limit emissions from emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029, combined, to the following:
  - i. 151.8 pounds per day and 27.70 tons per rolling, 12-month period of volatile organic compounds (VOC);



- ii. 528 pounds per month and 3.17 tons per rolling, 12-month period of each individual Hazardous Air Pollutant (HAP); and
  - iii. 1,378 pounds per month and 8.27 tons per rolling, 12-month period of total combined HAPs.
  - e. The facility-wide emissions shall not exceed the following:
    - i. 83.1 tons per rolling, 12-month period of VOC;
    - ii. 9.50 tons per rolling, 12-month period of each individual HAP; and
    - iii. 24.80 tons per rolling, 12-month period of total combined HAPs.
  - f. The emission limitations specified in b)(1)c are based upon the emissions units' potential to emit. Therefore, no monitoring, record keeping and reporting requirements are necessary to ensure ongoing compliance with these emission limitations.
  - g. The requirements established pursuant to OAC rule 3745-21-15(D)(3) are less stringent than the requirements established pursuant to OAC rule 3745-31-05 (D).
  - h. In accordance with OAC rule 3745-21-15(F), the permittee shall prepare and maintain a written work practice implementation plan. The plan shall define environmentally desirable work practices for each wood furniture manufacturing operation and address each of the work practices contained in paragraphs (b) to (d) and (f) to (k) of 40 CFR 63.803.
  - i. This facility is not an affected source subject to the requirements of 40 CFR Part 63, Subpart JJ because it is not a major source, as defined in 40 CFR 63.2, for individual or total combined HAPs. The permittee shall not exceed the HAP emission limitations contained in this permit, without first obtaining a permit modification.
- c) Operational Restrictions
- (1) For emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026 and K029, the permittee shall operate the dry filtration system for the control of particulate emissions as the followings:
    - a. Whenever the emissions unit is in operation, the dry particulate filter shall be maintained in accordance with the manufacturer's recommendations, instructions and/or operating manual(s), with any modifications deemed necessary by the permittee; and
    - b. In the event the particulate filter system is not operating in accordance with the manufacturer's recommendations, instructions, or operating manual, with any modifications deemed necessary by the permittee, the control device shall be expeditiously repaired or otherwise returned to these documented operating conditions.



- (2) For emissions units K027 and K028, the permittee shall operate the water wash system for the control of particulate emissions as the follows:
- a. Whenever the emissions unit is in operation, the water wash shall be maintained in accordance with the manufacturer’s recommendations, instructions and/or operating manual(s), with any modifications deemed necessary by the permittee; and
  - b. In the event the water wash control system is not operating in accordance with the manufacturer’s recommendations, instructions, or operating manual, with any modifications deemed necessary by the permittee, the control device shall be expeditiously repaired or otherwise returned to these documented operating conditions.
- (3) The permittee shall limit the total coatings, solvents and support materials usage for emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029, combined, as follows:
- a. 43,196 gallons per month of coatings, including stains, toners, glazes, topcoats and sealers; and
  - b. 15,300 gallons per month of solvents and support materials, including cleanup materials and booth buffers.
- (4) The PTE #2 shall be maintained under negative pressure whenever any of emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029 are in operation and shall be designed and maintained to have an average facial velocity of air through each natural draft opening of at least 200 feet per minute (3,600 m/hr). Compliance with the average facial velocity shall be demonstrated during the compliance test, by either using an air flow monitor or a differential pressure gauge at each natural draft opening and maintaining the required facial velocity or the corresponding negative pressure. The PTE #2 shall meet all of the following criteria if the capture efficiency of the enclosure and control device is assumed to be 100%:
- a. Any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point. An equivalent diameter is the diameter of a circle that has the same area as the opening. If the opening is not circular the equivalent diameter (ED) is calculated as follows:  
$$ED = (4 \text{ area} / \pi)^{0.5}$$
  - b. The total area of all natural draft openings ( $A_N$ ) shall not exceed 5 percent of the total surface area of the enclosure ( $A_T$ ), i.e, the four walls, floor and ceiling. The natural draft opening to enclosure area ratio (NEAR) is calculated as follows:  
$$NEAR = A_N / A_T$$



- c. The direction of air flow through all natural draft openings shall be into the enclosure, with an average facial velocity of no less than 200 feet per minute (3,600 m/hr) or a pressure drop of -0.013 mm Hg (-0.007 in. H<sub>2</sub>O), as a 3-hour block average value.
  - d. All access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations.
  - e. All VOC emissions shall be captured and contained for discharge through the control device.
- (5) In order to maintain compliance with the applicable emission limitations contained in section b) above, acceptable combustion temperature, at a 3-hour block average value, within RTO #4, during any period of time when emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029 are in operation, shall not be more than 50 degrees Fahrenheit below the average temperature measured during the most recent performance test that demonstrated the emissions units were in compliance, except during period of startup, shutdown and malfunction.
- d) **Monitoring and/or Recordkeeping Requirements**
- (1) The permittee shall maintain documentation of the manufacturer's recommendations, instructions, or operating manuals for the dry particulate filter for emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026 and K029 and water wash system for emissions units K027 and K028, along with documentation of any modifications deemed necessary by the permittee. These documents shall be maintained at the facility and shall be made available to the appropriate Ohio EPA District Office or local air agency upon request.
  - (2) The permittee shall conduct periodic inspections of the dry particulate filter for emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026 and K029 and water wash system for emissions units K027 and K028, 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 or operator. 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 and it shall be made available to the Ohio EPA upon request.
  - (3) In addition to the recommended periodic inspections, not less than once each calendar year the permittee shall conduct a comprehensive inspection of the dry particulate filter while each of the emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026 and K029 and water wash system for emissions units K027 and K028, is shut down and perform any needed maintenance and repair to ensure that it is operated in accordance with the manufacturer's recommendations.



- (4) The permittee shall document each inspection (periodic and annual) of the dry particulate filter system for emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026 and K029 and water wash system for emissions units K027 and K028 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.

These records shall be maintained at the facility for not less than five years from the date the inspection and any necessary maintenance or repairs were completed and shall be made available to the appropriate Ohio EPA District Office or local air agency upon request.

- (5) The permittee shall maintain records that document any time periods when the dry particulate filter for each of emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026 and K029 and water wash system for emissions units K027 and K028, was not in service when the emissions unit(s) was/were in operation, as well as, a record of all operations during which the dry particulate filter for each of emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026 and K029 and water wash system for emissions units K027 and K028, was not operated according to the manufacturer's recommendations with any documented modifications made by the permittee. These records shall be maintained for a period of not less than five years and shall be made available to the Ohio EPA upon request.
- (6) The federally enforceable permit-to-install-and-operate (FEPTIO) application for these emissions units was evaluated based on the actual materials and the design parameters of the emissions units' exhaust system, as specified by the permittee. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to these emissions units for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration results 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 emitted from the emissions units, (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 was divided by ten to adjust the standard from the working population to the general public (TLV/10).
- c. This standard was then adjusted to account for the duration of the exposure or the operating hours of the emissions units, i.e., "X" hours per day and "Y" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):
 
$$TLV/10 \times 8/X \times 5/Y = 4 TLV/XY = MAGLC$$
- d. The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year):

Compound	TLV(ug/m <sup>3</sup> )	MAGLC(ug/m <sup>3</sup> )	Emission Rate(grams/second)	Predicted 1-hr max ground level conc. (ug/m <sup>3</sup> )	MAGLC exceeded(Y/N)
Formaldehyde	271	6	0.0011	0.12	N
Methanol		6,240	0.23	26.43	N
Acetone	1,187,116	28,264	0.01	1.15	N
MEK	589,775	14,042	0.32	35.88	N
Naphthalene	52,429	1,248	0.0001	0.008	N
Cumene	245,787	5,852	0.000001	0.0001	N
Ethylbenzene	4,343,192	10,338	0.22	25.35	N
MIBK	204,826	4,877	0.18	20.91	N
Toluene	188,405	4,486	0.57	65.11	N
Hexane	1,762,372	41,961	0.000001	0.0001	N
Xylene	434,192	10,338	1.03	116.63	N



The permittee, has demonstrated that above emissions from these emissions units are 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).

- (7) Prior to making any physical changes to or changes in the method of operation of the emissions units 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, from that which was modeled from the initial (or last) application; and
  - c. physical changes to the emissions units or 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 FEPTIO 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.

- (8) 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.
- (9) 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.
- (10) The permittee shall measure, document/calculate and maintain a permanent record of the following information for the permanent total enclosure, which may be the same record documented during the compliance test(s):
- a. the measured diameter of each natural draft opening;
  - b. the distance measured from each natural draft opening to each VOC emitting point;
  - c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor and ceiling;
  - d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and
  - e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor and ceiling.
- (11) In accordance with OAC rule 3745-21-15(H)(5), the permittee shall install, calibrate, maintain and operate, according to manufacturer's specifications, either one of the following:
- a. A pressure monitoring device equipped with a continuous recorder to measure the pressure drop across PTE #2, as a 3-hour block average value, with an accuracy of at least 0.5 inch of water column or five per cent of the measured value, whichever is larger; or
  - b. A monitoring device equipped with a continuous recorder to measure the facial velocity of air through any natural draft opening into the PTE #2.

The permittee shall also keep a log or record of downtime for the capture (collection) system when the emissions unit was in operation.



- (12) In accordance with OAC rule 3745-21-15(H)(1)(a), the permittee shall properly install, calibrate, maintain and operate, according to manufacturer's specifications, a temperature monitoring device equipped with a continuous recorder that measures and records the combustion temperature within RTO #4 when the emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029 are in operation, including periods of startup and shutdown. Units shall be in degrees Fahrenheit. The accuracy for each thermocouple, monitor and recorder shall be guaranteed by the manufacturer to be within  $\pm 1$  percent of the temperature being measured or  $\pm 5$  degrees Fahrenheit, whichever is greater. The temperature monitoring device shall be located in the firebox or in the duct immediately downstream of the firebox in a position before any substantial heat exchange. The permittee shall collect and record the following information each day when the emissions unit(s) is/are in operation:
- a. all 3-hour blocks of time, when any of the associated emissions units controlled by RTO #4 was/were in operation, during which the average combustion temperature within RTO #4 was more than 50 degrees Fahrenheit below the average temperature measured during the most recent performance test that demonstrated the emissions unit(s) was/were in compliance; and
  - b. a log or record of the downtime for the capture (collection) system, thermal oxidizer and monitoring equipment, when the associated emissions unit(s) were in operation.
- (13) In accordance with OAC rule 3745-21-15(H)(12), the permittee shall inspect the VOC emission control system and monitoring equipment to assure that the VOC emission control system is operating properly and that no leaks or malfunctions have occurred or are occurring. The inspections shall be made at the frequency defined by the equipment manufacturer, or as otherwise appropriate for each VOC emission control system and monitoring equipment, but no less than monthly.
- (14) All records required under OAC rule 3745-21-15(K) shall be retained for a period of not less than five years and shall be made available to the Director or any authorized representative of the director for review during normal business hours. The following types of records shall be maintained by the permittee.
- a. Work practice implementation plan records:
    - i. records demonstrating that the operator training program required by 40 CFR 63.803(b) is in place;
    - ii. records collected in accordance with the inspection and maintenance plan required by 40 CFR 63.803(c);
    - iii. records associated with the cleaning solvent accounting system required by 40 CFR 63.803(d);
    - iv. records associated with the limitation on the use of conventional air spray guns showing total finishing material usage and the percentage of



- finishing materials applied with conventional air spray guns for each semi-annual period as required by 40 CFR 63.803(h); and
- v. copies of documentation such as logs developed to demonstrate that the other provisions of the work practice implementation plan are followed.
- b. Monitoring records for VOC emission control systems.
- i. continuous records of the firebox temperature;
  - ii. records of all 3-hour block averages of the firebox temperature during operation of the emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029;
  - iii. a record of the firebox temperature operating limit established under section c)(5); and
  - iv. records of the times and durations of all periods during process or control operation when the monitoring device is not working.
- c. For monthly (or more frequent) inspections of the VOC emission control system and monitoring equipment conducted pursuant to d)(13) above, a record of the results of each inspection.
- (15) The permittee shall collect and record the following information each month for emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029, combined, which are contained in PTE #2 and controlled by RTO #4:
- a. the name and identification number of each coating (stain, toner, glazes, topcoats and sealers), solvent and support material (cleanup materials and booth buffer);
  - b. the VOC content of each coating, solvent and support material identified in "a" in pounds per gallon;
  - c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating, solvent and support material identified in "a", in pounds per gallon;
  - d. the number of gallons of each coating, solvent and support material employed, as identified in "a";
  - e. the total uncontrolled VOC emissions rate from all coatings, solvent and support materials employed, i.e.,  $(\sum b \times d)$  for all materials, in pounds;
  - f. the total uncontrolled emission rates of each individual HAP from all coatings, solvents and support materials employed, i.e.,  $(\sum c \times d)$  for all materials, in pounds;



- g. the total uncontrolled emission rate of combined total HAPs from all coatings, solvents and support materials employed, i.e., the sum of “f” for all HAPs from all materials, in pounds;
- h. the controlled emission rate shall be calculated using the overall control efficiency for the VOC control system (PTE #2 and RTO #4) as determined during the most recent emission test that demonstrated that these emissions units were in compliance;
- i. the calculated, controlled VOC emissions for all coatings, solvents and support materials employed, in pounds per month;
- j. If a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.
- k. If a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e., (i – j), in pounds per month;
- l. the operating days for the month;
- m. the calculated, average controlled daily VOC emissions for all coatings, solvents and support materials employed, i.e., (k/l), in pounds per day;
- n. the calculated, controlled emission rate of each individual HAP for all coatings, solvents and support materials employed, in tons per month;
- o. the calculated, controlled emission rate of combined total HAPs for all coatings, solvents and support materials, in tons per month;
- p. the total number of gallons of coatings (including stains, toners, glazes, topcoats and sealers) employed, in gallons per month;
- q. the total number of gallons of solvents and support materials (including cleanup materials and booth buffer) employed, in gallons per month;
- r. the rolling, 12-month period controlled VOC emissions from all the coatings, solvents and support materials employed, in tons;
- s. the rolling, 12-month period controlled each individual HAP emissions from all coatings, solvents and support materials employed, in tons; and
- t. the rolling, 12-month period controlled combined total HAP emissions from all coatings, solvents and support materials employed, in tons.



- (16) The permittee shall collect and record the following facility-wide information each month:
    - a. the rolling, 12-month period controlled VOC emissions, in tons;
    - b. the rolling, 12-month period controlled each individual HAP, in tons; and
    - c. the rolling, 12-month period controlled total combined HAPs emissions, in tons.
  - (17) The permittee shall keep an operating downtime log when RTO #4 becomes inoperable during otherwise normal operation while the associated emissions units were in operation.
- e) Reporting Requirements
- (1) The permittee shall submit written quarterly deviation reports that identify:
    - a. all deviations (excursions) of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:
      - i. For RTO #4:
        - (a) all 3-hour blocks of time during which the average combustion temperatures within RTO #4 did not comply with the temperature limitation specified in this permit; and
        - (b) all periods of downtime for the capture (collection) system, RTO #4 and/or monitoring equipment when any emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029 are in operation, including cleanup and mixing operations.
      - ii. any month during which the coating and/or the solvent/support material usage for emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029 exceeded the monthly usage limits of 43,196 gallons and 15,300 gallons, respectively;
      - iii. any month during which the calculated controlled emissions from RTO #4 exceeded the following:
        - (a) 151.8 pounds per day and 27.70 tons per rolling, 12-month period of VOC emissions;
        - (b) 528.0 pounds per month and 3.17 tons per rolling, 12-month period of each individual HAP; and
        - (c) 1,378 pounds per month and 8.27 tons per rolling, 12-month period of total combined HAPs.



- iv. any month during which the rolling, 12-month period facility-wide emissions exceeded the following:
  - (a) 83.10 tons of VOC;
  - (b) 9.50 tons of each individual HAP; and
  - (c) 24.80 tons of total combined HAPs.
- v. any 3-hour blocks of time, when any of emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029 was in operation, during which the PTE #2 was not maintained at the conditions under section c)(5) above.
- b. the probable cause of each deviation (excursion);
- c. any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and
- d. the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.

The quarterly reports shall be submitted, electronically through Ohio EPA Air Services, each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June) and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

- (2) In accordance with OAC rule 3745-21-15(L), the permittee shall submit semiannual compliance status reports no later than January 31 (covering period of July to December of previous year) and July 31 (covering period of January to June of the same year) to the Ohio EPA. For each semiannual compliance status report, the permittee shall submit the following information for the 6-month period covered by the report.
  - a. The permittee shall state in the semi-annual compliance status report any changes to the previous reporting of which paragraphs of (D)(1) to (D)(5) of OAC rule 3745-21-15 is elected to be met.
  - b. Any changes to monitoring devices previously reported and required under sections c)(5), d)(11), d)(12), d)(13) and d)(14) above.
  - c. If any subsequent compliance tests of the VOC emission control system are conducted during the semiannual reporting period, the semiannual compliance status report shall include the results of each compliance test, a complete test report and the compliance test monitoring data as described under paragraphs (L)(2)(d)(ii) to (L)(2)(d)(iv) of OAC rule 3745-21-15.



- d. The permittee shall submit with the semiannual compliance status report the following compliance certifications:
  - i. The compliance certification shall state that the 3-hour block averages of monitoring parameters recorded pursuant to sections d)(11) and d)(12)a above had complied with the operating limits (operating parameter values for the monitoring parameters established under section f)(2) below during of all periods of the operation of these emissions units; or should otherwise identify the times and durations of all periods of noncompliance and the reasons for noncompliance.
  - ii. The compliance certification shall identify the times and durations of all periods during process or control operation when the monitoring device is not working, as recorded pursuant to sections d)(11)b and d)(11)c above.
  - iii. The compliance certification shall state that the overall reduction of VOC emissions, based on the most recent compliance test conducted in accordance with section f)(2) below, has met the overall reduction of VOC emissions required under sections b)(2)a and b)(2)b above during the semiannual reporting period, or should otherwise identify the periods of noncompliance and the reasons for noncompliance.
  - iv. The compliance certification shall state that the work practice implementation plan is being followed or should otherwise identify the provisions of the plan that have not been implemented and each day the provisions were not implemented.
  - v. The compliance certification shall identify and describe any corrective actions considered and implemented for any noncompliance being reported in the compliance certification.
  - vi. The compliance certification shall be signed by a responsible official of the company that owns or operates the wood furniture manufacturing operations.
- (3) The permittee shall submit annual reports to Ohio EPA documenting any change made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. These reports shall be submitted to the Director (the Ohio EPA, Northeast District Office) each year in the PER and shall cover the previous year.
- (4) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be completed electronically and submitted via the Ohio EPA e-Business Center: Air Services by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.



f) Testing Requirements

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

a. Emission Limitation:

The use of PTE #2 confirms to U.S. EPA Method 204 for 100% capture.

Applicable Compliance Method:

Compliance shall be demonstrated through the monitoring and record keeping requirements specified in sections d)(10) and d)(11) above and the emissions testing requirements specified in f)(2).

b. Emission Limitation:

VOC destruction efficiency for RTO #4 shall be at least 99%, by weight.

Applicable Compliance Method:

Compliance shall be demonstrated through the monitoring and record keeping requirements specified in sections d)(12), d)(13), d)(14)b and d)(14)c above and the emissions testing requirements specified in f)(2).

c. Emission Limitations:

Emissions from RTO #4 shall be restricted in such a manner as to limit emissions from emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029, combined, to the following:

- i. 151.8 pounds per day and 27.70 tons per rolling, 12-month period of VOC;
- ii. 528 pounds per month and 3.17 tons per rolling, 12-month period of each individual HAP; and
- iii. 1,378 pounds per month and 8.27 tons per rolling, 12-month period of total combined HAPs.

Applicable Compliance Method:

Compliance shall be demonstrated through the monitoring and record keeping requirements specified in d)(15).



d. Emission Limitation:

The permittee shall prepare and maintain a written work practice implementation plan.

Applicable Compliance Method:

Compliance shall be demonstrated through the monitoring and record keeping requirements specified in d)(14)a.

e. Emission Limitation:

Nitrogen oxides (NO<sub>x</sub>) emissions from the combustion of natural gas in regenerative thermal oxidizers (RTO) #4 shall not exceed 3.20 pounds per hour and 14.02 tons per year.

Carbon monoxide (CO) emissions from the combustion of natural gas in RTO #4 shall not exceed 2.69 pounds per hour and 11.77 tons per year.

Applicable Compliance Method:

The hourly emission limitation shall be determined based upon the following:

$$E = (EF)(R)/(H)$$

where:

E = emission rate, in lbs/hr;

EF = emission factor, AP-42 "Compilation of Air Pollutant Emission Factors", 5<sup>th</sup> Edition, Section 1.4-6, Table 1.4-2 (9/98), for NO<sub>x</sub> emissions, 100 lbs/mmcf and for CO emissions, 84 lbs/mmcf;

R = maximum rating (heat input) of RTO #4, reported to be 32.0 mmBtu/hr; and

H = heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The tons per year emission limitations were developed by multiplying the short-term allowable emission limitation (3.20 lbs/hr of NO<sub>x</sub> and 2.69 lbs/hr of CO) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

The permittee shall limit the total coating and solvent/support materials usage from the emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029 as follows:



- i. 43,196 gallons per month of coatings, including stains, toners, glazes, topcoats and sealers; and
- ii. 15,300 gallons per month of solvents and support materials, including cleanup materials and booth buffers.

Applicable Compliance Method:

Compliance shall be demonstrated through the record keeping requirements specified in d)(15)p and d)(15)q, respectively.

g. Emission Limitations:

The facility-wide emissions shall not exceed the following:

- i. 83.1 tons per rolling, 12-month period of VOC;
- ii. 9.50 tons per rolling, 12-month period of each individual HAP; and
- iii. 24.80 tons per rolling, 12-month period of total combined HAPs.

Applicable Compliance Method:

Compliance shall be demonstrated through the monitoring and record keeping requirements specified in d)(16).

- (2) The permittee shall conduct, or have conducted, emission testing for RTO #4 which controlled emissions from emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029 in accordance with the following requirements:
  - a. The emissions units K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028 and K029, which are controlled by a VOC control system consisting with PTE #2 and RTO #4, were tested and demonstrated compliance on October 24, 2012. These emissions units shall be tested again within 6 months of October 24, 2017.

The emissions units shall be retested every 5 years thereafter.
  - b. The emission testing shall be conducted to demonstrate compliance with the VOC capture efficiency and control efficiency requirement specified in b)(2)b and b)(2)c.
  - c. The capture efficiency test shall be conducted to demonstrate compliance with the 100% capture efficiency requirements for PTE #2 by using:
    - i. Methods 204 through 204F, as specified in 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the U.S. EPA's "Guideline for Determining Capture Efficiency," dated January 9, 1995. (The Ohio EPA will consider the request, including an evaluation of the applicability, necessity and validity of the alternative and may approve



the use of the alternative if such approval does not contravene any other applicable requirement.)

- ii. Method 2 from 40 CFR Part 60, Appendix A.
  - (a) Method 2 from 40 CFR Part 60, Appendix A shall be conducted to determine the volumetric flow rate of the exhaust stream(s) exiting the permanent total enclosure, corrected to standard conditions. If the building is being used as the permanent total enclosure, it may be necessary to measure the volumetric flow, corrected to standard conditions, of each gas stream entering the "enclosure" through a forced makeup air duct, using Method 2. The facial velocity (FV) shall be calculated using the following equation:  
$$FV = (Q_o - Q_i) / A_n$$
where:  
 $Q_o$  = the sum of the volumetric flow from all gas streams exiting the enclosure through an exhaust duct or hood;  
 $Q_i$  = the sum of the volumetric flow from all gas streams into the enclosure through a forced makeup air duct and is equal to zero if there is no forced makeup air into the enclosure; and  
 $A_n$  = the total area of all natural draft openings in the enclosure.
  - (b) If the average facial velocity is measured at greater than 500 feet per minute (9,000 m/hr), the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the average facial velocity is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meter(s) or through the use of streamers, smoke tubes, or tracer gases. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeters using smoke tubes or tracer gases.
  - (c) The permittee shall also measure and record the following information for the permanent total enclosure and each natural draft opening:
    - (i) the diameter of each natural draft opening;
    - (ii) the distance measured from each natural draft opening to each VOC emitting point in the process;



- (iii) the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening;
  - (iv) the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor and ceiling; and
  - (v) the ratio of the total surface area (sum) of all natural draft openings to the total surface area of the permanent total enclosure.
- d. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration and on a consideration of the potential presence of interfering gases.
- e. U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings, solvent and support materials and cleanup materials used during the performance test(s). If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A, an owner or operator determines that Method 24 cannot be used for a particular coating, solvent, support material, or cleanup material, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating, solvent, support material, or cleanup material to demonstrate compliance until the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24.
- f. Emission testing shall also be conducted to establish the operating limits (operating parameter values) for the monitoring devices required under sections d)(11) and d)(12) above as follows:
  - i. Monitor and record the combustion temperature either in the firebox of the RTO or immediately downstream of the firebox before any substantial heat exchange occurs at least once every fifteen minutes during each of the three runs of the compliance test.
  - ii. Calculate and record the average combustion temperature, at a 3-hour block average value, maintained during the compliance test. This average combustion temperature used to determine the minimum operating limit for the RTO.
  - iii. The pressure drop across the permanent total enclosure shall be at least -0.007 inch of water, as a 3-hour block average value.
- g. The test(s) shall be conducted while the emissions units are operating at or near their maximum capacities, unless otherwise specified or approved by the Ohio EPA Northeast District Office.



- h. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s) and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emission test(s).
  - i. Personnel from the Ohio EPA Northeast District Office shall be permitted to witness the test(s), examine the testing equipment and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
  - j. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA Northeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Northeast District Office.
- g) Miscellaneous Requirements
  - (1) None.



**7. Emissions Unit Group - Coating Operations, included PTE #3 and controlled by RTO #5: K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040, and K041**

<b>EU ID</b>	<b>Operations, Property and/or Equipment Description</b>
K017	Glaze booth No.1 with spatter booth, included in PTE #3 and controlled by RTO #5
K030	Spray booth 1 of overhead conveyor line 6, included in PTE #3 and controlled by RTO #5
K031	Spray booth 2 of overhead conveyor line 6, included in PTE #3 and controlled by RTO #5
K032	Spray booth 3 of overhead conveyor line 6, included in PTE #3 and controlled by RTO #5
K033	Spray booth 4 of overhead conveyor line 6, included in PTE #3 and controlled by RTO #5
K034	Spray booth 5 of overhead conveyor line 6, included in PTE #3 and controlled by RTO #5
K035	Spray booth 6 of overhead conveyor line 6, included in PTE #3 and controlled by RTO #5
K036	Spray booth 7 of overhead conveyor line 6, included in PTE #3 and controlled by RTO #5
K037	Spray booth 8 of overhead conveyor line 6, included in PTE #3 and controlled by RTO #5
K038	Spray booth 9 of overhead conveyor line 6, included in PTE #3 and controlled by RTO #5
K039	Cefla No. 6, included in PTE #3 and controlled by RTO #5
K040	Repair booth No. 1, included in PTE #3 and controlled by RTO #5
K041	Repair booth No. 2, included in PTE #3 and controlled by regenerative RTO #5

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)e, d)(6), d)(7), d)(8), d)(9) and e)(3)

(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. b)(1)d, b)(2)a, b)(2)b, b)(2)c, b)(2)d, b)(2)e, c)(3), c)(4), c)(5), d)(10), d)(15), d)(16), e)(1), f)(1)a, f)(1)b, f)(1)c, f)(1)f, f)(1)g and f)(2)

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 3745-17-11(C)	See c)(1), c)(2), d)(1), d)(2), d)(3), d)(4) and d)(5).
b.	OAC rule 3745-21-15	See b)(2)g, b)(2)h, d)(11), d)(12), d)(13), d)(14), d)(15) and e)(2).



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	OAC rule 3745-31-05(A)(3)	Emissions from the combustion of natural gas in regenerative thermal oxidizer (RTO) #3 shall not exceed 3.20 pounds per hour and 14.02 tons per year of nitrogen oxides (NO <sub>x</sub> ) and 2.69 pounds per hour and 11.77 tons per year of carbon monoxide (CO).  See b)(2)f.
d.	OAC rule 3745-31-05(D)	See b)(2)a, b)(2)b, b)(2)c, b)(2)d, b)(2)e, c)(3), c)(4) and c)(5).
e.	ORC 3704.03(F)(4)(c)	See d)(6), d)(7), d)(8), d)(9) and e)(3).
f.	40 CFR Part 63, Subpart JJ - National Emissions Standards for Wood Furniture Manufacturing Operations	See b)(2)i.

(2) Additional Terms and Conditions

- a. The permittee shall use an emissions control system, which consists of a permanent total enclosure (PTE #3) and RTO #5 (at 75,000 cfm), to capture and control emissions from emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041.
- b. The permittee shall design and maintain PTE #3 to house emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041 in such a manner as to function as a permanent total enclosure, as defined by 40 CFR, Part 51, Appendix M, Reference Method 204, which shall provide for 100% capture efficiency for the emissions from these emissions units and emissions units contained within the PTE, including rag wipe operations, miscellaneous aerosol can suage and the collection of waste and/or recovered VOC-containing materials.
- c. The permittee shall install and maintain RTO #5 to control the emissions, including from all coating operations, mixing of VOC-containing materials and cleanup operations, that are captured by PTE #3. RTO #5 shall be used and achieve a VOC destruction efficiency of at least 99%, by weight. All associated emissions units shall be shut down if RTO #5 becomes inoperable.
- d. The emissions from RTO #5 shall be restricted in such a manner as to limit emissions from emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041, combined, to the following:
  - i. 151.8 pounds per day and 27.70 tons per rolling, 12-month period of VOC;



- ii. 528 pounds per month and 3.17 tons per rolling, 12-month period of each individual HAP; and
      - iii. 1,378 pounds per month and 8.27 tons per rolling, 12-month period of total combined HAPs.
    - e. The facility-wide emissions shall not exceed the following:
      - i. 83.1 tons per rolling, 12-month period of VOC;
      - ii. 9.50 tons per rolling, 12-month period of each individual HAP; and
      - iii. 24.80 tons per rolling, 12-month period of total combined HAPs.
    - f. The emission limitations specified in b)(1)c are based upon the emissions units' potential to emit. Therefore, no monitoring, record keeping and reporting requirements are necessary to ensure ongoing compliance with these emission limitations.
    - g. The requirements established pursuant to OAC rule 3745-21-15(D)(3) are less stringent than the requirements established pursuant to OAC rule 3745-31-05 (D).
    - h. In accordance with OAC rule 3745-21-15(F), the permittee shall prepare and maintain a written work practice implementation plan. The plan shall define environmentally desirable work practices for each wood furniture manufacturing operation and address each of the work practices contained in paragraphs (b) to (d) and (f) to (k) of 40 CFR 63.803.
    - i. This facility is not an affected source subject to the requirements of 40 CFR Part 63, Subpart JJ because it is not a major source, as defined in 40 CFR 63.2, for individual or total combined HAPs. The permittee shall not exceed the HAP emission limitations contained in this permit, without first obtaining a permit modification.
  - c) Operational Restrictions
    - (1) For emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K040 and K041, the permittee shall operate the dry filtration system for the control of particulate emissions as the followings:
      - a. Whenever the emissions unit is in operation, the dry particulate filter shall be maintained in accordance with the manufacturer's recommendations, instructions and/or operating manual(s), with any modifications deemed necessary by the permittee; and
      - b. In the event the particulate filter system is not operating in accordance with the manufacturer's recommendations, instructions, or operating manual, with any modifications deemed necessary by the permittee, the control device shall be expeditiously repaired or otherwise returned to these documented operating conditions.



- (2) For emissions units K039, the permittee shall operate the water wash system for the control of particulate emissions as the follows:
- a. Whenever the emissions unit is in operation, the water wash shall be maintained in accordance with the manufacturer's recommendations, instructions and/or operating manual(s), with any modifications deemed necessary by the permittee; and
  - b. In the event the water wash control system is not operating in accordance with the manufacturer's recommendations, instructions, or operating manual, with any modifications deemed necessary by the permittee, the control device shall be expeditiously repaired or otherwise returned to these documented operating conditions.
- (3) The permittee shall limit the total coatings, solvents and support materials usage for emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041, combined, as follows:
- a. 43,196 gallons per month of coatings, including stains, toners, glazes, topcoats and sealers; and
  - b. 15,300 gallons per month of solvents and support materials, including cleanup materials and booth buffers.
- (4) The PTE #3 shall be maintained under negative pressure whenever any of emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041 are in operation and shall be designed and maintained to have an average facial velocity of air through each natural draft opening of at least 200 feet per minute (3,600 m/hr). Compliance with the average facial velocity shall be demonstrated during the compliance test, by either using an air flow monitor or a differential pressure gauge at each natural draft opening and maintaining the required facial velocity or the corresponding negative pressure. The PTE #3 shall meet all of the following criteria if the capture efficiency of the enclosure and control device is to be assumed to be 100%:
- a. Any natural draft opening shall be at least four equivalent opening diameters, or 4 times the diameter of the opening, from each VOC emitting point. An equivalent diameter is the diameter of a circle that has the same area as the opening. If the opening is not circular the equivalent diameter (ED) is calculated as follows:  
$$ED = (4 \text{ area} / \pi)^{0.5}$$
  - b. The total area of all natural draft openings ( $A_N$ ) shall not exceed 5 percent of the total surface area of the enclosure ( $A_T$ ), i.e, the four walls, floor and ceiling. The natural draft opening to enclosure area ratio (NEAR) is calculated as follows:  
$$NEAR = A_N / A_T$$



- c. The direction of air flow through all natural draft openings shall be into the enclosure, with an average facial velocity of no less than 200 feet per minute (3,600 m/hr) or a pressure drop of -0.013 mm Hg (-0.007 in. H<sub>2</sub>O), as a 3-hour block average value.
  - d. All access doors and windows to the enclosure that do not meet the requirements of a natural draft opening and whose surface areas are not included in the 5 percent surface area determination in "b", shall be completely closed to any air movement during process operations.
  - e. All VOC emissions shall be captured and contained for discharge through the control device.
- (5) In order to maintain compliance with the applicable emission limitations contained in section b) above, acceptable combustion temperature, at a 3-hour block average value, within RTO #5, during any period of time when emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041 are in operation, shall not be more than 50 degrees Fahrenheit below the average temperature measured during the most recent performance test that demonstrated the emissions units were in compliance, except during period of startup, shutdown and malfunction.
- d) **Monitoring and/or Recordkeeping Requirements**
- (1) The permittee shall maintain documentation of the manufacturer's recommendations, instructions, or operating manuals for the dry particulate filter for each of emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K040 and K041 and water wash system for emissions unit K039, along with documentation of any modifications deemed necessary by the permittee. These documents shall be maintained at the facility and shall be made available to the appropriate Ohio EPA District Office or local air agency upon request.
  - (2) The permittee shall conduct periodic inspections of the dry particulate filter for each of emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K040 and K041 and water wash system for emissions unit K039, 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 or operator. 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 and it shall be made available to the Ohio EPA upon request.
  - (3) In addition to the recommended periodic inspections, not less than once each calendar year the permittee shall conduct a comprehensive inspection of the dry particulate filter for each of emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K040 and K041 and water wash system for emissions unit K039, while the emissions unit is shut down and perform any needed maintenance and repair to ensure that it is operated in accordance with the manufacturer's recommendations.



- (4) The permittee shall document each inspection (periodic and annual) of the dry particulate filter system for each of emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K040 and K041 and water wash system for emissions unit K039 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.

These records shall be maintained at the facility for not less than five years from the date the inspection and any necessary maintenance or repairs were completed and shall be made available to the appropriate Ohio EPA District Office or local air agency upon request.

- (5) The permittee shall maintain records that document any time periods when the dry particulate filter for each of emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K040 and K041 and water wash system for emissions unit K039, was not in service when the emissions unit(s) was/were in operation, as well as, a record of all operations during which the dry particulate filter was not operated according to the manufacturer's recommendations with any documented modifications made by the permittee. These records shall be maintained for a period of not less than five years and shall be made available to the Ohio EPA upon request.
- (6) The federally enforceable permit-to-install-and-operate (FEPTIO) application for these emissions units was evaluated based on the actual materials and the design parameters of the emissions units' exhaust system, as specified by the permittee. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to these emissions units for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration results 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 emitted from the emissions units, (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 was divided by ten to adjust the standard from the working population to the general public (TLV/10).
- c. This standard was then adjusted to account for the duration of the exposure or the operating hours of the emissions units, i.e., "X" hours per day and "Y" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):
 
$$TLV/10 \times 8/X \times 5/Y = 4 TLV/XY = MAGLC$$
- d. The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year):

Compound	TLV(u g/m <sup>3</sup> )	MAGLC( ug/m <sup>3</sup> )	EmissionRate(gr ams/sec)	Predicted 1-hr max ground level conc. (ug/m <sup>3</sup> )	MAGLC exceeded?(Y/N )
Formaldehyde	271	6	0.0011	0.12	N
Methanol	262,0 86	6,240	0.23	26.43	N
Acetone	1,187, 116	28,264	0.01	1.15	N
MEK	589,7 75	14,042	0.32	35.88	N
Naphthalene	52,42 9	1,248	0.0001	0.008	N
Cumene	245,7 87	5,852	0.000001	0.0001	N
Ethylbenzene	4,343, 192	10,338	0.22	25.35	N
MIBK	204,8	4,877	0.18	20.91	N



Compound	TLV(u g/m <sup>3</sup> )	MAGLC( ug/m <sup>3</sup> )	EmissionRate(gr ams/sec)	Predicted 1-hr max ground level conc. (ug/m <sup>3</sup> )	MAGLC exceeded?(Y/N )
	26				
Toluene	188,4 05	4,486	0.57	65.11	N
Hexane	1,762, 372	41,961	0.000001	0.0001	N
Xylene	434,1 92	10,338	1.03	116.63	N

The permittee, has demonstrated that above emissions from these emissions units are 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).

- (7) Prior to making any physical changes to or changes in the method of operation of the emissions units 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, from that which was modeled from the initial (or last) application; and
  - c. physical changes to the emissions units or 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 FEPTIO 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.

- (8) 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.
- (9) 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.
- (10) The permittee shall measure, document/calculate and maintain a permanent record of the following information for the permanent total enclosure, which may be the same record documented during the compliance test(s):
  - a. the measured diameter of each natural draft opening;
  - b. the distance measured from each natural draft opening to each VOC emitting point;
  - c. the total calculated surface area of all natural draft openings and the surface area of the enclosure's four walls, floor and ceiling;



- d. the calculation or demonstration that the distance from each VOC emitting point to each natural draft opening is at least 4 times the diameter of the opening; and
  - e. the calculation demonstrating that the sum of the surface areas of all of the natural draft openings to the enclosure is not more than 5 percent of the sum of the surface areas of the enclosure's four walls, floor and ceiling.
- (11) In accordance with OAC rule 3745-21-15(H)(5), the permittee shall install, calibrate, maintain and operate, according to manufacturer's specifications, either one of the following:
- a. A pressure monitoring device equipped with a continuous recorder to measure the pressure drop across PTE #3, as a 3-hour block average value, with an accuracy of at least 0.5 inch of water column or five per cent of the measured value, whichever is larger, or
  - b. A monitoring device equipped with a continuous recorder to measure the facial velocity of air through any natural draft opening into the PTE #3.

The permittee shall also keep a log or record of downtime for the capture (collection) system when the emissions unit was in operation.

- (12) In accordance with OAC rule 3745-21-15(H)(1)(a), the permittee shall properly install, calibrate, maintain and operate, according to manufacturer's specifications, a temperature monitoring device equipped with a continuous recorder that measures and records the combustion temperature within RTO #5 when the emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041 are in operation, including periods of startup and shutdown. Units shall be in degrees Fahrenheit. The accuracy for each thermocouple, monitor and recorder shall be guaranteed by the manufacturer to be within  $\pm 1$  percent of the temperature being measured or  $\pm 5$  degrees Fahrenheit, whichever is greater. The temperature monitoring device shall be located in the firebox or in the duct immediately downstream of the firebox in a position before any substantial heat exchange. The permittee shall collect and record the following information each day when the emissions unit(s) is/are in operation:
- a. all 3-hour blocks of time, when any of the associated emissions units controlled by RTO #5 was/were in operation, during which the average combustion temperature within RTO #5 was more than 50 degrees Fahrenheit below the average temperature measured during the most recent performance test that demonstrated the emissions unit(s) was/were in compliance; and
  - b. a log or record of the downtime for the capture (collection) system, thermal oxidizer and monitoring equipment, when the associated emissions unit(s) were in operation.
- (13) In accordance with OAC rule 3745-21-15(H)(12), the permittee shall inspect the VOC emission control system and monitoring equipment to assure that the VOC emission control system is operating properly and that no leaks or malfunctions have occurred or are occurring. The inspections shall be made at the frequency defined by the equipment



manufacturer, or as otherwise appropriate for each VOC emission control system and monitoring equipment, but no less than monthly.

- (14) All records required under OAC rule 3745-21-15(K) shall be retained for a period of not less than five years and shall be made available to the Director or any authorized representative of the director for review during normal business hours. The following types of records shall be maintained by the permittee.
- a. Work practice implementation plan records:
    - i. records demonstrating that the operator training program required by 40 CFR 63.803(b) is in place;
    - ii. records collected in accordance with the inspection and maintenance plan required by 40 CFR 63.803(c);
    - iii. records associated with the cleaning solvent accounting system required by 40 CFR 63.803(d);
    - iv. records associated with the limitation on the use of conventional air spray guns showing total finishing material usage and the percentage of finishing materials applied with conventional air spray guns for each semi-annual period as required by 40 CFR 63.803(h); and
    - v. copies of documentation such as logs developed to demonstrate that the other provisions of the work practice implementation plan are followed.
  - b. Monitoring records for VOC emission control systems.
    - i. continuous records of the firebox temperature;
    - ii. records of all 3-hour block averages of the firebox temperature during operation of the emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041;
    - iii. a record of the firebox temperature operating limit established under section c)(5); and
    - iv. records of the times and durations of all periods during process or control operation when the monitoring device is not working.
  - c. For monthly (or more frequent) inspections of the VOC emission control system and monitoring equipment conducted pursuant to d)(13) above, a record of the results of each inspection.
- (15) The permittee shall collect and record the following information each month for emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041, combined, which are contained in PTE #3 and controlled by RTO #5:



- a. the name and identification number of each coating (stain, toner, glazes, topcoats and sealers), solvent and support material (cleanup materials and booth buffer);
- b. the VOC content of each coating, solvent and support material identified in "a" in pounds per gallon;
- c. the individual HAP (from Section 112(b), list of hazardous air pollutants, 1990 Clean Air Act, Title III) content of each coating, solvent and support material identified in "a", in pounds per gallon;
- d. the number of gallons of each coating, solvent and support material employed, as identified in "a";
- e. the total uncontrolled VOC emissions rate from all coatings, solvent and support materials employed, i.e.,  $(\sum b \times d)$  for all materials, in pounds;
- f. the total uncontrolled emission rates of each individual HAP from all coatings, solvents and support materials employed, i.e.,  $(\sum c \times d)$  for all materials, in pounds;
- g. the total uncontrolled emission rate of combined total HAPs from all coatings, solvents and support materials employed, i.e., the sum of "f" for all HAPs from all materials, in pounds;
- h. the controlled emission rate shall be calculated using the overall control efficiency for the VOC control system (PTE #3 and RTO #5) as determined during the most recent emission test that demonstrated that these emissions units were in compliance;
- i. the calculated, controlled VOC emissions for all coatings, solvents and support materials employed, in pounds per month;
- j. If a solvent recovery credit is to be applied, the number of gallons or weight density of the VOC-containing materials collected (at the end of each day) for recovery, recycle and/or disposal at an outside facility; and the lowest VOC content, in pounds per gallon or percent by weight, of the all materials making up the volume of the recovered materials, or the VOC content of the material making up at least 90% of the recovered material. The credit shall be applied during the month the material is shipped, using the weight or volume, of record, shipped, less the weight of the drum or container.
- k. If a solvent recovery credit is to be applied, the net VOC emissions for the month, i.e.,  $(i - j)$ , in pounds per month;
- l. the operating days for the month;
- m. the calculated, average controlled daily VOC emissions for all coatings, solvents and support materials employed, i.e.,  $(k/l)$ , in pounds per day;



- n. the calculated, controlled emission rate of each individual HAP for all coatings, solvents and support materials employed , in tons per month;
  - o. the calculated, controlled emission rate of combined total HAPs for all coatings, solvents and support materials, in tons per month;
  - p. the total number of gallons of coatings (including stains, toners, glazes, topcoats and sealers) employed, in gallons per month;
  - q. the total number of gallons of solvents and support materials (including cleanup materials and booth buffer) employed, in gallons per month;
  - r. the rolling, 12-month period controlled VOC emissions from all the coatings, solvents and support materials employed, in tons;
  - s. the rolling, 12-month period controlled each individual HAP emissions from all coatings, solvent and support materials employed, in tons; and
  - t. the rolling, 12-month period controlled combined total HAP emissions from all coatings, solvents and support materials employed, in tons.
- (16) The permittee shall collect and record the following facility-wide information each month:
- a. the rolling, 12-month period controlled VOC emissions, in tons;
  - b. the rolling, 12-month period controlled each individual HAP, in tons; and
  - c. the rolling, 12-month period controlled total combined HAPs emissions, in tons.
- (17) The permittee shall keep an operating downtime log when RTO #5 becomes inoperable during otherwise normal operation while the associated emissions unit(s) were in operation.
- e) Reporting Requirements
- (1) The permittee shall submit written quarterly deviation reports that identify:
- a. all deviations (excursions) of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:
    - i. For RTO #5:
      - (a) all 3-hour blocks of time during which the average combustion temperatures within RTO #5 did not comply with the temperature limitation specified in this permit; and



- (b) all periods of downtime for the capture (collection) system, RTO #5 and/or monitoring equipment when any emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041 are in operation, including cleanup and mixing operations.
  - ii. any month during which the coating and/or the solvent/support material usage for emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041 exceeded the monthly usage limits of 43,196 gallons and 15,300 gallons, respectively;
  - iii. any month during which the calculated controlled emissions from RTO #5 exceeded the following:
    - (a) 151.8 pounds per day and 27.70 tons per rolling, 12-month period of VOC emissions;
    - (b) 528.0 pounds per month and 3.17 tons per rolling, 12-month period of each individual HAP; and
    - (c) 1,378 pounds per month and 8.27 tons per rolling, 12-month period of total combined HAPs.
  - iv. any month during which the rolling, 12-month period facility-wide emissions exceeded the following:
    - (a) 83.10 tons of VOC;
    - (b) 9.50 tons of each individual HAP; and
    - (c) 24.80 tons of total combined HAPs.
  - v. any 3-hour blocks of time, when any of emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041 was in operation, during which the PTE #3 was not maintained at the conditions under section c)(5) above.
- b. the probable cause of each deviation (excursion);
  - c. any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and
  - d. the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.

The quarterly reports shall be submitted, electronically through Ohio EPA Air Services, each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June) and October 31 (covering July to September),



unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

- (2) In accordance with OAC rule 3745-21-15(L), the permittee shall submit semiannual compliance status reports no later than January 31 (covering period of July to December of previous year) and July 31 (covering period of January to June of the same year) to the Ohio EPA. For each semiannual compliance status report, the permittee shall submit the following information for the 6-month period covered by the report.
- a. The permittee shall state in the semi-annual compliance status report any changes to the previous reporting of which paragraphs of (D)(1) to (D)(5) of OAC rule 3745-21-15 is elected to be met.
  - b. Any changes to monitoring devices previously reported and required under sections c)(7), d)(11), d)(12), d)(13) and d)(14) above.
  - c. If any subsequent compliance tests of the VOC emission control system are conducted during the semiannual reporting period, the semiannual compliance status report shall include the results of each compliance test, a complete test report and the compliance test monitoring data as described under paragraphs (L)(2)(d)(ii) to (L)(2)(d)(iv) of OAC rule 3745-21-15.
  - d. The permittee shall submit with the semiannual compliance status report the following compliance certifications:
    - i. The compliance certification shall state that the 3-hour block averages of monitoring parameters recorded pursuant to sections d)(11) and d)(12)a above had complied with the operating limits (operating parameter values for the monitoring parameters established under section f)(2) below during of all periods of the operation of these emissions units; or should otherwise identify the times and durations of all periods of noncompliance and the reasons for noncompliance.
    - ii. The compliance certification shall identify the times and durations of all periods during process or control operation when the monitoring device is not working, as recorded pursuant to sections d)(11)b and d)(11)c above.
    - iii. The compliance certification shall state that the overall reduction of VOC emissions, based on the most recent compliance test conducted in accordance with section f)(2) below, has met the overall reduction of VOC emissions required under sections b)(2)a and b)(2)b above during the semiannual reporting period, or should otherwise identify the periods of noncompliance and the reasons for noncompliance.
    - iv. The compliance certification shall state that the work practice implementation plan is being followed or should otherwise identify the provisions of the plan that have not been implemented and each day the provisions were not implemented.



- v. The compliance certification shall identify and describe any corrective actions considered and implemented for any noncompliance being reported in the compliance certification.
  - vi. The compliance certification shall be signed by a responsible official of the company that owns or operates the wood furniture manufacturing operations.
- (3) The permittee shall submit annual reports to Ohio EPA documenting any change made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. These reports shall be submitted to the Director (the Ohio EPA, Northeast District Office) each year in the PER and shall cover the previous year.
- (4) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be completed electronically and submitted via the Ohio EPA e-Business Center: Air Services by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.
- 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. Emission Limitation:  
The use of PTE #3 confirms to U.S. EPA Method 204 for 100% capture.  
Applicable Compliance Method:  
Compliance shall be demonstrated through the monitoring and record keeping requirements specified in sections d)(10) and d)(11) above and the emissions testing requirements specified in f)(2).
  - b. Emission Limitation:  
VOC destruction efficiency for RTO #5 shall be at least 99%, by weight.  
Applicable Compliance Method:  
Compliance shall be demonstrated through the monitoring and record keeping requirements specified in sections d)(12), d)(13), d)(14)b and d)(14)c above and the emissions testing requirements specified in f)(2).



c. Emission Limitations:

Emissions from RTO #5 shall be restricted in such a manner as to limit emissions from emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041, combined, to the following:

- i. 151.8 pounds per day and 27.70 tons per rolling, 12-month period of VOC;
- ii. 528 pounds per month and 3.17 tons per rolling, 12-month period of each individual HAP; and
- iii. 1,378 pounds per month and 8.27 tons per rolling, 12-month period of total combined HAPs.

Applicable Compliance Method:

Compliance shall be demonstrated through the monitoring and record keeping requirements specified in d)(15).

d. Emission Limitation:

The permittee shall prepare and maintain a written work practice implementation plan.

Applicable Compliance Method:

Compliance shall be demonstrated through the monitoring and record keeping requirements specified in d)(14)a.

e. Emission Limitation:

Nitrogen oxides (NO<sub>x</sub>) emissions from the combustion of natural gas in regenerative thermal oxidizers (RTO) #5 shall not exceed 3.20 pounds per hour and 14.02 tons per year.

Carbon monoxide (CO) emissions from the combustion of natural gas in RTO #5 shall not exceed 2.69 pounds per hour and 11.77 tons per year.

Applicable Compliance Method:

The hourly emission limitation shall be determined based upon the following:

$$E = (EF)(R)/(H)$$

where:

E = emission rate, in lbs/hr;



EF = emission factor, AP-42 "Compilation of Air Pollutant Emission Factors", 5<sup>th</sup> Edition, Section 1.4-6, Table 1.4-2 (9/98), for NO<sub>x</sub> emissions, 100 lbs/mmcf and for CO emissions, 84 lbs/mmcf;

R = maximum rating (heat input) of RTO #5, reported to be 32.0 mmBtu/hr; and

H = heating value of the natural gas, in Btu/cf. 1,000 Btu/cf was used in the emission calculation for this permit.

The tons per year emission limitations were developed by multiplying the short-term allowable emission limitation (3.20 lbs/hr of NO<sub>x</sub> and 2.69 lbs/hr of CO) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

The permittee shall limit the total coating and solvent/support materials usage from the emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041, as follows:

- i. 43,196 gallons per month of coatings, including stains, toners, glazes, topcoats and sealers; and
- ii. 15,300 gallons per month of solvents and support materials, including cleanup materials and booth buffers.

Applicable Compliance Method:

Compliance shall be demonstrated through the record keeping requirements specified in d)(15)p and d)(15)q, respectively.

g. Emission Limitations:

The facility-wide emissions shall not exceed the following:

- i. 83.1 tons per rolling, 12-month period of VOC;
- ii. 9.50 tons per rolling, 12-month period of each individual HAP; and
- iii. 24.80 tons per rolling, 12-month period of total combined HAPs.

Applicable Compliance Method:

Compliance shall be demonstrated through the monitoring and record keeping requirements specified in d)(16).



- (2) The permittee shall conduct, or have conducted, emission testing for PTE #3 and RTO #5 which collected and controlled emissions from emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041 in accordance with the following requirements:
- a. The emissions units K017, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040 and K041, which are controlled by a VOC control system consisting with PTE #3 and RTO #5, shall be tested within 6 months of issuance of this permit and shall be retested every 5 years thereafter.
  - b. The emission testing shall be conducted to demonstrate compliance with the VOC capture efficiency and control efficiency requirement specified in b)(2)b and b)(2)c.
  - c. The capture efficiency test shall be conducted to demonstrate compliance with the 100% capture efficiency requirements for PTE #3 by using:
    - i. Methods 204 through 204F, as specified in 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the U.S. EPA's "Guideline for Determining Capture Efficiency," dated January 9, 1995. (The Ohio EPA will consider the request, including an evaluation of the applicability, necessity and validity of the alternative and may approve the use of the alternative if such approval does not contravene any other applicable requirement.)
    - ii. Method 2 from 40 CFR Part 60, Appendix A.
      - (a) Method 2 from 40 CFR Part 60, Appendix A shall be conducted to determine the volumetric flow rate of the exhaust stream(s) exiting the permanent total enclosure, corrected to standard conditions. If the building is being used as the permanent total enclosure, it may be necessary to measure the volumetric flow, corrected to standard conditions, of each gas stream entering the "enclosure" through a forced makeup air duct, using Method 2. The facial velocity (FV) shall be calculated using the following equation:  
$$FV = (Q_o - Q_i) / A_n$$
where:  
 $Q_o$  = the sum of the volumetric flow from all gas streams exiting the enclosure through an exhaust duct or hood;  
 $Q_i$  = the sum of the volumetric flow from all gas streams into the enclosure through a forced makeup air duct and is equal to zero if there is no forced makeup air into the enclosure; and  
 $A_n$  = the total area of all natural draft openings in the enclosure.



- (b) If the average facial velocity is measured at greater than 500 feet per minute (9,000 m/hr), the direction of air flow shall be assumed to be inward at all times during the compliance demonstration. If the average facial velocity is measured at less than 500 feet per minute, the continuous inward flow of air shall be verified at least once every 10 minutes for a minimum of 1 hour during the compliance demonstration, either by checking the flow or pressure meter(s) or through the use of streamers, smoke tubes, or tracer gases. All closed access doors and windows that are not considered natural draft openings shall also be checked once during the compliance demonstration for leakage around their perimeters using smoke tubes or tracer gases.
- (c) The permittee shall also measure and record the following information for the permanent total enclosure and each natural draft opening:
  - (i) the diameter of each natural draft opening;
  - (ii) the distance measured from each natural draft opening to each VOC emitting point in the process;
  - (iii) the distance measured from each exhaust duct or hood in the enclosure to each natural draft opening;
  - (iv) the total surface area of each natural draft opening and the surface area of the enclosure's four walls, floor and ceiling; and
  - (v) the ratio of the total surface area (sum) of all natural draft openings to the total surface area of the permanent total enclosure.
- d. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10 or an approved alternative test protocol. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration and on a consideration of the potential presence of interfering gases.
- e. U.S. EPA Method 24 shall be used, in accordance with OAC rule 3745-21-04(B)(5), to determine the VOC contents for all coatings, solvent and support materials and cleanup materials used during the performance test(s). If, pursuant to section 11.4 of Method 24, 40 CFR Part 60, Appendix A, an owner or operator determines that Method 24 cannot be used for a particular coating, solvent, support material, or cleanup material, the permittee shall so notify the Administrator of the U.S. EPA and shall use formulation data for that coating, solvent, support material, or cleanup material to demonstrate compliance until



the U.S. EPA provides alternative analytical procedures or alternative precision statements for Method 24.

- f. Emission testing shall also be conducted to establish the operating limits (operating parameter values) for the monitoring devices required under sections d)(11) and d)(12) above as follows:
  - i. Monitor and record the combustion temperature either in the firebox of the RTO or immediately downstream of the firebox before any substantial heat exchange occurs at least once every fifteen minutes during each of the three runs of the compliance test.
  - ii. Calculate and record the average combustion temperature, at a 3-hour block average value, maintained during the compliance test. This average combustion temperature used to determine the minimum operating limit for the RTO.
  - iii. The pressure drop across the permanent total enclosure shall be at least -0.007 inch of water, as a 3-hour block average value.
- g. The test(s) shall be conducted while the emissions units are operating at or near their maximum capacities, unless otherwise specified or approved by the Ohio EPA Northeast District Office.
- h. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s) and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emission test(s).
- i. Personnel from the Ohio EPA Northeast District Office shall be permitted to witness the test(s), examine the testing equipment and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- j. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA Northeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Northeast District Office.

g) Miscellaneous Requirements

- (1) None.



**8. Emissions Unit Group -Group A: P003,P004,**

EU ID	Operations, Property and/or Equipment Description
P003	Woodworking equipment with a 34,750 cfmBaghouse P3-12742
P004	Woodworking equipment with a 31,150 cfmBaghouse P3-12743

- 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. b)(1)a, b)(2)a, b)(2)b, f)(1)a, f)(1)b and f)(2)
- 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(D)	Emissions of particulate matter less than or equal to 10 microns in diameter (PM <sub>10</sub> ) shall not exceed 0.0025 grain per dscf of exhaust gases from the baghouse stack.  See b)(2)a and b)(2)b.
b.	OAC rule 3745-31-05(A)(3)	Particulate emissions (PE) shall not exceed 0.005 grain per dscf of exhaust gases from the baghouse stack.  See b)(2)c, b)(2)d, b)(2)e and b)(2)f.
c.	OAC rule 3745-17-11(B) OAC rule 3745-17-07(A) OAC rule 3745-17-08(B) OAC rule 3745-17-07(B)	The requirements established pursuant to OAC rules 3745-17-11(B), 3745-17-07(A), 3745-17-08(B) and 3745-17-07(B) are less stringent than the requirements established pursuant to OAC rules 3745-31-05(D) and 3745-31-05(A)(3).



(2) Additional Terms and Conditions

- a. Emissions of PM<sub>10</sub> from the baghouse stack associated with the emissions unit shall not exceed the following:
  - i. For emissions unit P003, 0.74 pound per hour and 3.26 tons per year; and
  - ii. For emissions unit P004, 0.67 pound per hour and 2.92 tons per year.
- b. Visible particulate emissions from the baghouse stack shall not exceed 0% opacity as a 6-minute average.
- c. PE emissions from the baghouse stack associated with the emissions unit shall not exceed the following:
  - i. For emissions unit P003, 1.49 pounds per hour and 6.52 tons per year; and
  - ii. For emissions unit P004, 1.34 pounds per hour and 5.85 tons per year.
- d. Fugitive PE and PM<sub>10</sub> emissions from the dumpster for emissions units P003 and P004, combined, shall not exceed 0.54 ton per year.
- e. Visible emissions of fugitive dust from the dumpster shall not exceed 10% opacity as a 3-minute average.
- f. The emissions from emissions unit P003 shall be vented to the baghouse P3-12742 at all times when the emissions unit is in operation. The emissions from emissions unit P004 shall be vented to the baghouse P3-12743 at all times when the emissions unit is in operation.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) In order to maintain compliance with the applicable emission limitations contained in this permit, the acceptable range established for the pressure drop across each baghouse (P3-12742 and P3-12743) is between 1 to 5 inches of water. The listed pressure drop range applies at all times except following rebagging until sufficient filter cake has developed on the bags.
- (2) The permittee shall properly install, operate and maintain equipment to continuously monitor the pressure drop, in inches of water, across the baghouse when the controlled emissions unit is in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across each baghouse on weekly basis. The monitoring equipment shall be installed, calibrated, operated and maintained in accordance with the



manufacturer's recommendations, instructions and operating manual(s), with any modifications deemed necessary by the permittee.

Whenever the monitored value for the pressure drop deviates from the range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. the date and time the deviation began;
- b. the magnitude of the deviation at that time;
- c. the date the investigation was conducted;
- d. the name(s) of the personnel who conducted the investigation; and
- e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- f. a description of the corrective action;
- g. the date corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. the pressure drop readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

This range or limit on the pressure drop across each baghouse is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted limit or range for the pressure drop based upon information obtained during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.



- (3) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from each stack serving these emissions units. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
    - a. the color of the emissions;
    - b. the total duration of any visible emission incident; and
    - c. any corrective actions taken to eliminate the visible emissions.
  - (4) The permittee does not need to perform checks for visible emissions of fugitive dust from the area around the dumpster serving emissions units P003 and P004 if the hoppers under the baghouse are enclosed. If the hoppers are not enclosed, a daily check of visible emissions of fugitive dust shall be resumed.
- e) Reporting Requirements
- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be completed electronically and submitted via the Ohio EPA e-Business Center: Air Services by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.
  - (2) The permittee shall identify in the annual permit evaluation report the following information concerning the operations of the baghouse during the 12-month reporting period for this/these emissions unit:
    - a. each period of time (start time and date and end time and date) when the pressure drop across the baghouse was outside of the acceptable range;
    - b. any period of time (start time and date and end time and date) when the emissions unit was in operation and the process emissions were not vented to the baghouse;
    - c. each incident of deviation described in "a" (above) where a prompt investigation was not conducted;
    - d. each incident of deviation described in "a" (above) where a prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and
    - e. each incident of deviation described in "a" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.
  - (3) The permittee shall submit annual written reports that (a) identify all days during which any visible particulate emissions were observed from the baghouse stack serving the emissions unit and/or any visible particulate emissions of fugitive dust were observed



from the dumpster area; and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Director (the Ohio EPA, Northeast District Office) each year in the PER and shall cover the previous year.

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. Opacity Limitations:

Visible particulate emissions from each baghouse stack associated with the emissions unit shall not exceed 0% opacity as a 6-minute average.

Applicable Compliance Method:

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

b. Emission Limitation:

Emissions of PM<sub>10</sub> shall not exceed 0.0025 grain per dscf of exhaust gases from each baghouse stack.

Emissions of PM<sub>10</sub> from baghouse stack shall not exceed the following:

- i. For emissions unit P003, 0.74 pound per hour and 3.26 tons per year; and
- ii. For emissions unit P004, 0.67 pound per hour and 2.92 tons per year.

Applicable Compliance Method:

Compliance with the grain loading and hourly limitations shall be demonstrated through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 51, Appendix M, Method 201 for PM<sub>10</sub> and the requirements specified in f)(2).

The tons per year emission limitations were developed by multiplying the short-term allowable PM<sub>10</sub> limitation (lb/hr) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

c. Opacity Limitations:

Visible particulate emissions of fugitive dust from the dumpster shall not exceed 10% opacity as a 3-minute average.



Applicable Compliance Method:

If required, compliance shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9 and OAC rule 3745-17-03(B)(3).

d. Emission Limitation:

PE shall not exceed 0.005 grain per dscf of exhaust gases from the baghouse stack.

PE emissions from baghouse stack shall not exceed the following:

- i. For emissions unit P003, 1.49 pounds per hour and 6.52 tons per year; and
- ii. For emissions unit P004, 1.34 pounds per hour and 5.85 tons per year.

Applicable Compliance Method:

Compliance with the grain loading and hourly limitations shall be demonstrated through emission tests performed in accordance with the methods and procedures specified in 40 CFR 40 CFR Part 60, Appendix A, Methods 1 through 5 for PE and the requirements specified in f)(2).

The tons per year emission limitations were developed by multiplying the short-term allowable PE limitation (lbs/hr) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

e. Emission Limitation:

Fugitive PE and PM<sub>10</sub> emissions from the dumpster for emissions units P003 and P004, combined, shall not exceed 0.54 ton per year.

Applicable Compliance Method:

Compliance was demonstrated one time based upon the maximum dust loading as follows:

$$E = 2,148 \text{ tons dust/year} \times 2 \text{ lbs/ton} \times 0.25 \times 1 \text{ ton}/2000 \text{ lbs} = 0.54 \text{ ton/year}$$

where:

E = estimated emissions in tons per year;

2,148 tons = the tons of sawdust anticipated to be loaded into trucks per year;



2 lbs/ton = an emission factor taken from RACM, Table 2.17-1, Fugitive Dust Emission Factors for Woodworking Operations; and

0.25 = an estimated control efficiency of 75% for loading within a 3-sided enclosure.

(2) The permittee shall conduct, or have conducted, emission testing for these emissions units in accordance with the following requirements:

- a. For the purpose of emissions testing, some of the woodworking emissions units from MASCO's Plants 1, 2 and 3 have been grouped together as similar units based upon the size of the fabric filters; between 30,000 cfm and 35,999 cfm. These units are listed below. This list of emissions units may change over time as units are installed, modified, or removed from the three plants. Regardless of the list below, any woodworking emissions units which are controlled by a fabric filter with an air exhaust between 30,000 cfm and 35,999 cfm are part of this group.

Plant 1

P010 (P1-13326) – 31,150 cfm

P015 (P1-25795) – 31,150 cfm

Plant 2

P011 (P2-10909) – 31,150 cfm

P015 (P2-10912) – 31,150 cfm

Plant 3

P003 (P3-12742) – 34,750 cfm

P004 (P3-12743) – 31,150 cfm

One of the emissions units from this group shall be selected for emissions testing every five years. The selection of the unit for testing shall be based upon considerations such as production, baghouse maintenance issues, performance and other considerations as may be pertinent. The selection of the unit to be tested shall be made jointly by MASCO and Ohio EPA, Northeast District Office.

Some of the emissions units in this group may exhaust only inside the plant. In some cases the configuration of the baghouse stack and/or the air conditioning unit will not allow for Reference Method 1 to be met. These emissions units shall not be considered for emissions testing.

The emissions unit P015 in Plant 1 was tested and demonstrated compliance on May 10, 2012. The emission testing for this group of emissions units shall be conducted again within 6 months of May 10, 2017.

- b. The emission testing shall be conducted to demonstrate compliance with the PE limitation of 0.005 grain per dscf and 0.0025 grain PM<sub>10</sub> per dscf from the baghouse stack and with the PE and PM<sub>10</sub> hourly mass emission limitations specified in b)(2).



- c. The following test methods shall be employed to demonstrate compliance with the allowable emission rates:  
  
for PE - 40 CFR Part 60, Appendix A, Methods 1 through 5; and  
  
for PM<sub>10</sub> - 40 CFR Part 51, Appendix M, Method 201.  
  
Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.
- d. The test(s) shall be conducted while the emissions unit is at current operating conditions unless otherwise specified or approved by the Ohio EPA, Northeast District Office.
- e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Northeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s) and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Northeast District Office's refusal to accept the results of the emission test(s).
- f. Personnel from the Ohio EPA, Northeast District Office shall be permitted to witness the test(s), examine the testing equipment and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Northeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Northeast District Office.

g) Miscellaneous Requirements

- (1) The permittee shall submit updated Emissions Unit Equipment Tables for these emissions units to the Director (the Ohio EPA, Northeast District Office) on an annual basis. The updated tables shall include an updated demonstration of loading to the baghouses. The updated tables shall include a complete list of equipment for each emissions unit (including an identification of all equipment that is/are permanently shut down and dismantled and new or replacement equipment) as of the end of the calendar year and shall highlight or otherwise flag the changes from the previous year. This report shall be submitted to the Director (the Ohio EPA, Northeast District Office) by February 28 of each year or may be included with the PER.



After this report is submitted, the Director (the Ohio EPA, Northeast District Office) may consider the changes to determine if a modification to the issued permit is necessary. In general, a few changes which are not significant and which do not affect the operation of the control equipment will not trigger a request for a submittal of an application to modify the issued permit.

The permittee shall also submit an updated table of equipment which is exempt from air permitting requirements to the Director (the Ohio EPA, Northeast District Office) on an annual basis. The updated table shall include the complete list of such equipment including any permit exempt equipment installed during the last calendar year and an identification of all equipment permanently shut down and dismantled. This report shall be submitted to the Director (the Ohio EPA, Northeast District Office) by February 28 of each year or may be included in the PER.

<b>P003- CEFLA#3 2/1/2010 PLANT 3 DUST COLLECTORS.XLS CEFLA #3</b> <b>Dust Collection Sizes and Reading</b>			
<b>For:</b>	<b>CEFLA #3</b>		
<b>EPA ID#</b>	<b>P003</b>		
<b>KMC Asset #</b>	<b>P3-12742</b>		
Date: 02/09	KraftMaid Design Velocity =		5200
Equipment:	Running Total for 5200 V		
HF33 100 HP 91.4 BHP 825 RPM Fan Inlet 33"	31150 MAX CFM @ 5200 FPM		
31150 Max CFM @ 5200 fpm OV 9" SP	<b>43733</b>		
	Size of pipe (inches)	Amount of CFM	Running Total CFM in Pipe
1	BRUSH ASSEMBLY DENNIBER P4-03 (PRIMER)	6	1021
2	BRUSH ASSEMBLY DENNIBER P4-03 (PRIMER)	6	1021
3	BRUSH ASSEMBLY DENNIBER P4-03 (PRIMER)	6	1021
4	BRUSH ASSEMBLY DENNIBER P4-03 (PRIMER)	6	1021
5	BRUSH ASSEMBLY DENNIBER P4-03 (PRIMER)	6	1021
6	BRUSH ASSEMBLY DENNIBER P4-03 (PRIMER)	6	1021
7	SORBINI PANEL CLEANER P4-05 (PRIMER)	8	1815
8	SORBINI PANEL CLEANER P4-05 (PRIMER)	8	1815
9	SORBINI PANEL CLEANER P4-05 (PRIMER)	8	1815
10	SORBINI PANEL CLEANER P4-05 (PRIMER)	6	1021
11	SORBINI SMART SAND MACHINE (PRIMER)	7	1390
12	SORBINI SMART SAND MACHINE (PRIMER)	7	1390
13	SORBINI SMART SAND MACHINE (PRIMER)	10	2836
14	DOWN DRAFT TABLE P4-13 (PRIMER)	8	1815
15	DOWN DRAFT TABLE P4-14 (PRIMER)	8	1815
16	BRUSH ASSEMBLY DENNIBER P4-39 (TOP COAT)	6	1021
17	BRUSH ASSEMBLY DENNIBER P4-39 (TOP COAT)	6	1021
18	BRUSH ASSEMBLY DENNIBER P4-39 (TOP COAT)	6	1021
19	BRUSH ASSEMBLY DENNIBER P4-39 (TOP COAT)	6	1021
20	BRUSH ASSEMBLY DENNIBER P4-39 (TOP COAT)	6	1021
21	BRUSH ASSEMBLY DENNIBER P4-39 (TOP COAT)	6	1021
22	DOWN DRAFT TABLE P4-277 (TOP COAT)	8	1815
23	SORBINI PANEL CLEANER P4-23 (TOP COAT)	8	1815
24	SORBINI PANEL CLEANER P4-23 (TOP COAT)	8	1815
25	SORBINI PANEL CLEANER P4-23 (TOP COAT)	8	1815
26	SORBINI PANEL CLEANER P4-23 (TOP COAT)	6	1021
27	DMC ROTO SAND UNIT P4-33 (TOP COAT)	10	2836
28	DMC ROTO SAND UNIT P4-33 (TOP COAT)	8	1815
29	DMC ROTO SAND UNIT P4-33 (TOP COAT)	6	1021



30	DOWN DRAFT TABLE P4-278 (TOP COAT)	8	1815	43733
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<b>P004- CEFLA#4 2/1/2010 PLANT 3 DUST COLLECTORS.XLS CEFLA #4</b> <b>Dust Collection Sizes and Reading</b>				
<b>For:</b>		<b>CEFLA #4</b>		
<b>EPA ID#</b>		<b>P004</b>		
<b>KMC Asset #</b>		<b>P3-12743</b>		
Date: 02/09	KraftMaid Design Velocity =	5200		
Equipment:		Running Total for 5200 V		
HF33 100 HP 91.4 BHP 825 RPM Fan Inlet 33"		31150 MAX CFM @ 5200 FPM		
31150 Max CFM @ 5200 fpm OV 9" SP		<b>38628</b>		
		Size of pipe (inches)	Amount of CFM	Running Total CFM in Pipe
	BRUSH ASSEMBLY DENNIBER P4-136 (PRIMER)	6	1021	1021
	BRUSH ASSEMBLY DENNIBER P4-136 (PRIMER)	6	1021	2042
	BRUSH ASSEMBLY DENNIBER P4-136 (PRIMER)	6	1021	3063
	BRUSH ASSEMBLY DENNIBER P4-136 (PRIMER)	6	1021	4084
	BRUSH ASSEMBLY DENNIBER P4-136 (PRIMER)	6	1021	5105
	BRUSH ASSEMBLY DENNIBER P4-136 (PRIMER)	6	1021	6126
	SORBINI PANEL CLEANER P4-141 (PRIMER)	4	454	6580
	SORBINI PANEL CLEANER P4-141 (PRIMER)	6	1021	7601
	SORBINI PANEL CLEANER P4-141 (PRIMER)	6	1021	8622
	SORBINI PANEL CLEANER P4-141 (PRIMER)	6	1021	9643
	SORBINI SMART SAND MACHINE (PRIMER)	7	1390	11033
	SORBINI SMART SAND MACHINE (PRIMER)	7	1390	12422
	SORBINI SMART SAND MACHINE (PRIMER)	10	2836	15258
	DOWN DRAFT TABLE P4-149 (PRIMER)	8	1815	17074
	DOWN DRAFT TABLE P4-150 (PRIMER)	8	1815	18889
	BRUSH ASSEMBLY DENNIBER P4-179 (TOP COAT)	6	1021	19910
	BRUSH ASSEMBLY DENNIBER P4-179 (TOP COAT)	6	1021	20931
	BRUSH ASSEMBLY DENNIBER P4-179 (TOP COAT)	6	1021	21952
	BRUSH ASSEMBLY DENNIBER P4-179 (TOP COAT)	6	1021	22973
	BRUSH ASSEMBLY DENNIBER P4-179 (TOP COAT)	6	1021	23994
	BRUSH ASSEMBLY DENNIBER P4-179 (TOP COAT)	6	1021	25015
	DOWN DRAFT TABLE P4-180 (TOP COAT)	8	1815	26830
	SORBINI PANEL CLEANER P4-181 (TOP COAT)	4	454	27284
	SORBINI PANEL CLEANER P4-181 (TOP COAT)	6	1021	28305
	SORBINI PANEL CLEANER P4-181 (TOP COAT)	6	1021	29326
	SORBINI PANEL CLEANER P4-181 (TOP COAT)	6	1021	30347
	DMC ROTO SAND UNIT P4-135 (TOP COAT)	8	1815	32162
	DMC ROTO SAND UNIT P4-135 (TOP COAT)	8	1815	33977
	DMC ROTO SAND UNIT P4-135 (TOP COAT)	10	2836	36813
	DOWN DRAFT TABLE P4-188 (TOP COAT)	8	1815	38628



**9. Emissions Unit Group -Group C: P002,P005,P006,P007,P008,P009,**

EU ID	Operations, Property and/or Equipment Description
P002	Woodworking equipment with a 58,500 cfmBaghouse P3-20866
P005	Woodworking equipment with a 47,000 cfmBaghouse P3-12740
P006	Woodworking equipment with a 47,000 cfmBaghouse P3-12741
P007	Woodworking equipment with a 47,000 cfmBaghouse P3-20879
P008	Woodworking equipment with a 42,500 cfmBaghouse P3-26578
P009	Woodworking equipment with a 42,500 cfmBaghouse P3-26579

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. b)(1)a, b)(2)a, b)(2)b, f)(1)a, f)(1)b and f)(2)

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(D)	Emissions of particulate matter less than or equal to 10 microns in diameter (PM <sub>10</sub> ) shall not exceed 0.0025 grain per dscf of exhaust gases from the baghouse stack.  See b)(2)a and b)(2)b.
b.	OAC rule 3745-31-05(A)(3)	PE shall not exceed 0.005 grain per dscf of exhaust gases from the baghouse stack.  See b)(2)c, b)(2)d, b)(2)e and b)(2)f.
c.	OAC rule 3745-17-11(B) OAC rule 3745-17-07(A)	The requirements established pursuant to OAC rules 3745-17-11(B) and 3745-17-07(A), are less stringent than the



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		requirements established pursuant to OAC rules 3745-31-05(D) and 3745-31-05(A)(3).

(2) Additional Terms and Conditions

- a. Emissions of PM<sub>10</sub> from the baghouse stack associated with the emissions unit shall not exceed the following:
  - i. For emissions unit P002, 1.25 pounds per hour and 5.49 tons per year;
  - ii. For each emissions unit P005, P006, or P007, 1.01 pounds per hour and 4.41 tons per year; and
  - iii. For each emissions unit P008 or P009, 0.91 pound per hour and 3.99 tons per year.
- b. Visible particulate emissions from each baghouse stack shall not exceed 0% opacity as a 6-minute average.
- c. PE from the baghouse stack associated with the emissions unit shall not exceed the following:
  - i. For emissions unit P002, 2.51 pounds per hour and 10.98 tons per year;
  - ii. For each emissions unit P005, P006, or P007, 2.01 pounds per hour and 8.82 tons per year; and
  - iii. For each emissions unit P008 or P009, 1.82 pounds per hour and 7.98 tons per year.
- d. Fugitive particulate emissions and PM<sub>10</sub> emissions from loading into a dumpster of emissions unit P002 shall not exceed 0.48 ton per year.
- e. Visible particulate emissions of fugitive dust from loading into a dumpster of emissions unit P002 shall not exceed 10% opacity as a 3-minute average.
- f. The emissions from each emissions unit shall be vented to the associated baghouse as follows at all times when the emissions unit is in operation.
  - i. P3-20866 for emissions unit P002;
  - ii. P3-12740 for emissions unit P005;
  - iii. P3-12741 for emissions unit P006;
  - iv. P3-20879 for emissions unit P007;



- v. P3-26578 for emissions unit P008; and
  - vi. P3-26579 for emissions unit P009.
- c) Operational Restrictions
- (1) None
- d) Monitoring and/or Recordkeeping Requirements
- (1) In order to maintain compliance with the applicable emission limitations contained in this permit, the acceptable range established for the pressure drop across each baghouse (P3-20866, P3-12740, P3-12741, P3-20878, P3-26578 and P3-26579) is between 1 to 5 inches of water. The listed pressure drop range applies at all times except following rebagging until sufficient filter cake has developed on the bags.
  - (2) The permittee shall properly install, operate and maintain equipment to continuously monitor the pressure drop, in inches of water, across each baghouse when the controlled emissions unit is in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across each baghouse on weekly basis. The monitoring equipment shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manual(s), with any modifications deemed necessary by the permittee.
- Whenever the monitored value for the pressure drop deviates from the range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:
- a. the date and time the deviation began;
  - b. the magnitude of the deviation at that time;
  - c. the date the investigation was conducted;
  - d. the name(s) of the personnel who conducted the investigation; and
  - e. the findings and recommendations.
- In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:
- f. a description of the corrective action;
  - g. the date corrective action was completed;
  - h. the date and time the deviation ended;



- i. the total period of time (in minutes) during which there was a deviation;
- j. the pressure drop readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

This range or limit on the pressure drop across each baghouse is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted limit or range for the pressure drop based upon information obtained during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

- (3) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving the emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
  - a. the color of the emissions;
  - b. the total duration of any visible emission incident; and
  - c. any corrective actions taken to eliminate the visible emissions.
- (4) The permittee does not need to perform checks for visible emissions of fugitive dust from the area around the dumpster serving emissions units P002 if the hoppers under the baghouse are enclosed. If the hoppers are not enclosed, a daily check of visible emissions of fugitive dust shall be resumed.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be completed electronically and submitted via the Ohio EPA e-Business Center: Air Services by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.
- (2) The permittee shall identify in the PER the following information concerning the operations of each baghouse during the 12-month reporting period for this/these emissions unit(s):



- a. each period of time (start time and date and end time and date) when the pressure drop across the baghouse was outside of the acceptable range;
  - b. any period of time (start time and date and end time and date) when the emissions unit was in operation and the process emissions were not vented to the baghouse;
  - c. each incident of deviation described in “a” (above) where a prompt investigation was not conducted;
  - d. each incident of deviation described in “a” (above) where a prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and
  - e. each incident of deviation described in “a” where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.
- (3) The permittee shall submit annual written reports that (a) identify all days during which any visible particulate emissions were observed from the baghouse stack serving the associated emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Director (the Ohio EPA, Northeast District Office) each year in the PER and shall cover the previous year.
- (4) The permittee shall submit annual written reports that (a) identify all days during which any visible emissions of fugitive dust were observed from the dumpster area of emissions unit P002 and (b) describe any corrective actions taken to eliminate the visible emissions. These reports shall be submitted to the Director (the Ohio EPA, Northeast District Office) each year in the PER and shall cover the previous year.
- 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. Emission Limitation:  
Visible particulate emissions from each baghouse stack shall not exceed 0% opacity as a 6-minute average.  
  
Applicable Compliance Method:  
If required, compliance shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9 and OAC rule 3745-17-03(B)(1).



b. Emission Limitation:

Emissions of PM<sub>10</sub> shall not exceed 0.0025 grain per dscf of exhaust gases from the baghouse stack.

Emissions of PM<sub>10</sub> from the baghouse stack associated with the emissions unit shall not exceed the following:

- i. For emissions unit P002, 1.25 pounds per hour and 5.49 tons per year;
- ii. For each emissions unit P005, P006, or P007, 1.01 pounds per hour and 4.41 tons per year; and
- iii. For each emissions unit P008 or P009, 0.91 pound per hour and 3.99 tons per year.

Applicable Compliance Method:

Compliance with the grain loading and hourly limitations shall be demonstrated through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 51, Appendix M, Method 201 for PM<sub>10</sub> and the requirements specified in f)(2).

The tons per year emission limitations were developed by multiplying the short-term allowable PM<sub>10</sub> limitation (lbs/hr) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

c. Emission Limitation:

Visible particulate emissions of fugitive dust from loading into a dumpster of emissions unit P002 shall not exceed 10% opacity as a 3-minute average.

Applicable Compliance Method:

If required, compliance shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9 and OAC rule 3745-17-03(B)(3).

d. Emission Limitation:

PE shall not exceed 0.005 grain per dscf of exhaust gases from the baghouse stack.

PE from the baghouse stack associated with the emissions unit shall not exceed the following:



- i. For emissions unit P002, 2.51 pounds per hour and 10.98 tons per year;
- ii. For each emissions unit P005, P006, or P007, 2.01 pounds per hour and 8.82 tons per year; and
- iii. For each emissions unit P008 or P009, 1.82 pounds per hour and 7.98 tons per year.

Applicable Compliance Method:

Compliance with the grain loading and hourly limitations shall be demonstrated through emission tests performed in accordance with the methods and procedures specified in 40 CFR 40 CFR Part 60, Appendix A, Methods 1 through 5 for PE and the requirements specified in f)(2).

The tons per year emission limitations were developed by multiplying the short-term allowable PE limitation (lbs/hr) by the maximum annual hours of operation (8,760 hours) and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

e. Emission Limitation:

Fugitive PE and PM<sub>10</sub> emissions from the dumpster for emissions unit P002 shall not exceed 0.48 ton per year.

Applicable Compliance Method:

Compliance was demonstrated one time based upon the maximum dust loading as follows:

$$E = 1,907 \text{ tons dust/year} \times 2 \text{ lbs/ton} \times 0.25 \times 1 \text{ ton}/2000 \text{ lbs} = 0.48 \text{ ton/year}$$

where:

E = estimated emissions in tons per year;

1,907 tons = the tons of sawdust anticipated to be loaded into trucks per year;

2 lbs/ton = an emission factor taken from RACM, Table 2.17-1, Fugitive Dust Emission Factors for Woodworking Operations; and

0.25 = an estimated control efficiency of 75% for loading within a 3-sided enclosure.

(2) The permittee shall conduct, or have conducted, emission testing for these emissions units in accordance with the following requirements:

- a. For the purpose of emissions testing, some of the woodworking emissions units from MASCO's Plants 1, 2 and 3 have been grouped together as similar units based upon the size of the fabric filters; 40,000 cfm and more. These units are



listed below. This list of emissions units may change over time as units are installed, modified, or removed from the three plants. Regardless of the list below, any woodworking emissions units which are controlled by a fabric filter with an air exhaust 40,000 cfm and more are part of this group.

Plant 1

P008 (P1-13325) – 53,000 cfm  
P009 (P1-13327) – 53,000 cfm  
P014 (P1-24807) – 53,000 cfm

Plant 2

P013 (P2-10914) – 40,000 cfm

Plant 3

P002 (P3-20866) – 58,500 cfm  
P005 (P3-12740) – 47,000 cfm  
P006 (P3-12741) – 47,000 cfm  
P007 (P3-20879) – 47,000 cfm  
P008 (P3-26579) - 42,500 cfm  
P009 (P3-26578) – 42,500 cfm

One of the emissions units from this group shall be selected for emissions testing every five years. The selection of the unit for testing shall be based upon considerations such as production, baghouse maintenance issues, performance and other considerations as may be pertinent. The selection of the unit to be tested shall be made jointly by MASCO and Ohio EPA, Northeast District Office.

Some of the emissions units in this group may exhaust only inside the plant. In some cases the configuration of the baghouse stack and/or the air conditioning unit will not allow for Reference Method 1 to be met. These emissions units shall not be considered for emissions testing.

The emissions unit P009 in Plant 3 was tested and demonstrated compliance on November 27, 2012. The emission testing for this group of emissions units shall be conducted again within 6 months of November 27, 2017.

- b. The emission testing shall be conducted to demonstrate compliance with the PE limitation of 0.005 grain per dscf and 0.0025 grain PM<sub>10</sub> per dscf from the baghouse stack and with the PE and PM<sub>10</sub> hourly mass emission limitations specified in b)(2).
- c. The following test methods shall be employed to demonstrate compliance with the allowable emission rates:

for PE - 40 CFR Part 60, Appendix A, Methods 1 through 5; and

for PM<sub>10</sub> - 40 CFR Part 51, Appendix M, Method 201.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.



- d. The test(s) shall be conducted while the emissions unit is at current operating conditions unless otherwise specified or approved by the Ohio EPA, Northeast District Office.
- e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Northeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s) and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Northeast District Office's refusal to accept the results of the emission test(s).
- f. Personnel from the Ohio EPA, Northeast District Office shall be permitted to witness the test(s), examine the testing equipment and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Northeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Northeast District Office.

g) **Miscellaneous Requirements**

- (1) The permittee shall submit updated Emissions Unit Equipment Tables for these emissions units to the Director (the Ohio EPA, Northeast District Office) on an annual basis. The updated tables shall include an updated demonstration of loading to the baghouses. The updated table shall include a complete list of equipment for each emissions unit (including an identification of all equipment that is/are permanently shut down and dismantled and new or replacement equipment) as of the end of the calendar year and shall highlight or otherwise flag the changes from the previous year. The report shall be submitted to the Director (the Ohio EPA, Northeast District Office) by February 28 of each year or may be included with the PER.

After this report is submitted, the Director (the Ohio EPA, Northeast District Office) may consider the changes to determine if a modification to the issued permit is necessary. In general, a few changes which are not significant and which do not affect the operation of the control equipment will not trigger a request for a submittal of an application to modify the issued permit.

The permittee shall also submit an updated table of equipment which is exempt from air permitting requirements to the Director (the Ohio EPA, Northeast District Office) on an annual basis. The updated table shall include the complete list of such equipment including any permit exempt equipment installed during the last calendar year and an identification of all equipment permanently shut down and dismantled. This report shall



be submitted to the Director (the Ohio EPA, Northeast District Office) by February 28 of each year or may be included in the PER.

<b>P002- CEFLA#6 2/1/2010 PLANT 3 DUST COLLECTORS.XLS CEFLA #6</b> <b>Dust Collection Sizes and Reading</b>			
<b>For:</b>	<b>CEFLA #6</b>		
<b>EPA ID#</b>	<b>P002</b>		
<b>KMC Asset #</b>	<b>P3-20866</b>		
Date:	KraftMaid Design Velocity =	6400	
02/2009			
Equipment:	Running Total for 6400 V		
HF41 250 HP 237 BHP 775 RPM Fan Inlet 41"	58500 MAX CFM @ 6400 FPM		
58500 Max CFM @ 6400 fpm 12" SP	0		
	Size of pipe (inches)	Amount of CFM	Running Total CFM in Pipe
BRUSH ASSEMBLY DENNIBER P4-383 (PRIMER)	5	873	873
BRUSH ASSEMBLY DENNIBER P4-383 (PRIMER)	5	873	1745
BRUSH ASSEMBLY DENNIBER P4-383 (PRIMER)	5	873	2618
BRUSH ASSEMBLY DENNIBER P4-383 (PRIMER)	5	873	3491
BRUSH ASSEMBLY DENNIBER P4-383 (PRIMER)	6	1257	4747
BRUSH ASSEMBLY DENNIBER P4-383 (PRIMER)	6	1257	6004
DOWN DRAFT TABLE P4-384 (PRIMER)	10	3491	9494
SORBINI PANEL CLEANER P4-385 (PRIMER)	6	1257	10751
SORBINI PANEL CLEANER P4-385 (PRIMER)	6	1257	12008
SORBINI PANEL CLEANER P4-385 (PRIMER)	6	1257	13264
SORBINI PANEL CLEANER P4-385 (PRIMER)	8	2234	15498
SORBINI SMART SAND MACHINE (PRIMER)	7	1710	17209
SORBINI SMART SAND MACHINE (PRIMER)	7	1710	18919
SORBINI SMART SAND MACHINE (PRIMER)	10	3491	22410
DOWN DRAFT TABLE P4-394 (PRIMER)	10	3491	25900
DOWN DRAFT TABLE P4-395 (PRIMER)	10	3491	29391
BRUSH ASSEMBLY DENNIBER P4-402 (TOP COAT)	5	873	30264
BRUSH ASSEMBLY DENNIBER P4-402 (TOP COAT)	5	873	31136
BRUSH ASSEMBLY DENNIBER P4-402 (TOP COAT)	5	873	32009
BRUSH ASSEMBLY DENNIBER P4-402 (TOP COAT)	5	873	32882
BRUSH ASSEMBLY DENNIBER P4-402 (TOP COAT)	6	1257	34138
BRUSH ASSEMBLY DENNIBER P4-402 (TOP COAT)	6	1257	35395
DOWN DRAFT TABLE P4-403 (TOP COAT)	10	3491	38886
SORBINI PANEL CLEANER P4-404 (TOP COAT)	6	1257	40142
SORBINI PANEL CLEANER P4-404 (TOP COAT)	6	1257	41399
SORBINI PANEL CLEANER P4-404 (TOP COAT)	6	1257	42655
SORBINI PANEL CLEANER P4-404 (TOP COAT)	8	2234	44889
BRUSH ASSEMBLY DENNIBER P4-415 (TOP COAT)	5	873	45762
BRUSH ASSEMBLY DENNIBER P4-415 (TOP COAT)	5	873	46635
BRUSH ASSEMBLY DENNIBER P4-415 (TOP COAT)	5	873	47507
BRUSH ASSEMBLY DENNIBER P4-415 (TOP COAT)	5	873	48380
BRUSH ASSEMBLY DENNIBER P4-415 (TOP COAT)	6	1257	49637
BRUSH ASSEMBLY DENNIBER P4-415 (TOP COAT)	6	1257	50893
DOWN DRAFT TABLE P4-416 (TOP COAT)	10	3491	54384
PANEL CLEANER P4-418	6	1257	55641



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<b>P005- SANDING LINE #2 2/1/2010 PLANT 3 DUST COLLECTORS.XLS SANDING LINE #2</b> <b>Dust Collection Sizes and Reading</b>			
<b>For:</b>	<b>SANDING MACHINES LINE #2</b>		
<b>EPA ID#</b>	<b>P005</b>		
<b>KMC Asset #</b>	<b>P3-12740</b>		
Date: 02/09	KraftMaid Design Velocity =	5800	
Equipment:	Running Total for 5800 V		
HF37 200 HP 197 BHP 874 RPM Fan Inlet 37"	48000 MAX CFM @ 5800 FPM		
48000 Max CFM @ 5800fpm 12.5" SP	<b>53145</b>		
	Size of pipe (inches)	Amount of CFM	Running Total CFM in Pipe
Sanding Line #2 LSM 8 3-Head	10	3163	3163
Sanding Line #2 LSM 8 3-Head	10	3163	6327
Sanding Line #2 LSM 8 3-Head	8	2025	8351
Sanding Line #2 LSM 8 3-Head	7	1550	9901
Sanding Line #2 LSM 8 3-Head	6	1139	11040
Sanding Line #2 LSM 8 3-Head	6	1139	12179
Sanding Line #2 Gyro Fladder	8	2025	14204
Sanding Line #2 Gyro Fladder	8	2025	16228
Sanding Line #2 LSM 8 5-Head	10	3163	19391
Sanding Line #2 LSM 8 5-Head	10	3163	22555
Sanding Line #2 LSM 8 5-Head	8	2025	24579
Sanding Line #2 LSM 8 5-Head	7	1550	26129
Sanding Line #2 LSM 8 5-Head	7	1550	27680
Sanding Line #2 LSM 8 5-Head	7	1550	29230
Sanding Line #2 LSM 8 5-Head	6	1139	30368
Sanding Line #2 LSM 8 5-Head	6	1139	31507
Sanding Line #2 LSM 8 5-Head	4	506	32013
Sanding Line #2 LSM 8 5-Head	4	506	32520
Sanding Line #2 LSM8	8	2025	34544
Sanding Line #2 LSM8	6	1139	35683
Sanding Line #2 LSM8	6	1139	36822
Sanding Line #2 LSM8	6	1139	37961
Sanding Line #2 LSM8	6	1139	39099
Sanding Line #2 LSM8	6	1139	40238
Sanding Line #2 Gyro Fladder	8	2025	42263
Sanding Line #2 Gyro Fladder	8	2025	44287
Sanding Line #2 EA4	6	1139	45426
Sanding Line #2 EA4	6	1139	46565
Sanding Line #2 EA4	6	1139	47704
Sanding Line #2 EA4	4	506	48210
Sanding Line #2 EA4	4	506	48716
Molding Cell Saw	4	506	49222
Molding Cell Saw	4	506	49728
Sanding Line Repair Table	6	1139	50867
Sanding Line Repair Table	6	1139	52006
Sanding Line Repair Table	6	1139	53145



<b>P006- SANDING LINE #1 2/1/2010 PLANT 3 DUST COLLECTORS.XLS SANDING LINE #1</b> <b>Dust Collection Sizes and Reading</b>			
<b>For:</b>	<b>SANDING MACHINES LINE #1</b>		
<b>EPA ID#</b>	<b>P006</b>		
<b>KMC Asset #</b>	<b>P3-12741</b>		
Date: 02/09	KraftMaid Design Velocity =	5800	
Equipment:	Running Total for 5800 V		
HF37 200 HP 197 BHP 874 RPM Fan Inlet 37"	48000 MAX CFM @ 5800 FPM		
48000 Max CFM @ 5800fpm 12.5" SP	<b>48716</b>		
	Size of pipe (inches)	Amount of CFM	Running Total CFM in Pipe
Sanding Line #1 LSM 8 3-Head	10	3163	3163
Sanding Line #1 LSM 8 3-Head	10	3163	6327
Sanding Line #1 LSM 8 3-Head	8	2025	8351
Sanding Line #1 LSM 8 3-Head	7	1550	9901
Sanding Line #1 LSM 8 3-Head	6	1139	11040
Sanding Line #1 LSM 8 3-Head	6	1139	12179
Sanding Line #1 Gyro Fladder	8	2025	14204
Sanding Line #1 Gyro Fladder	8	2025	16228
Sanding Line #1 LSM 8 5-Head	10	3163	19391
Sanding Line #1 LSM 8 5-Head	10	3163	22555
Sanding Line #1 LSM 8 5-Head	8	2025	24579
Sanding Line #1 LSM 8 5-Head	7	1550	26129
Sanding Line #1 LSM 8 5-Head	7	1550	27680
Sanding Line #1 LSM 8 5-Head	7	1550	29230
Sanding Line #1 LSM 8 5-Head	6	1139	30368
Sanding Line #1 LSM 8 5-Head	6	1139	31507
Sanding Line #1 LSM 8 5-Head	4	506	32013
Sanding Line #1 LSM 8 5-Head	4	506	32520
Sanding Line #1 LSM8	8	2025	34544
Sanding Line #1 LSM8	6	1139	35683
Sanding Line #1 LSM8	6	1139	36822
Sanding Line #1 LSM8	6	1139	37961
Sanding Line #1 LSM8	6	1139	39099
Sanding Line #1 LSM8	6	1139	40238
Sanding Line #1 Gyro Fladder	8	2025	42263
Sanding Line #1 Gyro Fladder	8	2025	44287
Sanding Line #1 EA4	6	1139	45426
Sanding Line #1 EA4	6	1139	46565
Sanding Line #1 EA4	6	1139	47704
Sanding Line #1 EA4	4	506	48210
Sanding Line #1 EA4	4	506	48716



<b>P007- HINGING 2/1/2010</b> PLANT 3 DUST COLLECTORS.XLS HINGING <b>Dust Collection Sizes and Reading</b>			
<b>For:</b>	Hinging Line		
<b>EPA ID#</b>	P007		
<b>KMC Asset #</b>	P3-20879		
Date: 02/09	KraftMaid Design Velocity =	5200	
Equipment:	Running Total for 5200 V		
HF37 150 HP 142 BHP 801 RPM Fan Inlet 37"	39400 MAX CFM @ 5200 FPM		
39400 Max CFM @ 5200 fpm OV 12" SP	32616		
	Size of pipe (inches)	Amount of CFM	Running Total CFM in Pipe
Hinge Cell #3 EZR Halfmoon Drill	4	454	454
Hinge Cell #3 EZR Cup Drill	4	454	908
Hinge Cell #3 EZR Snake Eyes Drill	4	454	1361
Hinge Cell #3 Bumper Drill	4	454	1815
Hinge Cell #3 Cup Hinge Drill	4	454	2269
Drill Front Cell Bumper Drill	2	113	2382
Mission Oak Cell Table Drill	2	113	2496
Mission Oak Cell Table Drill	2	113	2609
Mission Oak Cell Table Drill	2	113	2723
Mission Oak Cell Table Drill	4	454	3176
Pine Cell EZR Snake Eyes Drill	4	454	3630
Pine Cell EZR Bumper Drill	4	454	4084
Pine Cell EZR Pine EZR Drill	4	454	4538
Pine Cell Bumper Drill	3	255	4793
Pine Cell Bumper Drill	4	454	5247
End Panel Cell Whirlwind Sander	5	709	5956
End Panel Cell Delta Shaper	6	1021	6977
End Panel Cell Back Groover	0	0	6977
End Panel Cell Delta Table Saw	5	709	7686
KSMC Cell KSMC Drill	4	454	8140
KSMC Cell KSMC Drill	4	454	8593
KSMC Cell Bumper Drill	4	454	9047
Hinge Cell #4 EZR Cup Drill	4	454	9501
Hinge Cell #4 EZR Halfmoon Drill	4	454	9955
Hinge Cell #4 EZR Snake Eyes Drill	3	255	10210
Hinge Cell #4 Cup Hinge Drill	4	454	10664
Hinge Cell #4 Bumper Drill	3	255	10919
Hinge Cell #5 EZR Halfmoon Drill	4	454	11373
Hinge Cell #5 EZR Cup Drill	4	454	11827
Hinge Cell #5 EZR Snake Eyes Drill	4	454	12280
Hinge Cell #5 Cup Hinge Drill	4	454	12734
Hinge Cell #5 Bumper Drill	3	255	12989
Hinge Cell #6 EZR Halfmoon Drill	4	454	13443
Hinge Cell #6 EZR Cup Drill	4	454	13897
Hinge Cell #6 EZR Snake Eyes Drill	4	454	14351
Hinge Cell #6 Cup Hinge Drill	4	454	14805
Hinge Cell #6 Bumper Drill	4	454	15258
Hinge Cell #7 EZR Halfmoon Drill	4	454	15712
Hinge Cell #7 EZR Cup Drill	4	454	16166
Hinge Cell #7 EZR Snake Eyes Drill	4	454	16620
Hinge Cell #7 Cup Hinge Drill	4	454	17074
Hinge Cell #7 Bumper Drill	3	255	17329
Hinge Cell #8 EZR Halfmoon Drill	4	454	17783
Hinge Cell #8 EZR Cup Drill	4	454	18236
Hinge Cell #8 EZR Snake Eyes Drill	4	454	18690
Hinge Cell #8 Cup Hinge Drill	4	454	19144



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Hinge Cell #8 Bumper Drill	4	454	19598
Hinge Cell #1 EZR Halfmoon Drill	4	454	20051
Hinge Cell #1 EZR Cup Drill	4	454	20505
Hinge Cell #1 EZR Snake Eyes Drill	3	255	20760
Hinge Cell #1 Cup Hinge Drill	4	454	21214
Hinge Cell #1 Bumper Drill	4	454	21668
Hinge Cell #2 EZR Halfmoon Drill	4	454	22122
Hinge Cell #2 EZR Cup Drill	4	454	22576
Hinge Cell #2 EZR Snake Eyes Drill	3	255	22831
Hinge Cell #2 Cup Hinge Drill	4	454	23285
Hinge Cell #2 Bumper Drill	4	454	23738
Expedite Cell Cup Hinge Drill	4	454	24192
Expedite Cell Cup Hinge Drill	4	454	24646
Expedite Cell EZR Cup Hinge Drill	4	454	25100
Expedite Cell EZR Cup Hinge Drill	4	454	25554
Expedite Cell EZR Snake Eyes Drill	3	255	25809
Expedite Cell Cup Hinge Drill	4	454	26263
Expedite Cell Bumper Drill	4	454	26716
Sanding Line #2 2-Head Sander	8	1815	28531
Sanding Line #2 2-Head Sander	8	1815	30347
Sanding Line #2 2-Head Sander Cosma	10	2836	33183
Sanding Line #2 3-Head Sander	8	1815	34998
Sanding Line #2 3-Head Sander	8	1815	36813
Sanding Line #2 3-Head Sander	8	1815	38628
Sanding Line #2 Crossgrain Sander	7	1390	40018
Sanding Line #2 Crossgrain Sander	7	1390	41408
Sanding Line #2 Crossgrain Sander	7	1390	42797
Sanding Line #2 Crossgrain Sander	7	1390	44187
Sanding Line #2 Vacuum Blower	12	4084	32616

<b>P008 – JIT DOOR CELL 7/16/2013 PLANT 3 DUST COLLECTORS.XLS JIT DOOR CELL</b>			
<b>Dust Collection Sizes and Reading</b>			
<b>For:</b>	<b>JIT DOOR CELL</b>		
<b>EPA ID#</b>	<b>P008</b>		
<b>KMC Asset #</b>	<b>P3-26579</b>		
Date: 07/2013	KraftMaid Design Velocity =	5200	
Equipment Specification:		Running Total for 5200 V	
HBCF 52 150 HP 142 BHP 1225 RPM	Permitted 42500 cfm	<b>36019</b>	
42,500 Max CFM @ 5200 fpm OV 13" SP			
Unit is not capable of exceeding max CFM of current fan size	Size of pipe (inches)	Amount of CFM	Running Total CFM in Pipe
Molder	6	1021	1021
Molder	6	1021	2042
Molder	6	1021	3063
Molder	6	1021	4084
Molder	6	1021	5105
Molder	6	1021	6126
Whirlwind Sander (moved from P007 12/2012)	5	709	6835
Delta Shaper (moved from P007 12/2012)	5	709	7544
Saw Stop Table Saw (moved from P007 12/2012)	5	709	8253
OptiSand Brushes	4	454	8707
OptiSand Brushes	4	454	9161
OptiSand Brushes	4	454	9614
OptiSand Brushes	4	454	10068
OptiSand Brushes	4	454	10522



OptiSand Brushes	4	454	10976
OptiSand Brushes	4	454	11430
OptiSand Brushes	4	454	11883
Dimpter Chop Saw S90	6	1021	12904
Weeke 250	8	1815	14720
Martin Shaper	5	709	15429
Altendof Table Saw	5	709	16138
Holzma Saw	8	1815	17953
Holzma Saw	6	1021	18974
Biesse Rover C6 #1 North	10	2836	21810
Biesse Rover C6 #1 North	3	255	22065
Heeseman Sander	8	1815	23880
Heeseman Sander	6	1021	24901
Heeseman Sander	10	2836	27737
Heeseman Sander	10	2836	30573
Heeseman Sander	7	1390	31963
Heeseman Sander	7	1390	33353
Heeseman Sander	7	1390	34743
Heeseman Sander	6	1021	35764
Biesse Rover C6 #2 South	3	255	36019

<b>P009 – JIT DOOR CELL 7/16/2013 PLANT 3 DUST COLLECTORS.XLS JIT DOOR CELL</b> <b>Dust Collection Sizes and Reading</b>			
<b>For:</b>		<b>JIT DOOR CELL</b>	
<b>EPA ID#</b>		<b>P009</b>	
<b>KMC Asset #</b>		<b>P3-26578</b>	
Date: 07/2013		KraftMaid Design Velocity = 5200	
Equipment Specification:		Running Total for 5200 V	
HBCF 52 150 HP 142 BHP 1225 RPM		Permitted 42500 cfm	
42,500 Max CFM @ 5200 fpm OV 13" SP		33268	
Unit is not capable of exceeding max CFM of current fan size		Size of pipe (inches)	Running Total CFM in Pipe
1	Friulmac T-Rex	5	709
2	Friulmac T-Rex	5	709
3	Friulmac T-Rex	5	709
4	Friulmac T-Rex	5	709
5	Biesse Rover C6 #2 South	10	2836
6	Heeseman Sander	8	1815
7	Heeseman Sander	6	1021
8	Heeseman Sander	10	2836
9	Heeseman Sander	10	2836
10	Heeseman Sander	7	1390
11	Heeseman Sander	7	1390
12	Heeseman Sander	7	1390
13	Heeseman Sander	6	1021
14	Biesse Rover C6 #4 South	10	2836
15	Biesse Rover C6 #4 South	3	255
16	Biesse Rover C6 #4 South	10	2836
17	Biesse Rover C6 #3 South	3	255
18	Weeke BHC 555 Installed 3/25/2011	10	2836
19	Stegherr Installed 4/2010	6	1021
20	Blum Hinger	4	454
21	Blum Hinger	4	454
22	Dimpter Chop Saw S35	6	1021



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23	Accusystems MMTX	6	1021	32360
24	Accusystems MMTX	4	454	32814
25	Accusystems MMTX	4	454	33268