**AIR POLLUTION CONTROL OPERATION PERMIT RENEWAL**

EI FACILITY NO: 265006830 OPERATION PERMIT NO.: 265006830-P10

TYPE: Renewal of Part 70 source operation permit number 265006830-P01

In compliance with the provisions of Chapter 285, Wis. Stats., and Chapters NR 400 to NR 499, Wis. Adm. Code,

Name of Source: USG Interiors, LLC

Street Address: 208 Adeline St,
Walworth, Walworth County, Wisconsin

Responsible Official, & Title: Michael D. Spreitzer, Plant Manager

is authorized to operate Manufacture of acoustical ceiling tile, described in the plans and specifications dated June 26, 2013; July 3, 2013; July 10, 2013; July 16, 2013; July 29, 2013; August 7, 2013; August 12, 2013; October 28, 2013; November 20, 2013; November 21, 2013; December 4, 2013; December 18, 2013; January 6, 2014; January 7, 2014; and January 14, 2014 and in conformity with the conditions herein.

**This renewed operation permit expires on December 23, 2019 [Section NR 407.09(1)(b)1., Wis. Adm. Code].**

**A renewal application must be submitted at least 6 months, but not more than 18 months, prior to the expiration date [ss. 285.66(3)(a), Wis. Stats. and NR 407.04(2), Wis. Adm. Code].**

No permittee may continue operation of a source after the operation permit expires, unless the permittee submits a timely and complete application for renewal of the permit. If a timely and complete application for renewal is submitted, the existing operation permit will not expire until the renewal application has been finally acted upon by DNR. [§§ 227.51(2), Wis. Stats. and NR 407.04(2), Wis. Adm. Code].

Conditions of the operation permit marked with an asterisk (*) have been created outside of the Wisconsin's federally approved State Implementation Plan (SIP) and are not federally enforceable.

This authorization requires compliance by the permit holder with the emission limitations, monitoring requirements and other terms and conditions set forth in Parts I and II hereof.

Dated at Milwaukee, Wisconsin /s/ December 23, 2014

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By /s/ Daniel Schramm
Daniel H. Schramm
Air Management Supervisor – Southeast Region

## PREAMBLE TO OPERATION PERMIT

An Asterisk (*) throughout this document denotes legal authority, limitations and conditions which are not federally enforceable [Section NR 407.09(3)(b), Wis. Adm. Code.].

### Historical Summary of Permits/Orders Issued to the Facility.

**The following construction permits, orders, etc., are adopted, under ss. 285.65(3), Wis. Stats., and NR 407.09(2)(d), Wis. Adm. Code, by permit 265006830-P10 which then becomes the primary enforceable document:**

| Permit/Order Number | Issuance Date | Sources Covered & Description[1] | Permit Status |
|---|---|---|---|
| 86-SJK-016 | 07/29/1986 | Installation of No. 2 Acoustical Ceiling Tile Line (Processes P35, P36, P37, and P38) and modification of Process P39. | Adopted by Permit 265006830-P01, revised by 07-MCS-323 |
| 86-SJK-106-OP | 07/25/1990 | Initial operation of No. 2 Acoustical Ceiling Tile Line and Process P39. | Adopted by Permit 265006830-P01, revised by 07-MSC-323 |
| 92-JSB-235 | 04/16/1992 | Construction and initial operation of two filters (Stacks S21 and S24) on the mineral wool blow chamber. | Adopted by Permit 265006830-P01, revised by 07-MSC-323 |
| 92-JSB-235-OP | 04/16/1992 | Operation of two filters on the mineral wool blow chamber (Process P31). | Adopted by Permit 265006830-P01, revised by 07-MCS-323 |
| 94-JSB-255 Exemption | 06/03/1994 | Installation of a ball clay storage silo. | Included in Permit 265006830-P01 |
| 96-JSB-244 Exemption | 06/04/1996 | Raising the elevation of the Kaolin clay day bin and accompanying bin vent such that the bin vent will vent through the building roof. | Included in Permit 265006830-P01 |
| 98-EJD-254 Exemption | 11/15/1998 | Addition of six kiln zone burners (5.6 MMBtu/hr each) onto Line No.1 drying line kiln (Process P32). | Included in Permit 265006830-P01 |
| 00-RSG-274 Exemption | 10/24/2000 | Addition of a drum filter to the blow chamber (Process P31). | Included in Permit 265006830-P01 |
| 01-RSG-313 Exemption | 10/18/2001 | Installation of two 1.2 MMBtu/hr natural gas fired convection ovens (Processes P34A and P38A). | Included in Permit 265006830-P01 |
| 02-RSG-300 Exemption | 01/23/2002 | Installation of a natural gas fired boiler (B10). | Included in Permit 265006830-P01 |
| 03-RSG-188 Exemption | 07/24/2003 | Installation of a 250 cfm indoor receiver for capturing dust for reuse. | Included in Permit 265006830-P01 |
| 04-RSG-094 Exemption | 04/20/2004 | Removal of Number 2 dry filter (C02) from Process P31. | Included in Permit 265006830-P01 |
| 07-MCS-323 | 07/10/2008 | This permit was issued concurrently with 265006830-P01 to revise several limitations in the previous construction permits. | Adopted by Permit 265006830-P01 |
| 265006830-P01 | 07/10/2008 | Total Facility. | Renewed by 265006830-P10 |
| 01-MCS-061-EXM | 04/02/2010 | Remove No. 1 dry filter and redirect air flow to No. 5 dry filter of Process P31. | Adopted by Permit 265006830-P10 |

**[1] - Total Facility refers to all existing units at the facility at the time of issuance of the permit listed.**

### Stack and Process Index

**Stack S11, Process B10 – 14.3 MMBtu/hr Cleaver Brooks Natural Gas-Fired Boiler.** Installed in 2002. This boiler provides hot water and steam for the moulding lines.

**Stack S12, Process P30, Control Devices C11 and C12 - Mineral Wool Cupola. Installed in 1969.** The maximum throughput is 11.5 ton/hr. This process produces molten mineral from layers of coke, slag and silica. Emissions are controlled by an 8.4MMBtu/hr natural gas thermal oxidizer (C11) in series with a pulse-jet baghouse (C12).

**Stack S13, Process P32 – Line No. 1 Acoustical Tile Dryer.** Installed in 1959 and modified for increased heat capacity in 1998. Emissions are uncontrolled. The maximum heat input is 110 MMBtu/hr. Natural gas is the only fuel.

**Stack S16, Process P39, Control Device C16 – Line No. 1 Mould Cleaning Brushes & Vaculift.** Last modified in1987. After drying, acoustical tiles are removed from the moulding trays by vacuum suction. The used trays are automatically brushed clean in this mould cleaning line prior to reuse. Particulate matter emissions from the vacuum lifts and from the tray cleaning operations are controlled by a pulse-jet baghouse (C16).

**Stack S14, Processes P33 & P34, Control Device C14 – Line No. 1 Finishing (Dimensioning & Spray Paint).** Installed in 1959. The cooled acoustical tiles are trimmed to the appropriate dimensions at the saw/edging station (P33). The surface may be planed and the edges routed. Tiles are then sent through a spray paint station (P34) where tiles are roller conveyed under a series of pump fed spray paint nozzles. Overspray is collected and reused. Particulate matter emissions from the saw/edging station and spray paint station are controlled by pulse-jet baghouses (C14).

**Stack S18, Processes P37 & P38, Control Device C18 – Line No. 2 Finishing (Dimensioning & Spray Paint).** Installed in 1987. The cooled acoustical tiles are trimmed to the appropriate dimensions at the saw/edging station (P37). The surface may be planed and the edges routed. Tiles are then sent through a spray paint station (P38) where tiles are roller conveyed under a series of pump fed spray paint nozzles. Overspray is collected and reused. Particulate matter emissions from the saw/edging station and spray paint station are controlled by pulse-jet baghouses (C18).

**Stack S25, Process P34A – Line No. 1 Finishing Curing Oven.** Installed in 2001. After being spray painted, the panels are cured in one of two natural gas fired convection ovens rated at 1.2 MMBTU/hr each. Emissions are uncontrolled.

**Stack S26, Process P38A – Line No. 2 Finishing Curing Oven.** Installed in 2001. After being spray painted, the panels are cured in one of two natural gas fired convection ovens rated at 1.2 MMBTU/hr each. Emissions are uncontrolled.

**Stacks S21, S22, and S24, Process P31, Control Devices C03, C04, and C05 - Mineral Wool Blow Chamber.** Installed in 1959 and most recent modified in 2010. Molten mineral from the cupola is introduced into a stream of compressed air that passes through a spinning sprocket. This produces mineral wool fibers and waste shot. The fibers are collected on a traveling screen in the blow chamber. Exhaust from the blow chamber travels through one of three dry filters (2 vertical, 1 horizontal) before being emitted to the atmosphere. Fibers collected on these dry filters are returned to the blow chamber for further processing. Collected fibers in the blow chamber are either baled or transported to the acoustical tile manufacturing plant. The maximum throughput is 11.5 tons per hour.

**Stack S30, Process P11 – Spark Ignition Natural Gas Fired Emergency Water Pump.** Installed in November 2012. This unit is used to pump storm water during periods of electricity interruption. It is rated at 97.5 horsepower (hp) to provide 60 kW of electrical power. It was ordered in November 2011 and manufactured in December 2011. This unit is located and vents inside the building. Emissions are uncontrolled.

**Insignificant Emissions Units.**

The following units are considered insignificant and are listed in the application but are exempt from being further included under s. NR 407.05(4)(c)9.:

Maintenance of Grounds, Equipment, and Buildings (lawn care, painting, etc.)
Boiler, Turbine, and HVAC System Maintenance
Pollution Control Equipment Maintenance
Internal Combustion Engines Used for Warehousing and Material Transport
Fire Control Equipment
Janitorial Activities
Office Activities
Convenience Water Heating
Convenience Space Heating (<5 million Btu/hr burning natural gas)
Fuel Oil Storage Tanks
Demineralization and Oxygen Scavenging of Water for Boilers
Purging of Natural Gas Lines
Sanitary Sewer and Plumbing Venting
Process Emergency and Pressure Relief Vent Systems

The following units are considered insignificant and are listed in the application but are exempt from being further included under s. NR 407.05(4)(c)10.:

Bin Vents
Building Vents
Safety Kleen Parts Cleaners
550 Gallon Diesel Tank
550 Gallon Gasoline Tank
Raw Material Storage Pile
Waste Screening
Coating Manufacturing Operation

**Permit Shield.** Unless precluded by the Administrator of the US EPA, compliance with all emission limitations in this operation permit is considered to be compliance with all emission limitations established under ss. 285.01 to 285.87, Wis. Stats., and emission limitations under the federal clean air act, that are applicable to the source if the permit includes the applicable limitation or if the Department determines that the emission limitations do not apply. The following emission limitations were reviewed in the analysis and preliminary determination and were determined not to apply to this stationary source:

1. Requirements in NR 445.07(1), Wis. Adm. Code, do not apply to emissions from the combustion of group 1 virgin fossil fuels at Processes B10, P32, P34A, P38A, and P11.
2. Requirements in 40 CFR part 63, subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources do not apply to Boiler B10 because it is a natural gas-fired boiler.

**Part I** - The headings for the areas in the permit are defined below. The legal authority for these limitations or methods follows them in [brackets].

**Pollutant** - This area will note which pollutant is being regulated by the permit.

**Limitations** - This area will list all applicable emission limitations that apply to the source, including case-by-case limitations such as Latest Available Control Techniques (LACT), Best Available Control Technology (BACT), or Lowest Achievable Emission Rate (LAER). It will also list any voluntary restrictions on hours of operation, raw material use, or production rate requested by the permittee to limit potential to emit.

**Compliance Demonstration** - The compliance demonstration methods outlined in this area may be used to demonstrate compliance with the associated emission limit or work practice standard listed under the corresponding **Limitations** column. The compliance demonstration area contains limits on parameters or other mechanisms that will be monitored periodically to ensure compliance with the limitations. The requirement to test as well as initial and periodic test schedules, if testing is required, will be stated here. Notwithstanding the compliance determination methods which the owner or operator of a sources is authorized to use under ch. NR 439, Wis. Adm. Code, the Department may use any relevant information or appropriate method to determine a source's compliance with applicable emission limitations.

**Reference Test Methods, Recordkeeping, and Monitoring Requirements** - Specific US EPA Reference test methods or other approved test methods will be contained in this area and are the methods that must be used whenever testing is required. A reference test method will be listed even if no testing is immediately required. Also included in this area are any recordkeeping requirements and their frequency and reporting requirements. Accuracy of monitoring equipment shall meet, at a minimum, the requirements of s. NR 439.055(3) and (4), Wis. Adm. Code, as specified in Part II of this permit.

**Condition Type** - This area will specify other conditions that are applicable to the entire facility that may not be tied to one specific pollutant.

**Conditions** - Specific conditions usually applicable to the entire facility or compliance requirements.

**PART II** - This section contains the general limitations that the permittee must abide by. These requirements are standard for most sources of air pollutants so they are included in this section with every permit.

**PART III** – This section contains the requirements of 40 CFR part 64 Compliance Assurance Monitoring (CAM) that the permittee must abide by.

## Part I

**A. Process B10, Stack S11 – One 14.3 MMBtu/hr Cleaver Brooks Boiler Fired With Natural Gas; Constructed in 2002; Equipped With Low $NO_x$ Burner.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| 1. Particulate Matter ($PM/PM_{10}$) | **(1)** No person may cause, allow or permit the emission of particulate matter to the ambient air from any fuel burning installation in excess of 0.15 lb/MMBtu. **[s. NR 415.06(2)(a)., Wis. Adm. Code]**<br><br>**(2)** The boiler may emit up to, but not more than 0.20 lb/hr of particulate matter. **[s. 285.65(3) and (7), Wis. Stats.; s. NR 404.04, Wis. Adm. Code]** | **(1)** The permittee shall use only natural gas, as defined in s. NR 440.207(2)(q), Wis. Adm. Code, to fire the boilers.[1] **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for non-fugitive particulate emissions, including back-half, the owner or operator of the source shall use Method 5 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine non-fugitive particulate emissions, and Method 202 to determine condensible particulate emissions (back-half). **[ss. NR 407.09(1)(c)1.a. & (4)(a)1., NR 439.06(1) and NR 439.07(8)(b), Wis. Adm. Code]**<br><br>**(2)** The permittee shall retain monthly records describing the fuels burned. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. NR 439.04(1)(d), and NR 440.207(9)(g), Wis. Adm. Code]** |
| 2. Visible Emissions (VE) | **(1)** No owner or operator may cause or allow emissions of shade or density greater than number 1 of the Ringlemann chart or 20% opacity except as allowed under s. NR 431.05(1) and (2), Wis. Adm. Code. **[s. NR 431.05, Wis. Adm. Code]** | **(1)** The permittee shall use the requirement in I.A.1.b.(1), above, to demonstrate compliance with the limitation in I.A.2.a.(1). **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for visible emissions, the owner or operator of the source shall use Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine compliance with a visible emission limitation. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(9)(a)1., Wis.** |

[1] Limiting the types of fuels used is an adequate method of demonstrating compliance with the particulate matter emission limit because the theoretical emissions while burning natural gas are less than the allowable limit (0.15 lb/MMBtu). The theoretical emissions are calculated using AP-42 emission factors. Assuming a standard heating value for natural gas (1,000 Btu/$ft^3$, AP-42), the emission factor, when converted to pounds per million Btu of heat input, is less than the allowable limit [7.6 lb/mm$ft^3$ ÷ (1,000 Btu/$ft^3$) x million $ft^3$/1,000,000 $ft^3$ x 1,000,000 Btu/million Btu) = 0.0076 lb/MMBtu].

**A. Process B10, Stack S11 – One 14.3 MMBtu/hr Cleaver Brooks Boiler Fired With Natural Gas; Constructed in 2002; Equipped With Low $NO_x$ Burner.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | **Adm. Code]**<br>**(2)** The permittee shall retain monthly records describing the fuels burned. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]** |
| 3. Nitrogen Oxides ($NO_x$) | **(1)** The boiler may not emit more than 1,073 pounds of nitrogen oxide emissions per month, averaged over any 12 consecutive months. **[s. 285.65(3) and (7), Wis. Stats.; s. NR 404.04, Wis. Adm. Code]** | **(1)** The permittee shall use the requirement in I.A.1.b.(1), above, to demonstrate compliance with the limitation in I.A.3.a.(1). **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br><br>**(2)** Within 15 business days after each month, the permittee shall compute and record the following information for the boiler.<br>(a) The amount of natural gas used in the previous month, in millions of cubic feet<br>(b) The amount of $NO_x$ emitted (in pounds) for the previous month using the following equation[2]:<br>$E_{NOx} = 0.75 \times NG \times EF_{NG}$<br>Where<br>$E_{NOx}$ = total amount of $NO_x$ emitted in pounds per month<br>NG = amount of natural gas (in units of MMCF) used per month<br>$EF_{NG}$ = $NO_x$ emission factor for natural gas combustion<br>(c) the amount of $NO_x$ emitted (in pounds per month) averaged over the last 12 consecutive months.<br>**[s. NR 407.09(4)(a)(1), Wis. Adm. Code; s.** | **(1)** Whenever any testing is required by the department for nitrogen compound emissions, the owner or operator of the source shall use Method 7, 7A, 7B, 7C, 7D or 7E in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine compliance with a nitrogen compound emission limitation. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(6)(a), Wis. Adm. Code]**<br><br>**(2)** The permittee shall maintain monthly records of the information required in I.A.3.b.(2). **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]** |

[2] Note: This equation assumes the Ambient Ratio Method national annual default $NO_2$ to NOx ratio of 0.75.

**A. Process B10, Stack S11 – One 14.3 MMBtu/hr Cleaver Brooks Boiler Fired With Natural Gas; Constructed in 2002; Equipped With Low $NO_x$ Burner.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | 285.65(3), Wis. Stats.] | |

**B. Process P30, Control Device(s) C11 and C12, Stack S12 – Mineral Wool Cupola. Maximum Heat Input: 33.21 MMBtu/hr. Controlled By an Afterburner (C11) In Series With a Baghouse (C12). Constructed or Modified in 1969.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| 1. Particulate Matter ($PM/PM_{10}$) | **(1)** The cupola may emit up to, but not more than 0.25 pounds of particulate matter per 1000 pounds of exhaust gas. **[s. NR 415.05(4), Wis. Adm. Code]**<br><br>**(2)** The cupola may emit up to, but not more than 1.50 lb/hr of particulate matter[3].[4] **[07-MCS-323; s. 285.65(3) and (7), Wis. Stats.; s. NR 404.04, Wis. Adm. Code]** | **(1)** The permittee shall use only coke and/or natural gas to fire the cupola. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br><br>**(2)** The permittee shall use the baghouse/fabric filter dust collector when the cupola is fired. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br><br>**(3)** The permittee shall monitor the pressure drop across the baghouse/fabric filter dust collector once for every 8 hours of source operation or once per day, whichever yields the greater number of measurements. The pressure drop across the baghouse/fabric filter shall be maintained between 0.5 and 10 inches of water column, or a range approved by the department, in writing. **[ss. NR 407.09(4)(a)3.b., NR 439.055(1)(a) and (2)(b), Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for non-fugitive particulate emissions, including back-half, the owner or operator of the source shall use Method 5 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine non-fugitive particulate emissions, and Method 202 to determine condensible particulate emissions (back-half). **[ss. NR 407.09(1)(c)1.a. & (4)(a)1., NR 439.06(1) and NR 439.07(8)(b), Wis. Adm. Code]**<br><br>**(2)** The permittee shall retain monthly records describing the fuels burned. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]**<br><br>**(3)** The permittee shall keep records of the pressure drop measurements required under I.B.1.b.(3) for at least 5 years. **[ss. NR 439.04(1)(d) and NR 439.04(2), Wis. Adm. Code]**<br><br>**(4)** The permittee shall perform periodic internal inspections of the baghouse/ fabric filter dust collector to ensure that the control equipment is operating properly. The time |

[3] The permittee elected this emission limit, which is more restrictive than emission limits in I.B.1.a.(1). The air quality impact analysis conducted on November 6, 2007, showed that this emission limit met the ambient air quality standards for particulate matter (PM and $PM_{10}$).
[4] This condition was established in construction permit 07-MSC-323 and supersedes the particulate matter emission limitation for the Mineral Wool Cupola (P30) in construction permit 86-SJK-016.

**B. Process P30, Control Device(s) C11 and C12, Stack S12 – Mineral Wool Cupola. Maximum Heat Input: 33.21 MMBtu/hr. Controlled By an Afterburner (C11) In Series With a Baghouse (C12). Constructed or Modified in 1969.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | interval between internal inspections shall be monthly[5]. These inspections shall include, but not be limited to inspections and maintenance/repair (as necessary) of:<br>a) valves, hatches, dampers, and gaskets for signs of air infiltration;<br>b) bag/filter condition, tension, and signs of clean side dust deposits.<br>**[s. NR 407.09(4)(a)1., Wis. Adm. Code]**<br>**(5)** The permittee shall keep records of all inspections, maintenance or repairs performed on the control devices and associated ductwork and capture hoods. The records shall include the date of any inspection, the findings of the inspection, and any action taken. **[s. NR 439.04(1)(d), Wis. Adm. Code]**<br>**(6)** The pressure drop monitoring device shall be accurate to within 5 percent of the pressure drop being measured or within ± 1 inch of water column, whichever is greater. Each monitoring device shall be calibrated yearly or at a frequency based upon good engineering practice as established by operational history, whichever is more frequent. **[ss. NR 439.055(3)(a), and (4), Wis. Adm. Code]** |
| 2. Visible Emissions (VE) | **(1)** No owner or operator may cause or allow emissions of shade or density greater than number 1 of the Ringlemann chart or 20% opacity except as allowed under s. NR | **(1)** The permittee shall use only coke and/or natural gas to fire the cupola. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br>**(2)** The permittee shall use the baghouse/fabric | **(1)** Whenever any testing is required by the department for visible emissions, the owner or operator of the source shall use Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. |

[5] The permittee identified the frequency of the internal inspections of the baghouse in the Malfunction Prevention and Abatement Plan.

**B. Process P30, Control Device(s) C11 and C12, Stack S12 – Mineral Wool Cupola. Maximum Heat Input: 33.21 MMBtu/hr. Controlled By an Afterburner (C11) In Series With a Baghouse (C12). Constructed or Modified in 1969.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | 431.05(1) and (2), Wis. Adm. Code . **[86-SJK-016; s. NR 431.04(2), Wis. Adm. Code]** | filter dust collector when the cupola is fired. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br><br>**(3)** The permittee shall comply with requirements in I.B.1.b.(3). **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]** | Code, to determine compliance with a visible emission limitation. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(8)(f)1., Wis. Adm. Code]**<br><br>**(2)** The permittee shall retain monthly records describing the fuels burned. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]**<br><br>**(3)** The permittee shall comply with requirements in I.B.1.c.(3) – (6). **[s. NR 407.09(4)(a)1., Wis. Adm. Code]** |
| 3. Sulfur Dioxide ($SO_2$) | **(1)** The cupola may emit up to, but not more than 5.5 pounds of sulfur dioxide per million Btu heat input. **[s. NR 417.07(2)(b), Wis. Adm. Code]** | **(1)** The permittee shall use only coke and/or natural gas to fire the cupola. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br><br>**(2)** The permittee shall keep the records outlined in I.B.3.c.(3). **[s. NR 407.09(4)(a)3.b.]**<br><br>**(3)** The permittee shall perform compliance emission testing of the cupola as follows:<br>(a) Testing shall be conducted every 24 months as long as this permit remains valid.<br><br>(b) Each biennial test shall be performed within 90 days of the anniversary date of the issuance of the permit or within 90 days of an alternate date specified by the department.<br><br>(c) The testing shall be conducted in accordance with the reference test methods in the facility conditions of this permit, and s. NR 439.07, Wis. Adm. Code.<br><br>(d) The permittee may request and the department may approve a waiver from the required biennial testing provided the results of | **(1)** Whenever any testing is required by the department for sulfur dioxide emissions, the owner or operator of the source shall use Method6, 6A, 6B, 6C or 8 in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 484.04(21), Wis. Adm. Code, or any other method approved by the department in writing, to determine compliance with a sulfur dioxide emission limitation. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1., 439.06(2), and 439.07(8)(c) Wis. Adm. Code]**<br><br>**(2)** The permittee shall retain monthly records describing the fuels burned. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]**<br><br>**(3)** The permittee shall keep on file records of the coke supplier's analysis for each shipment of coke received. Each analysis shall include:<br>(a) The sulfur content of the coke, expressed as a percentage by weight.<br>(b) The Btu value of the coke, in Btu per |

**B. Process P30, Control Device(s) C11 and C12, Stack S12 – Mineral Wool Cupola. Maximum Heat Input: 33.21 MMBtu/hr. Controlled By an Afterburner (C11) In Series With a Baghouse (C12). Constructed or Modified in 1969.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | the most recently completed biennial test demonstrate that the sulfur dioxide emissions are 50 percent or less of the applicable limitation.<br><br>(e) No periodic compliance emission testing for sulfur dioxide emissions is required for any affected emission point which performs periodic fuel sampling and analysis under s. NR 439.085, according to s. NR 439.08, Wis. Adm. Code.<br><br>**[ss. NR 439.06(2), 439.07, 439.075(2)(a)2, 439.075(3)(b), 439.075(4)(1)(b) and 407.09(4)(a)1, Wis. Adm. Code]**<br><br>**(4)** Periodic fuel sampling and analysis for coke shall be performed in accordance with the reference test methods listed in the facility conditions of this permit. **[s. NR 439.08(3), Wis. Adm. Code]**<br><br>**(5)** The permittee shall perform compliance emission testing[6] of the cupola (Stack S12) within 180 days of issuance of this permit. The permittee may request and the department may approve in writing an extension to conduct the testing. The permittee shall provide to the department a written description of the event and a rationale for attributing the delay in testing. **[s. 285.65(3), Wis. Stats., and ss. NR 407.09(4)(a)1. and NR 439.07, Wis. Adm.** | pound. **[ss. NR 439.04(1)(a), 439.085(4) and 407.09(1)(c)1., Wis. Adm. Code]**<br><br>**(4)** The permittee shall retain a copy of the results from each compliance emission test or fuel sampling and analysis performed pursuant to the compliance demonstration in I.B.3.b.(3) and (4) for at least 5 years. **[ss. NR 439.04(1)(a) and (2), and 407.09(1)(c)2, Wis. Adm. Code]** |

[6] The purpose of this compliance emission testing is to verify the estimated emission rates of sulfur dioxide from Stack S12 and demonstrate that sulfur dioxide emissions from Stack S12 do not cause exccedance of the NAAQS for sulfur dioxide.

**B. Process P30, Control Device(s) C11 and C12, Stack S12 – Mineral Wool Cupola. Maximum Heat Input: 33.21 MMBtu/hr. Controlled By an Afterburner (C11) In Series With a Baghouse (C12). Constructed or Modified in 1969.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | **Code]** | |
| 4. Carbon Monoxide (CO) | **(1)** The cupola may emit up to, but not more than 250 lb/hr of carbon monoxide. **[s. 285.65(3) and (7), Wis. Stats., s. NR 404.04, Wis. Adm. Code]** | **(1)** The permittee shall use only coke and/or natural gas to fire the cupola. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br>**(2)** The permittee shall use the afterburner (incinerator) to control emissions whenever the cupola is fired. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br>**(3)** The permittee shall maintain the temperature in the combustion chamber of the thermal oxidizer to be no less than 1,300 degrees Fahrenheit, averaged over any one hour operation period. **[ss. NR 407.09(4)(a)3.b., and NR 439.055(1)(d), Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for carbon monoxide emissions, the owner or operator of the source shall use Method 10, 10A or 10B in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 484.04(21), Wis. Adm. Code, to determine compliance with a carbon monoxide emissions. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(4), Wis. Adm. Code]**<br>**(2)** The permittee shall retain monthly records describing the fuels burned in the cupola. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]**<br>**(3)** The permittee shall maintain an interlock system on the cupola. This system shall allow operation of the cupola only if the temperature of the afterburner is at or above the interlock set point (ISP). The ISP shall be no less than 1,300 degrees Fahrenheit. The department shall be notified if the interlock system interrupts the normal operation of the cupola.**[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]**<br>**(4)** The permittee shall install, calibrate, maintain, and operate a monitoring device to continuously measure the temperature of the combustion chamber of the thermal oxidizer. Temperature in the combustion chamber shall be recorded, at minimum, once every 15 minutes of source operation. **[ss. NR 407.09(4)(a)3.b., NR 439.055(1)(d),** |

**B. Process P30, Control Device(s) C11 and C12, Stack S12 – Mineral Wool Cupola. Maximum Heat Input: 33.21 MMBtu/hr. Controlled By an Afterburner (C11) In Series With a Baghouse (C12). Constructed or Modified in 1969.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | **and NR 439.055(2)(a), Wis. Adm. Code]**<br>**(5)** The temperature monitoring device used to monitor temperature in the combustion chamber of the thermal oxidizer shall have an accuracy of 0.5 percent of the temperature being measured in degrees Fahrenheit or ± 5°F of the temperature being measured, or the equivalent in degrees Celsius (centigrade), whichever is greater. Each monitoring device shall be calibrated yearly or at a frequency based upon good engineering practice as established by operational history, whichever is more frequent. **[ss. NR 439.055(3)(a), and (4), Wis. Adm. Code]** |
| 5. Volatile Organic Compounds (VOC) | **(1)** The permittee shall utilize latest available control techniques and operating practices (LACT) to minimize VOC emissions. **[s. NR 424.03(2)(c), Wis. Adm. Code]** | **(1)** The permittee shall use only coke and/or natural gas to fire the cupola. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br>**(2)** The permittee shall use the afterburner (incinerator) to control emissions whenever the cupola is fired. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br>**(3)** The permittee shall maintain the temperature in the combustion chamber of the thermal oxidizer to be no less than 1,300 degrees Fahrenheit, averaged over any one hour operation period. **[ss. NR 407.09(4)(a)3.b., and NR 439.055(1)(d), Wis. Adm. Code]** | **(1)** Whenever compliance emission testing is required, US EPA Method 18, 25, 25A or 25B in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, shall be used to determine organic compound emission concentration or emission rate. **[s. NR 439.06(3)(a), Wis. Adm. Code]**<br>**(2)** The permittee shall retain monthly records describing the fuels burned in the cupola. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]**<br>**(3)** The permittee shall maintain an interlock system on the cupola. This system shall allow operation of the cupola only if the temperature of the afterburner is operating at or above the interlock set point (ISP). The ISP shall be no less than 1,300 degrees Fahrenheit. The department shall be notified if the interlock |

**B. Process P30, Control Device(s) C11 and C12, Stack S12 – Mineral Wool Cupola. Maximum Heat Input: 33.21 MMBtu/hr. Controlled By an Afterburner (C11) In Series With a Baghouse (C12). Constructed or Modified in 1969.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | system interrupts the normal operation of the cupola. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]**<br>(4) The permittee shall install, calibrate, maintain, and operate a monitoring device (e.g., thermocouple and chart recorder) to continuously measure the temperature of the combustion chamber of the thermal oxidizer. Temperature in the combustion chamber shall be recorded, at minimum, every 15 minutes. **[ss. NR 407.09(4)(a)3.b., NR 439.055(1)(d), and NR 439.055(2)(a), Wis. Adm. Code]**<br>(5) The temperature monitoring device used to monitor temperature in the combustion chamber of the thermal oxidizer shall have an accuracy of 0.5 percent of the temperature being measured in degrees Fahrenheit or ± 5°F of the temperature being measured, or the equivalent in degrees Celsius (centigrade), whichever is greater. Each monitoring device shall be calibrated yearly or at a frequency based upon good engineering practice as established by operational history, whichever is more frequent. **[ss. NR 439.055(3)(a), and (4), Wis. Adm. Code]** |
| 6. State Hazardous Air Pollutants * | **(1)** The permittee shall comply with requirements in I.ZZZ.6.a. **[s. 285.65(7), Wis. Stats., ss. NR 445.07 and NR 445.08, Wis. Adm. Code]** | **(1)** The permittee shall comply with requirements in I.ZZZ.6.b. to demonstrate compliance. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code] *** | (1) Whenever any hazardous air pollutant concentration or emission rate testing of any material is required for demonstrating compliance, the permittee shall use a test method and testing protocol approved by either the US EPA or the Department. **[ss. NR 407.09(1)(c)1.a. & 4(a)1. and NR 439.06(8), Wis. Adm. Code]***<br>(2) The permittee shall comply with |

**B. Process P30, Control Device(s) C11 and C12, Stack S12 – Mineral Wool Cupola. Maximum Heat Input: 33.21 MMBtu/hr. Controlled By an Afterburner (C11) In Series With a Baghouse (C12). Constructed or Modified in 1969.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | requirements in I.ZZZ.6.c. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1., and NR 439.04(1)(d), Wis. Adm. Code]*** |

**C. Process P32, Stack S13 – One 110 MMBtu/hr Acoustical Tile Dryer Fired with Natural Gas; Constructed Or Last Modified in 1998; Emissions are uncontrolled.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| 1. Particulate Matter ($PM/PM_{10}$) | **(1)** No person may cause, allow or permit the emission of particulate matter to the ambient air from any fuel burning installation in excess of 0.15 pounds per million Btu heat input. **[s. NR 415.06(2)(a), Wis. Adm. Code]**<br><br>**(2)** The No. 1 tile dryer may emit up to, but not more than 1.25 lb/hr of particulate matter.[7] **[s. 285.65(3) and (7), Wis. Stats.; s. NR 404.04, Wis. Adm. Code]** | **(1)** The permittee shall use only natural gas, as defined in s. NR 400.02(104), Wis. Adm. Code, to fire the dryer.[8] **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for non-fugitive particulate emissions, including back-half, the owner or operator of the source shall use Method 5 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine non-fugitive particulate emissions, and Method 202 to determine condensible particulate emissions (back-half). **[ss. NR 407.09(1)(c)1.a. & (4)(a)1., NR 439.06(1) and NR 439.07(8)(b), Wis. Adm. Code]**<br><br>**(2)** The permittee shall retain monthly records describing the fuels burned. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]** |
| 2. Visible Emissions (VE) | **(1)** No owner or operator may cause or allow emissions of shade or density greater than number 1 of the Ringlemann chart or 20% opacity except as allowed under s. NR 431.05(1) and (2), Wis. Adm. Code. **[s. NR 431.05, Wis. Adm. Code]** | **(1)** The permittee shall use the requirement in I.C.1.b.(1), above, to demonstrate compliance with the limitation in I.C.2.a.(1). **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for visible emissions, the owner or operator of the source shall use Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine compliance with a visible emission limitation. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(9)(a)1., Wis.** |

[7] The permittee elected this emission limit, which is more restrictive than emission limits in I.C.1.a.(1). The air quality impact analysis conducted on November 6, 2007 showed that this emission limit met the ambient air quality standards for particulate matter (PM and $PM_{10}$).

[8] Limiting the types of fuels used is an adequate method of demonstrating compliance with the particulate matter emission limit because the theoretical emissions while burning natural gas are less than the allowable limit (0.15 lb/MMBtu). The theoretical emissions are calculated using AP-42 emission factors. The usage of natural gas represents the worst case scenario (7.6 pounds per million cubic feet of natural gas, AP-42, 5th edition, chapter 1.3). Assuming a standard heating value for natural gas (1,000 Btu/$ft^3$, AP-42), the emission factor, when converted to pounds per million Btu of heat input, is less than the allowable limit [7.6 lb/mm$ft^3$ ÷ (1,000 Btu/$ft^3$) x million $ft^3$/1,000,000 $ft^3$ x 1,000,000 Btu/million Btu) = 0.0076 lbs/MMBtu].

**C. Process P32, Stack S13 – One 110 MMBtu/hr Acoustical Tile Dryer Fired with Natural Gas; Constructed Or Last Modified in 1998; Emissions are uncontrolled.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | **Adm. Code]**<br>**(2)** The permittee shall use the recordkeeping and monitoring requirements in I.C.1.c.(2), above, to monitor compliance with the limitation in I.C.2.a. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1., Wis. Adm. Code]** |
| 3. Nitrogen Oxides ($NO_x$) | **(1)** The No. 1 tile dryer may emit up to, but not more than 8,249 pounds of nitrogen oxide emissions per month, averaged over any 12 consecutive months. **[s. 285.65(3) and (7), Wis. Stats.; s. NR 404.04, Wis. Adm. Code]** | **(1)** The permittee shall use the requirement in I.C.1.b.(1), above, to demonstrate compliance with the limitation in I.C.3.a.(1). **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br>**(2)** Within 15 business days after each month, the permittee shall compute and record the following information for the No. 1 tile dryer:<br><br>(a) The amount of natural gas used in the previous month, in millions of cubic feet.<br><br>(b) The amount of $NO_x$ emitted (in pounds) for the previous month using the following equation[9]:<br>$E_{NOx} = 0.75 \times NG \times EF_{NG}$<br>Where<br>$E_{NOx}$ = total amount of $NO_x$ emitted in pounds per month<br>NG = amount of natural gas (in units of MMCF) used per month<br>$EF_{NG}$ = $NO_x$ emission factor for natural gas combustion<br><br>(c) The amount of $NO_x$ emitted (in pounds per month) averaged over the last 12 consecutive months. | **(1)** Whenever any testing is required by the department for nitrogen compound emissions, the owner or operator of the source shall use Method 7, 7A, 7B, 7C, 7D or 7E in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine compliance with a nitrogen compound emission limitation. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(6)(a), Wis. Adm. Code]**<br><br>**(2)** The permittee shall maintain monthly records of the information required in I.C.3.b.(2). **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]** |

[9] Note: This equation assumes the Ambient Ratio Method national annual default $NO_2$ to $NO_x$ ratio of 0.75.

**C. Process P32, Stack S13 – One 110 MMBtu/hr Acoustical Tile Dryer Fired with Natural Gas; Constructed Or Last Modified in 1998; Emissions are uncontrolled.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | **[s. NR 407.09(4)(a)(3)(b), Wis. Adm. Code; s. 285.65(3), Wis. Stats.]** | |
| 4. Volatile Organic Compounds (VOC) | **(1)** The permittee may not cause, allow or permit the emission of any VOCs from the No. 1 tile dryer in excess of 4,150 pounds per month, averaged over any 12 consecutive months. **[s. 285.65(7), Wis. Stats.; s. NR 424.03(2)(c), Wis. Adm. Code]** | **(1)** Within 15 business days after each month, the permittee shall compute and record the following information for the No. 1 tile dryer:<br><br>(a) The amount of VOC emitted (in pounds) for the previous month using the following equation:<br>$E_M = U_1C_1 + U_2C_2 + U_3C_3 + \ldots\ldots\ldots + U_nC_n$, Where<br>$E_M$ = total amount of VOC emitted in pounds per month<br>$U_1, U_2, \ldots\ldots, U_n$ = amount used (in gallons/month) of each mould additive used<br>$C_1, C_2, \ldots\ldots, C_n$ = VOC content, as applied, in pounds per gallon of each mould additive used<br>**Note**: Each subscript denotes a unique name or identification of mould additive used during the month.<br><br>(b) The amount of VOC emitted (in pounds per month) averaged over the last 12 consecutive months.<br>**[s. NR 407.09(4)(a)(1), Wis. Adm. Code; s. 285.65(3), Wis. Stats.]** | **(1)** Whenever compliance emission testing is required, US EPA Method 18, 25, 25A or 25B in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, shall be used to determine organic compound emission concentration or emission rate. **[s. NR 439.06(3)(a), Wis. Adm. Code]**<br><br>**(2)** The permittee shall keep material safety data sheets (MSDS) or equivalent documentation, which contains information on the volatile organic compound content, density, and (if any), water content of the mould additives. **[s. 285.65(10), Wis. Stats]**<br><br>**(3)** The permittee shall collect and record the following information for the No. 1 tile dryer.<br>(a) A unique name or identification number for each mould additive;<br>(b) The VOC content of each mould additive, as applied, in units of pounds of VOC per gallon, excluding water. Volatile organic compound and water content of the mould additives shall be determined from material safety data sheets, supplier technical data, and/or analytical testing.<br>(c) The information identified in I.C.4.b.(1).<br>**[s. NR 439.04(1)(d) and s. NR 407.09(4)(a)1., Wis. Adm. Code; s. 285.65(10), Wis. Stats.]** |

**D. Processes P33 and P34, Stack S14, Control Device C14 – Line No. 1 Finishing (Dimensioning & Paint Booth); Constructed Or Last Modified in 1987; Emissions are controlled by a baghouse.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| 1. Particulate Matter ($PM/PM_{10}$) | **(1)** No person may cause, allow or permit the emission of particulate matter to the ambient air from a direct or portable source involving a process in excess of the following emission limitations, whichever is more restrictive:<br><br>(a) The allowable particulate matter emission limitation calculated by use of the equation $E = 3.59P^{0.62}$ for process weight rates up to 60,000 pounds per hour, where E is allowable emissions in pounds per hour and P is the process weight rate in tons per hour;<br><br>(b) The allowable particulate matter emissions limitation of 0.4 pounds of particulate matter per 1,000 pounds of exhaust gas.<br>**[s. NR 415.05(2), Wis. Adm. Code]**<br><br>**(2)** The No. 1 Finishing process may emit up to, but not more than 2.00 lb/hr of particulate matter.[10] **[s. 285.65(3) and (7), Wis. Stats., s. NR 404.04, Wis. Adm. Code]** | **(1)** The permittee shall use the baghouse/fabric filter whenever the process is in operation. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br><br>**(2)** The permittee shall monitor the pressure drop across the baghouse/fabric filter dust collector once for every 8 hours of source operation or once per day, whichever yields the greater number of measurements. The pressure drop across the baghouse/fabric filter shall be maintained between 0.5 and 10 inches of water column, or a range approved by the department, in writing. **[ss. NR 407.09(4)(a)3.b. and NR 439.055(1)(a) and (2)(b), Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for non-fugitive particulate emissions, including back-half, the owner or operator of the source shall use Method 5 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine non-fugitive particulate emissions, and Method 202 to determine condensible particulate emissions (back-half). **[ss. NR 407.09(1)(c)1.a. & (4)(a)1., NR 439.06(1) and NR 439.07(8)(b), Wis. Adm. Code]**<br><br>**(2)** The permittee shall keep records of the pressure drop measurements required under I.D.1.b.(2) for at least 5 years. **[s. NR 439.04(1)(d) and 439.04(2)., Wis. Adm. Code]**<br><br>**(3)** The permittee shall perform periodic internal inspections of the baghouse/ fabric filter dust collector to ensure that the control equipment is operating properly. The time interval between internal inspections shall be monthly[11] . These inspections shall include, but not be limited to inspections and maintenance/repair (as necessary) of:<br><br>a) valves, hatches, dampers, and gaskets for signs of air infiltration; |

[10] The permittee elected this emission limit, which is more restrictive than emission limits in I.D.1.a.(1). The air quality impact analysis conducted on November 6, 2007, showed that this emission limit met the ambient air quality standards for particulate matter (PM and $PM_{10}$).
[11] The permittee identified the frequency of the internal inspections of the baghouse in the Malfunction Prevention and Abatement Plan.

**D. Processes P33 and P34, Stack S14, Control Device C14 – Line No. 1 Finishing (Dimensioning & Paint Booth); Constructed Or Last Modified in 1987; Emissions are controlled by a baghouse.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | b) bag/filter condition, tension, and signs of clean side dust deposits.<br>**[s. NR 407.09(4)(a)1., Wis. Adm. Code]**<br>**(4)** The permittee shall keep records of all inspections, maintenance or repairs performed on the control devices and associated ductwork and capture hoods. The records shall include the date of any inspection, the findings of the inspection, and any action taken. **[s. NR 439.04(1)(d), Wis. Adm. Code]**<br>**(5)** The pressure drop monitoring device shall be accurate to within 5 percent of the pressure drop being measured or within ± 1 inch of water column, whichever is greater. Each monitoring device shall be calibrated yearly or at a frequency based upon good engineering practice as established by operational history, whichever is more frequent. **[ss. NR 439.055(3)(a), and (4), Wis. Adm. Code]** |
| 2. Visible Emissions (VE) | **(1)** No owner or operator may cause or allow emissions of shade or density greater than number 1 of the Ringlemann chart or 20% opacity except as allowed under s. NR 431.05(1) and (2), Wis. Adm. Code. **[s. NR 431.05, Wis. Adm. Code]** | **(1)** The permittee shall use the requirement in I.D.1.b.(1), above, to demonstrate compliance with the limitation in I.D.2.a.(1). **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for visible emissions, the owner or operator of the source shall use Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine compliance with a visible emission limitation. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(9)(a)1., Wis. Adm. Code]**<br><br>**(2)** The permittee shall use the |

**D. Processes P33 and P34, Stack S14, Control Device C14 – Line No. 1 Finishing (Dimensioning & Paint Booth); Constructed Or Last Modified in 1987; Emissions are controlled by a baghouse.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | recordkeeping and monitoring requirements in I.D.1.c.(2)-(4), above, to monitor compliance with the limitation in I.D.2.a. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1., Wis. Adm. Code]** |
| 3. Volatile Organic Compounds (VOCs) | **(1)** The permittee may not cause, allow or permit the emission of any VOCs from the No. 1 Finishing Line in excess of 4,150 pounds per month, averaged over any 12 consecutive months. **[s. NR 424.03(2)(c), Wis. Adm. Code, and s. 285.65(7), Wis. Stats.]** | **(1)** The permittee shall use air and airless spray application techniques **[s. 285.65(7), Wis. Stats.]**<br><br>**(2)** Within 15 business days after each month, the permittee shall compute and record the following information for the No. 1 Finishing Line:<br><br>(a) The amount of VOC emitted (in pounds) for the previous month using the following equation:<br>$E_M = U_1C_1 + U_2C_2 + U_3C_3 + \ldots\ldots\ldots + U_nC_n$,<br>Where<br>$E_M$ = total amount of VOC emitted in pounds per month<br>$U_1, U_2, \ldots\ldots, U_n$ = amount used (in gallons/month) of each coating/ clean-up solvent used<br>$C_1, C_2, \ldots\ldots, C_n$ = VOC content, as applied, in pounds per gallon of each coating/ clean-up solvent used<br>**Note**: Each subscript denotes a unique name or identification of coating or clean-up solvent used during the month.<br><br>(b) The amount of VOC emitted (in pounds per month) averaged over the last 12 consecutive months.<br>**[s. NR 407.09(4)(a)(1), Wis. Adm. Code; s. 285.65(3), Wis. Stats.]** | **(1)** Whenever any testing is required by the department for volatile organic compounds, the owner or operator of the source shall use Method 24 or 24A in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine the organic solvent content, the volume of solids, the weight of solids, the water content and the density of surface coatings and inks. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(3)(b), Wis. Adm. Code]**<br><br>**(2)** For each coating or clean-up solvent used in the No. 1 Finishing Line, the permittee shall keep material safety data sheets (MSDS) or equivalent documentation, which contains information on the volatile organic compound content, density, and (if any), water content. **[s. 285.65(10), Wis. Stats]**<br><br>**(3)** The permittee shall collect and record the following information for the No. 1 Finishing Line:<br>(a) A unique name or identification number for each coating and clean-up solvent;<br>(b) The VOC content of each coating and clean-up solvent, as applied, in units of pounds of VOC per gallon, excluding water. Volatile organic compound and |

D. **Processes P33 and P34, Stack S14, Control Device C14 – Line No. 1 Finishing (Dimensioning & Paint Booth); Constructed Or Last Modified in 1987; Emissions are controlled by a baghouse.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | water content of the coatings and solvents shall be determined from material safety data sheets, supplier technical data, and/or analytical testing.<br>(c) The information identified in I.D.3.b.(2).<br>**[s. NR 439.04(1)(d) and s. NR 407.09(4)(a)1., Wis. Adm. Code; s. 285.65(10), Wis. Stats.]** |

**E. Process P39, Stack S16, Control Device C16 – No. 1 Mould Cleaning (Brush House); Constructed Or Last Modified in 1987; Emissions are controlled by a baghouse.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| 1. Particulate Matter ($PM/PM_{10}$) | **(1)** No person may cause, allow or permit the emission of particulate matter to the ambient air from any process in excess of the following emission limitations, whichever is more restrictive:<br><br>(a) the allowable emissions of particulate matter are calculated by use of the equation $E = 3.59\ P^{0.62}$ for process weight rates up to 60,000 pounds per hour, where E is the allowable emissions in pounds per hour and P is the process weight rate in tons per hour;<br><br>(b) the allowable particulate matter emissions limitation of 0.4 pounds of particulate matter per 1,000 pounds of exhaust gas.<br>**[ss. NR 415.05(2), Wis. Adm. Code]**<br><br>**(2)** The No. 1 Mould Cleaning processes may emit up to, but not more than 0.85 lb/hr of particulate matter[12, 13] **[s. 285.65(3) and (7), Wis. Stats., NR 404.04, Wis. Adm. Code; 07-MCS-323]** | **(1)** The permittee shall use the baghouse/fabric filter whenever the process is in operation. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br><br>**(2)** The permittee shall monitor the pressure drop across the baghouse/fabric filter dust collector once for every 8 hours of source operation or once per day, whichever yields the greater number of measurements. The pressure drop across the baghouse/fabric filter shall be maintained between 0.5 and 10 inches of water column, or a range approved by the department, in writing. **[ss. NR 407.09(4)(a)3.b. and NR 439.055(1)(a) and (2)(b), Wis. Adm. Code]**<br><br>**(3)** The fabric filter baghouse shall be equipped with a magnehelic gauge which continuously monitors the pressure drop across the baghouse. **[s. 285.65(3), Wis. Stats., Permit number 86-SJK-016]** | **(1)** Whenever any testing is required by the department for non-fugitive particulate emissions, including back-half, the owner or operator of the source shall use Method 5 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine non-fugitive particulate emissions, and Method 202 to determine condensible particulate emissions (back-half). **[ss. NR 407.09(1)(c)1.a. & (4)(a)1., NR 439.06(1) and NR 439.07(8)(b), Wis. Adm. Code]**<br><br>**(2)** The permittee shall keep records of the pressure drop measurements required under I.E.1.b.(2) for at least 5 years. **[s. NR 439.04(1)(d) and 439.04(2)., Wis. Adm. Code]**<br><br>**(3)** The permittee shall perform periodic internal inspections of the baghouse/ fabric filter dust collector to ensure that the control equipment is operating properly. The time interval between internal inspections shall be monthly[14]. These inspections shall include, but not be limited to inspections and maintenance/repair (as necessary) of:<br><br>a) valves, hatches, dampers, and gaskets for |

[12] The permittee elected this emission limit, which is more restrictive than emission limits in I.E.1.a.(1). The air quality impact analysis conducted on November 6, 2007 showed that this emission limit met the ambient air quality standards for particulate matter (PM and $PM_{10}$).
[13] This permit condition was established in construction permit 07-MSC-323 and supersedes the particulate matter emission limitations for No. 1 Acoustone Line Mold Cleaner (P39) in construction permit 86-SJK-016.
[14] The permittee identified the frequency of the internal inspections of the baghouse in the Malfunction Prevention and Abatement Plan.

**E. Process P39, Stack S16, Control Device C16 – No. 1 Mould Cleaning (Brush House); Constructed Or Last Modified in 1987; Emissions are controlled by a baghouse.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | signs of air infiltration;<br>b) bag/filter condition, tension, and signs of clean side dust deposits.<br>**[s. NR 407.09(4)(a)1., Wis. Adm. Code]**<br>**(4)** The permittee shall keep records of all inspections, maintenance or repairs performed on the control devices and associated ductwork and capture hoods. The records shall include the date of any inspection, the findings of the inspection, and any action taken. **[s. NR 439.04(1)(d), Wis. Adm. Code]**<br>**(5)** The pressure drop monitoring device shall be accurate to within 5 percent of the pressure drop being measured or within ± 1 inch of water column, whichever is greater. Each monitoring device shall be calibrated yearly or at a frequency based upon good engineering practice as established by operational history, whichever is more frequent. **[ss. NR 439.055(3)(a), and (4), Wis. Adm. Code]** |
| 2. Visible Emissions (VE) | **(1)** No owner or operator may cause or allow emissions of shade or density greater than number 1 of the Ringlemann chart or 20% opacity except as allowed under s. NR 431.05(1) and (2), Wis. Adm. Code. **[s. NR 431.05, Wis. Adm. Code]** | **(1)** The permittee shall use the requirement in I.E.1.b.(1) and (2) above to demonstrate compliance with the limitation in I.E.2.a.(1). . **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for visible emissions, the owner or operator of the source shall use Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine compliance with a visible emission limitation. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(9)(a)1., Wis. Adm. Code]**<br>**(2)** The permittee shall use the |

E. **Process P39, Stack S16, Control Device C16 – No. 1 Mould Cleaning (Brush House); Constructed Or Last Modified in 1987; Emissions are controlled by a baghouse.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | recordkeeping and monitoring requirements in I.E.1.c.(2) – (4) above, to monitor compliance with the limitation in I.E.2.a. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1., Wis. Adm. Code]** |

**G. [15] Processes P37 and P38, Stack S18, Control Device C18 – No. 2 Finishing (Dimensioning & Paint Booth); Constructed Or Last Modified in 2001; Emissions are controlled by a baghouse.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| 1. Particulate Matter ($PM/PM_{10}$) | **(1)** No person may cause, allow or permit the emission of particulate matter to the ambient air from a direct or portable source involving a process in excess of the following emission limitations whichever is more restrictive:<br>(a) The allowable particulate matter emission limitation calculated by use of the equation $E = 3.59\ P^{0.62}$ for process weight rates up to 60,000 pounds per hour, where E is allowable emissions in pounds per hour and P is the process weight rate in tons per hour;<br>(b) The allowable particulate matter emissions limitation of 0.4 pounds of particulate matter per 1,000 pounds of gas,. **[ss. NR 415.05(2), Wis. Adm. Code]**<br><br>**(2)** Stack 18 serving No. 2 Finishing (P37 and P38) may emit up to, but no more than 1.50 lb/hr of particulate matter[16].[17] **[07-MCS-323; s. NR 404.04, Wis. Adm. Code; s. 285.65(7), Wis. Stats.]** | **(1)** The permittee shall use the baghouse/fabric filter, whenever the process is in operation. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br><br>**(2)** The permittee shall monitor the pressure drop across the baghouse/fabric filter dust collector once for every 8 hours of source operation or once per day, whichever yields the greater number of measurements. The pressure drop across the baghouse/fabric filter shall be maintained between 0.5 and 10 inches of water column, or a range approved by the department, in writing. **[ss. NR 407.09(4)(a)3.b. and NR 439.055(1)(a) and (2)(b), Wis. Adm. Code]**<br><br>**(3)** The fabric filter baghouse shall be equipped with a magnehelic gauge which continuously monitors the pressure drop across the baghouse. [s. 285.65(3), Wis. Stats., Permit number 86-SJK-016] | **(1)** Whenever any testing is required by the department for non-fugitive particulate emissions, including back-half, the owner or operator of the source shall use Method 5 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine non-fugitive particulate emissions, and Method 202 to determine condensible particulate emissions (back-half). **[ss. NR 407.09(1)(c)1.a. & (4)(a)1., NR 439.06(1) and NR 439.07(8)(b), Wis. Adm. Code]**<br><br>**(2)** The permittee shall keep records of the measurements required under I.G.1.b.(2) for at least 5 years. **[ss. NR 439.04(1)(d) and 439.04(2)., Wis. Adm. Code]**<br><br>**(3)** The permittee shall perform periodic internal inspections of the baghouse/ fabric filter dust collector to ensure that the control equipment is operating properly. The time interval between internal inspections shall be monthly[18]. These inspections shall include, but not be limited to inspections and maintenance/repair (as necessary) of:<br>a) valves, hatches, dampers, and gaskets for |

[15] There is no Section F in this permit. Process P36 (Line No. 2 acoustical tile dryer) in Section F under Permit 265006830-P01 has been removed.
[16] The permittee elected this emission limit, which is more restrictive than emission limits in I.C.1.a.(1). The air quality impact analysis conducted on November 6, 2007, showed that this emission limit met the ambient air quality standards for particulate matter (PM and $PM_{10}$).
[17] This condition was established in construction permit 07-MSC-323 and supersedes particulate matter emission limitation for No. 2 Acoustone Line Saw/Edger (P37) and No. 2 Acoustone Line Paint Spray Booth (P38) in construction permit 86-SJK-016.
[18] The permittee identified the frequency of the internal inspections of the baghouse in the Malfunction Prevention and Abatement Plan.

G. [15] **Processes P37 and P38, Stack S18, Control Device C18 – No. 2 Finishing (Dimensioning & Paint Booth); Constructed Or Last Modified in 2001; Emissions are controlled by a baghouse.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | signs of air infiltration;<br>b) bag/filter condition, tension, and signs of clean side dust deposits.<br>**[s. NR 407.09(4)(a)1., Wis. Adm. Code]**<br>**(4)** The permittee shall keep records of all inspections, maintenance or repairs performed on the control devices and associated ductwork and capture hoods. The records shall include the date of any inspection, the findings of the inspection, and any action taken. **[s. NR 439.04(1)(d), Wis. Adm. Code]** |
| 2. Visible Emissions (VE) | **(1)** No owner or operator may cause or allow emissions of shade or density greater than number 1 of the Ringlemann chart or 20% opacity except as allowed under s. NR 431.05(1) and (2), Wis. Adm. Code. **[s. NR 431.05, Wis. Adm. Code]** | **(1)** The permittee shall use the requirement in I.G.1.b.(1) and (2) above to demonstrate compliance with the limitation in I.G.2.a.(1) . **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for visible emissions, the owner or operator of the source shall use Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine compliance with a visible emission limitation. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(9)(a)1., Wis. Adm. Code]**<br>**(2)** The permittee shall use the recordkeeping and monitoring requirements in I.G.1.c.(2) – (4) above, to monitor compliance with the limitation in I.G.2.a. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1., Wis. Adm. Code]** |
| 3. Volatile Organic Compounds (VOCs) | **(1)** The permittee may not cause, allow or permit the emission of any VOCs from the No. 2 Finishing Line in excess of 4,150 pounds per month, averaged over any 12 consecutive months. **[s. NR** | **(1)** The permittee shall use air and airless spray application techniques **[s. 285.65(7), Wis. Stats.]**<br>**(2)** Within 15 business days after each month, | **(1)** Whenever any testing is required by the department for volatile organic compounds, the owner or operator of the source shall use Method 24 or 24A in 40 CFR part 60, Appendix A, incorporated by reference in |

G. [15] **Processes P37 and P38, Stack S18, Control Device C18 – No. 2 Finishing (Dimensioning & Paint Booth); Constructed Or Last Modified in 2001; Emissions are controlled by a baghouse.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | **424.03(2)(c), Wis. Adm. Code, and s. 285.65(7), Wis. Stats.]** | the permittee shall compute and record the following information for the No. 2 Finishing Line:<br>(a) The amount of VOC emitted (in pounds) for the previous month using the following equation:<br>$E_M = U_1C_1 + U_2C_2 + U_3C_3 + \ldots\ldots + U_nC_n$,<br>Where<br>$E_M$ = total amount of VOC emitted in pounds per month<br>$U_1, U_2, \ldots\ldots, U_n$ = amount used (in gallons/month) of each coating/ clean-up solvent used<br>$C_1, C_2, \ldots\ldots, C_n$ = VOC content, as applied, in pounds per gallon of each coating/ clean-up solvent used.<br>**Note**: Each subscript denotes a unique name or identification of coating or clean-up solvent used during the month.<br>(b) The amount of VOC emitted (in pounds per month) averaged over the last 12 consecutive months.<br>**[s. NR 407.09(4)(a)(1), Wis. Adm. Code; s. 285.65(3), Wis. Stats.]** | s. NR 484.04(13), Wis. Adm. Code, to determine the volatile organic content, the volume of solids, the weight of solids, the water content and the density of surface coatings and inks. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(3)(b), Wis. Adm. Code]**<br>**(2)** For each coating or clean-up solvent used in the No. 2 Finishing Line, the permittee shall keep material safety data sheets (MSDS) or equivalent documentation, which contains information on the volatile organic compound content, density, and (if any), water content. **[s. 285.65(10), Wis. Stats]**<br>**(3)** The permittee shall collect and record the following information for the No. 2 Finishing Line.<br>(a) A unique name or identification number for each coating and clean-up solvent;<br>(b) the VOC content of each coating and clean-up solvent, as applied, in units of pounds of VOC per gallon, excluding water. Volatile organic compound and water content of the coatings and solvents shall be determined from material safety data sheets, supplier technical data, and/or analytical testing.<br>(c) The information identified in I.G.3.b.(2).**[s. NR 439.04(1)(d) and s. NR 407.09(4)(a)1., Wis. Adm. Code; s. 285.65(10), Wis. Stats.]** |

**H. Process P31, Stacks S21, S22, and S24, Control Devices C03, C04, and C05 – Mineral Wool Blow Chamber; Constructed in 1959, Last Modified in 2010; Emissions are controlled by dry filters.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| 1. Particulate Matter ($PM/PM_{10}$) | **(1)** No person may cause, allow or permit the emission of particulate matter to the ambient air from a direct or portable source involving a process in excess of the following emission limitations, whichever is more restrictive:<br>(a) The allowable emissions of particulate matter are either calculated by the use of equation $E = 3.59\ P^{0.62}$ for process weight rates up to 60,000 pounds per hour, where E is the allowable emissions in pounds per hour and P is the process weight rate in tons per hour;<br>(b) The allowable particulate matter emissions limitation of 0.4 pounds of particulate matter per 1,000 pounds of gas, whichever is more restrictive. **[s. NR 415.05(2), Wis. Adm. Code]**<br><br>**(2)** Stacks S21, S22 and S24 serving the Mineral Wool Blow Chamber (P31) may emit up to, but no more than, 14.02 lb/hr of particulate matter total from all three stacks.**[92-JSB-235; s. NR 404.04, Wis. Adm. Code; s. 285.65(7), Wis. Stats.]** | **(1)** The permittee shall use the dry filters whenever the process is in operation. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]**<br><br>**(2)** The permittee shall monitor the pressure drop across each dry filter once every 8 hours of source operation or once per day, whichever yields the greater number of measurements. The pressure drop across each baghouse/fabric filter shall be maintained between 0.5 and 10 inches of water column, or a range approved by the department, in writing.[19] **[ss. NR 407.09(4)(a)3.b. and NR 439.055(1)(a) and (2)(b), Wis. Adm. Code, Permit Number 07-MCS-323]**<br><br>(3) Within 180 days of the issuance of this permit, the permittee shall perform a compliance test on Stacks S21, S22, and S24 to demonstrate compliance with the particulate emission limit in I.H.1.a.(2). The mineral wool blow chamber (Process P31) shall be operated at capacity or at a capacity approved by the department in writing. The permittee shall monitor and record the pressure drop during the compliance test. **[s. 285.65(3), Wis. Stats., s. NR 439.075(1), Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for non-fugitive particulate emissions, including back-half, the owner or operator of the source shall use Method 5 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine non-fugitive particulate emissions, and Method 202 to determine condensible particulate emissions (back-half). **[ss. NR 407.09(1)(c)1.a. & (4)(a)1., NR 439.06(1) and NR 439.07(8)(b), Wis. Adm. Code]**<br><br>**(2)** The permittee shall keep records of the measurements required under I.H.1.b.(2) for at least 5 years. **[s. NR 439. 04(1)(d) and 439.04(2), Wis. Adm. Code]**<br><br>**(3)** The permittee shall perform periodic internal inspections of the baghouse/ fabric filter dust collector to ensure that the control equipment is operating properly. The time interval between inspections shall be monthly. These inspections shall include, but not be limited to inspections and maintenance/repair (as necessary) of:<br>a) valves, hatches, dampers, and gaskets for signs of air infiltration;<br>b) bag/filter condition, tension, and signs of clean side dust deposits. |

[19] This pressure drop range in this condition was established in construction permit 07-MCS-323 and supersedes the differential pressure requirement for the Mineral Wool Blow Chamber in construction permit 92-JSB-235.

H. **Process P31, Stacks S21, S22, and S24, Control Devices C03, C04, and C05 – Mineral Wool Blow Chamber; Constructed in 1959, Last Modified in 2010; Emissions are controlled by dry filters.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | **[s. NR 407.09(4)(a)1., Wis. Adm. Code]**<br>**(4)** The permittee shall keep records of all inspections, maintenance or repairs performed on the control devices and associated ductwork and capture hoods. The records shall include the date of any inspection, the findings of the inspection, and any action taken. **[s. NR 439.04(1)(d), Wis. Adm. Code]** |
| 2. Visible Emissions (VE) | **(1)** No owner or operator may cause or allow emissions of shade or density greater than number 1 of the Ringlemann chart or 20% opacity except as allowed under s. NR 431.05(1) and (2), Wis. Adm. Code. **[s. NR 431.05, Wis. Adm. Code]** | **(1)** The permittee shall use the requirement in I.H.1.b.(1) and (2) above to demonstrate compliance with the limitation in I.H.2.a.(1). **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for visible emissions, the owner or operator of the source shall use Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine compliance with a visible emission limitation. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(9)(a)1., Wis. Adm. Code]**<br>**(2)** The permittee shall use the recordkeeping and monitoring requirements in I.H.1.c.(2) – (4) above, to monitor compliance with the limitation in I.H.2.a. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1., Wis. Adm. Code]** |
| 3. Volatile Organic Compounds (VOC) | **(1)** The permittee shall utilize latest available control techniques and operating practices (LACT) to minimize VOC emissions. **[s. NR 424.03(2)(c), Wis. Adm. Code]** | **(1)** The permittee shall minimize the use of materials containing VOCs (mould additives, lubricating fluids, etc.) where possible. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]** | **(1)** Whenever compliance emission testing is required, US EPA Method 18, 25, 25A or 25B in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, shall be used to determine organic compound emission concentration or emission rate. **[s. NR 439.06(3)(a), Wis. Adm. Code]**<br>**(2)** The permittee shall retain monthly |

H. **Process P31, Stacks S21, S22, and S24, Control Devices C03, C04, and C05 – Mineral Wool Blow Chamber; Constructed in 1959, Last Modified in 2010; Emissions are controlled by dry filters.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | records describing the materials used and their VOC contents. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]** |

**I. Processes P34A and P38A, Stacks S25 and S26 – Line No. 1 and No. 2 Finishing Curing Ovens; Constructed or Last Modified in 2001; Natural gas is the only fuel. The maximum heat input is 1.2 MMBtu/hr each. Emissions are uncontrolled.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| 1. Particulate Matter (PM) | **(1)** No person may cause, allow or permit the emission of particulate matter to the ambient air from any fuel burning installation in excess 0.15 lb/MMBtu. **[s. NR 415.06(2)(a)., Wis. Adm. Code]** | **(1)** The permittee shall use only natural gas, as defined in s. NR 400.02(104)), Wis. Adm. Code, to fire the dryer. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for non-fugitive particulate emissions, including back-half, the owner or operator of the source shall use Method 5 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine non-fugitive particulate emissions, and Method 202 to determine condensible particulate emissions (back-half). **[ss. NR 407.09(1)(c)1.a. & (4)(a)1., NR 439.06(1) and NR 439.07(8)(b), Wis. Adm. Code]**<br><br>**(2)** The permittee shall retain monthly records describing the fuels burned. **[ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]** |
| 2. Visible Emissions (VE) | **(1)** No owner or operator may cause or allow emissions of shade or density greater than number 1 of the Ringlemann chart or 20% opacity except as allowed under s. NR 431.05(1) and (2), Wis. Adm. Code. **[s. NR 431.05, Wis. Adm. Code]** | **(1)** The permittee shall use the requirement in I.I.1.b.(1) above to demonstrate compliance with the limitation in I.I.2.a.(1). . **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]** | **(1)** Whenever any testing is required by the department for visible emissions, the owner or operator of the source shall use Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04(13), Wis. Adm. Code, to determine compliance with a visible emission limitation. **[ss. NR 407.09(1)(c)1.a. & (4)(a)1. and NR 439.06(9)(a)1., Wis. Adm. Code]**<br>**(2)** The permittee shall use the recordkeeping and monitoring requirements in I.I.1.c.(2) above, to monitor compliance with the limitation in I.I.2.a. (1). **[ss. NR 407.09(1)(c)1.b. & (4)(a)1., Wis. Adm. Code]** |

**J. Process P11, Stack S30 - Emergency Water Pump, Powered by a Spark Ignition Natural Gas Internal Combustion Engine. Maximum heat input: 0.805 MMBtu/hr. 97.5 Brake Horsepower (bhp). 60 kW power output. Constructed Or Last Modified in November 2012. Emissions are uncontrolled.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| 1. NSPS for Stationary Spark Ignition Internal Combustion Engines (40 CFR part 60 subpart JJJJ) | (1) The permittee must comply with the following emission standards as listed in Table 1 in 40 CFR part 60 subpart JJJJ for the emergency stationary spark ignition internal combustion engines with a maximum engine power greater than 25 hp and less than 130 hp.<br>(a) Emissions of nitrogen oxides ($NO_x$) and hydrocarbon (HC) combined may not exceed 10 g/hp-hr; and<br>(b) Emissions of carbon monoxide (CO) may not exceed 387 g/hp-hr. **[s. 285.65(13), Wis. Stats. and 40 CFR §60.4233(d)]**<br>(2) The permittee may not install emergency stationary spark ignition internal combustion engines that do not meet the applicable requirements in I.J.1.a.(1) after January 1, 2011. **[s. 285.65(13), Wis. Stats. and 40 CFR §60.4236(c)]**<br>(3) The permittee shall comply with applicable General Provisions specified in Table 3 to Subpart JJJJ of part 60. **[s. 285.65(13), Wis. Stats., 40 CFR §60.4246, and Table 3 to Subpart JJJJ of Part 60]** | (1) The permittee must operate and maintain stationary spark ignition internal combustion engines that achieve the emission standards as required in I.J.1.a.(1) over the entire life of the engine. **[s. 285.65(13), Wis. Stats. and 40 CFR §60.4234]**<br>(2) To demonstrate compliance with I.J.1.a.(1), the permittee shall comply with one of the methods specified in (a) and (b) below:<br>(a) Purchasing an engine certified to the emission standards in I.J.1.a.(1) according to procedures specified in this subpart, for the same model year and demonstrating compliance according to the method specified in paragraph (a)(i) below.<br>(i) If you operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, you must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required if you are an owner or operator. You must also meet the requirements as specified in 40 CFR part 1068, subparts A through D, as they apply to you. If you adjust engine settings according to and consistent with the manufacturer's instructions, your stationary SI internal combustion engine will not be considered out of compliance.<br>(b) Purchasing a non-certified engine and | (1) If the permittee owns or operates an emergency stationary spark ignition internal combustion engine that is less than 130 hp, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines, the permitte must install a nonresettable hour meter upon startup of the emergency engine. **[s. 285.65(13), Wis. Stats. and 40 CFR §60.4237(c)]**<br>(2) When conducting performance tests, the permittee shall comply with procedures in §60.4244. **[s. 285.65(13), Wis. Stats. and 40 CFR §60.4244]**<br>(3) The permittee shall meet the following notification, reporting and recordkeeping requirements:<br>(a) The permittee shall keep records of the following information:<br>(i) All notifications submitted to comply with 40 CFR part 60 subpart JJJJ and all documentation supporting any notification.<br>(ii) Maintenance conducted on the engine.<br>(iii) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90, 1048, 1054, and 1060, as applicable. |

**J. Process P11, Stack S30 - Emergency Water Pump, Powered by a Spark Ignition Natural Gas Internal Combustion Engine. Maximum heat input: 0.805 MMBtu/hr. 97.5 Brake Horsepower (bhp). 60 kW power output. Constructed Or Last Modified in November 2012. Emissions are uncontrolled.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | demonstrating compliance with the emission standards specified in I.J.1.a.(1) and according to the test methods and other procedures specified in § 60.4244, as applicable, and according to §60.4243(b)(2)(i).<br>**[s. 285.65(13), Wis. Stats., 40 CFR §60.4243(a)(1) and §60.4243(b)]**<br><br>(3) The permittee must operate the emergency stationary ICE according to the requirements in paragraphs (a) through (c) below. In order for the engine to be considered an emergency stationary internal combustion engine under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (a) through (c) below, is prohibited. If the permittee does not operate the engine according to the requirements in paragraphs (a) through (c) below, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.<br>(a) There is no time limit on the use of emergency stationary ICE in emergency situations.<br>(b) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (i) through (iii) below for a maximum of 100 | (iv) If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to § 60.4243(a)(2), documentation that the engine meets the emission standards.<br><br>(b) If the permittee is subject to performance testing in I.J.1.b.(2)(b) and/or I.J.1.b.(4), the permittee shall submit a copy of each performance test as conducted in accordance with I.J.1.c.(2) within 60 days after the test has been completed.<br><br>**[s. 285.65(13), Wis. Stats., and 40 CFR §60.4245(a) and (d)]** |

**J. Process P11, Stack S30 - Emergency Water Pump, Powered by a Spark Ignition Natural Gas Internal Combustion Engine. Maximum heat input: 0.805 MMBtu/hr. 97.5 Brake Horsepower (bhp). 60 kW power output. Constructed Or Last Modified in November 2012. Emissions are uncontrolled.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | hours per calendar year. Any operation for non-emergency situations as allowed by paragraph I.J.1.b.(3)(c) counts as part of the 100 hours per calendar year allowed by this paragraph (b).<br>(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.<br>(ii) Emergency stationary ICE may be operated for emergency demand response for periods specified in §60.4243(d)(2)(ii).<br>(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.<br>(c) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency | |

**J. Process P11, Stack S30 - Emergency Water Pump, Powered by a Spark Ignition Natural Gas Internal Combustion Engine. Maximum heat input: 0.805 MMBtu/hr. 97.5 Brake Horsepower (bhp). 60 kW power output. Constructed Or Last Modified in November 2012. Emissions are uncontrolled.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph I.J.1.b.(3)(b). Except as provided in paragraph §60.4243(d)(3)(i), the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity. **[s.285.65(13), Wis. Stats. and 40 CFR §60.4243(d)]**<br>(4) If the permitte does not operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine, and the permittee must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. [**s.285.65(13), Wis. Stats. and 40 CFR §60.4243(a)(2)(ii)]** | |
| 2. NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR part 63 subpart | (1) The spark ignition stationary reciprocating internal combustion engine on which construction was commenced on or after June 12, 2006, must meet the requirements of | (1) Process P11 shall meet the requirements in I.J.1.b. of this permit. **[s. 285.65(13), Wis. Stats. and 40 CFR 63.6590(c)]** | (1) The permittee shall keep and maintain records of hours of operation and circumstances of operation for each emergency stationary reciprocating internal combustion engine in each |

**J. Process P11, Stack S30 - Emergency Water Pump, Powered by a Spark Ignition Natural Gas Internal Combustion Engine. Maximum heat input: 0.805 MMBtu/hr. 97.5 Brake Horsepower (bhp). 60 kW power output. Constructed Or Last Modified in November 2012. Emissions are uncontrolled.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| ZZZZ) | 40 CFR Part 63 subpart ZZZZ by meeting the requirements of 40 CFR part 60 subpart JJJJ, for spark ignition engines. **[s. 285.65(13), Wis. Stats. and 40 CFR 63.6590(c)]**<br>(2) Process P11 shall meet the definition of Emergency Stationary RICE in §63.6675. There is no time limit on the use of emergency stationary RICE in emergency situations. The emergency stationary RICE may be operated for a maximum of 100 hours per calendar year under limited circumstances for situations specified in §63.6640(f). **[s. 285.65(13), Wis. Stats., and 40 CFR 63.6675]** | | calendar year. **[s. 285.65(3), Wis. Stats.]**<br>(2) Process P11 shall meet the requirements in I.J.1.c. of this permit. **[s. 285.65(13), Wis. Stats. and 40 CFR 63.6590(c)]** |

ZZZ. **Conditions Applicable to the Entire Facility.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
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| 1. Federal Hazardous Air Pollutants (federal HAP). | **(1)** The permittee shall limit the total facility emissions of any federal hazardous air pollutant (federal HAP), as identified in Section 112(b) of the Clean Air Act, to no more than 1,666 pounds per month, averaged over any consecutive 12-month period. **[s. NR 460.02(24), Wis. Adm. Code; s. 285.65(7), Wis. Stats.]**<br>**(2)** The permittee shall limit the total facility emissions of all federal hazardous air pollutants (federal HAP), as identified in Section 112(b) of the Clean Air Act, to no more than 4,166 pounds per month, averaged over any consecutive 12 month period. **[s. NR 460.02(24), Wis. Adm. Code; s. 285.65(7), Wis. Stats.]**<br>Note: The above limits restrict the facility to be a synthetic minor source of Federal HAPs. | **(1)** The permittee shall comply with requirements in I.B.1.b.(1)-(3) and I.B.4.b.(1)-(3) of this permit. **[ss. NR 407.09(4)(a)3.b., and NR 439.055(1)(d), Wis. Adm. Code]**<br>**(2)** The permittee shall use the following methods to determine emissions of the federal hazardous air pollutants (HAPs), as identified in Section 112(b) of the Clean Air Act.<br>(a) Emissions from External Natural Gas Combustion Operations: The permittee shall use hazardous air pollutant emission factors in Section 1.4 of the most recent version US EPA AP-42 document, US EPA's Web Fire Factors, or other emission data requested by the permittee and approved by the department in writing, to calculate federal HAP emissions from Boiler B10, Processes P32, P34A, and P38A, and any other miscellaneous external natural gas combustion operations. If a range is given within a reference, the highest value in the range shall be used.<br>(b) Emissions from Internal Natural Gas Combustion Operations: The permittee shall use hazardous air pollutant emission factors in Section 3.2 of the most recent version US EPA AP-42 document, US EPA's Web Fire Factors, or other emission data requested by the permittee and approved by the department in writing, | **(1)** Whenever any hazardous air pollutant concentration or emission rate testing of any material (e.g., ink, coating, thinning agent or cleanup solvent) is required for demonstrating compliance, the permittee shall use a test method and testing protocol approved by either the US EPA or the Department. **[ss. NR 407.09(1)(c)1.a. & 4(a)1. and NR 439.06(8), Wis. Adm. Code]**<br>**(2)** The permittee shall keep written records to demonstrate compliance with conditions I.ZZZ.1.a.(1) - (2). **[s. 285.65(3), Wis. Stats., and s. NR 439.04(1)(d), Wis. Adm. Code.]**<br>**(3)** The records shall contain at minimum the identification of the material containing hazardous air pollutant (HAP), the HAP content of each material, emission factors used for each HAP and each process, the amount of material charged each month in Process P30, the facility-wide monthly emissions of each hazardous air pollutant, and the facility-wide monthly emissions of all hazardous air pollutants combined. **[s. 285.65(3), Wis. Stats., and s. NR 439.04(1)(d), Wis. Adm. Code.]**<br>**(4)** The permittee shall calculate facility-wide monthly HAP emissions, and monthly HAP emissions averaged over the previous 12 consecutive months. The monthly emissions from each process shall be determined in |

ZZZ. **Conditions Applicable to the Entire Facility.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | to calculate federal HAP emissions from Process P11. If a range is given within a reference, the highest value in the range shall be used.<br>(c) Emissions from Stationary Diesel Fuel Internal Combustion Operations: The permittee shall use hazardous air pollutant emission factors in Section 3.3 of the most recent version US EPA AP-42 document, US EPA's Web Fire Factors, or other emission data requested by the permittee and approved by the department in writing, to calculate federal HAP emissions from any internal diesel fueled combustion engines. If a range is given within a reference, the highest value in the range shall be used.<br>(d) Emissions from the Mineral Wool Cupola: The permittee shall use hazardous air pollutant emission factors in Section 1.1 (for bituminous coal combustion), Section 1.4 (for natural gas combustion) of the most recent version US EPA AP-42 document, or US EPA's Web Fire Factors, the most recent emission test results, or other emission data requested by the permittee and approved by the department in writing, to calculate federal hazardous air pollutant emissions from the mineral wool cupola (Process P30). If a range is given within a reference, the highest value in the range shall be used.<br>(e) Emissions from Coatings and Cleanup Solvents: The permittee shall use | accordance with methods specified in I.ZZZ.1.b.(2) and (3) **[s. 285.65(3), Wis. Stats., and s. NR 439.04(1)(d), Wis. Adm. Code.]**<br>**(5)** The permittee shall perform the above calculations within 15 business days of the end of each calendar month. **[s. 285.65(3), Wis. Stats., and s. NR 439.04(1)(d), Wis. Adm. Code.]**<br>**(6)** The permittee shall comply with requirements in I.B.1.c.(2)-(6) and I.B.4.c.(2)-(5) of this permit. [**ss. NR 407.09(1)(c)1.b. & (4)(a)1. and NR 439.04(1)(d), Wis. Adm. Code]** |

**ZZZ. Conditions Applicable to the Entire Facility.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | hazardous air pollutant data from Material safety Data Sheets (MSDS), Safety Data Sheet (SDS), material test data, an equivalent document provided by the supplier of the raw materials, or an equivalent source requested by the permittee and approved by the department in writing, to calculate federal HAP emissions from any coating and cleanup solvent operations. If a range is given within a reference, the highest value in the range shall be used.<br>**[s. NR 407.09(4)(a)1. And 3.b., Wis. Adm. Code]**<br>**(3)** The permittee shall determine monthly HAP emissions for each process using the following methods:[20]<br>(a) For emission units other than the mineral wool cupola (Process P30), the permittee shall calculate the maximum theoretical emissions, in units of pounds per month, for each federal HAP emitted using the following method:<br>$E_{MTE} = (EF) * T_{max} * 730$<br>Where, | |

[20] Emission calculation using the 2010 emission testing results and the emission factors from AP-42 document showed that the facility-wide potential emissions of each federal HAP other than hydrogen chloride are much less than 1,666 pounds per month and the facility-wide potential emissions of all federal HAPs combined, except hydrogen chloride, are much less than 14.9 tons per year, or 2,483.33 pounds per month. Hydrogen chloride is the only pollutant that needs additional limitations to keep its potential to emit less than 1,666 pounds per month and Process P30 is the only process emitting hydrogen chloride at the facility.

ZZZ. **Conditions Applicable to the Entire Facility.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | $E_{MTE}$ = the maximum theoretical emissions, in pounds per month, for each HAP;<br>EF = emission factors specified in I.ZZZ.1.b.(2) for each federal HAP;<br>$T_{max}$ = the maximum designed heat input, the maximum designed fuel consumption, or the maximum throughput;<br>730 is the average hours of operation per month assuming the unit is being operated 24 hours a day and 7 days a week. 730 hours per month is derived by dividing 8760 hour per year by 12 months.<br>(b) For the mineral wool cupola (Process P30), the permittee shall calculate the potential emissions, in units of pounds per month, for each federal HAP emitted except hydrogen chloride, using the following method:<br>$E_{PTE} = (EF) * T_{max} * 730$<br>Where,<br>$E_{PTE}$ = the potential emissions, in pounds per month, for each HAP;<br>EF = emission factors specified in I.ZZZ.1.b.(2)(d);<br>$T_{max}$ = the maximum fuel throughput, or the capacity of the total material charged (11.5 ton/hr); | |

ZZZ. **Conditions Applicable to the Entire Facility.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | 730 is the average hours of operation per month assuming the unit is being operated 24 hours a day and 7 days a week. 730 hours per month is derived by dividing 8760 hour per year by 12 months.<br>(c) For the mineral wool cupola (Process P30), the permittee shall calculate the actual emissions of hydrogen chloride using the following method:<br><br>$E_{HCl} = (EF_{HCl}) * T_{monthly}$<br><br>Where,<br>$E_{HCl}$ = the actual emissions of hydrogen chloride, in pounds per month;<br>$EF_{HCl}$ = the emission factor from the most recent emission test results, or any other data requested by the permittee and approved by the department, in writing, for hydrogen chloride, in pounds per ton of total material charged;<br>$T_{monthly}$ = the total material charged, in tons per month.<br>**[ss. NR 407.09(4)(a)1. and 3.b., Wis. Adm. Code.]**<br><br>**(4)** Within 15 business days of the end of each calendar month, the permittee shall calculate the facility-wide monthly emissions of hydrogen chloride, averaged over the previous 12 consecutive months, in unit of pounds per month, for the preceding month. **[s. NR 407.09(4)(a)1. And 3.b., Wis. Adm. Code]** | |

**ZZZ. Conditions Applicable to the Entire Facility.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
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| 2. Compliance Emission Testing | **(1)** When requested by the Department, the permittee shall perform compliance emission testing. **[s. NR 407.09(1)(c)3., Wis. Adm. Code]** | **(1)** Whenever compliance emission testing is required:<br>(a) All testing shall be performed while the emissions unit is operating at 100% capacity. If operation at 100% capacity is not feasible, the source shall operate at a capacity level which is approved by the Department in writing. **[s. NR 439.07(1), Wis. Adm. Code]**<br>(b) The Department shall be informed at least 20 working days prior to any stack testing so a Department representative can witness the testing. At the time of notification a compliance emission test plan shall also be submitted to the Department for approval. The permittee shall use the reference methods listed in ss. NR 439.06 to 439.095, Wis. Adm. Code, to determine compliance with emission limitations, unless an alternative or equivalent method is approved by the Department. When approved in writing, an equivalent test method may be substituted for the reference test method. **[ss. NR 439.07(2) & NR 439.06 Wis. Adm. Code]**<br>(c) Two copies of the report on the tests shall be submitted to the Department for evaluation within 60 days following the tests. **[s. NR 439.07(9), Wis. Adm. Code.]** | None Applicable. |
| 3. Monitoring and Compliance Reports/Records | (1) The permittee shall submit semiannual monitoring and compliance reports. **[s. NR 407.09(1)(c)3., Wis. Adm. Code]**<br>(2) The permittee shall submit periodic | (1) The permittee shall submit a monitor-ing report which contains the results of monitoring or a summary of monitoring results required by this permit to the | None Applicable. |

zzz. **Conditions Applicable to the Entire Facility.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
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| | certification of compliance. **[s. NR 407.09(4)(a)3., Wis. Adm. Code]**<br><br>(3) The records required under this permit shall be retained for at least five (5) years and shall be made available to department personnel upon request during normal business hours. **[s. NR 439.04, s. NR 439.05, Wis. Adm. Code]** | Department every six (6) months.<br>(a) The time periods to be addressed by the submittal are January 1 to June 30 and July 1 to December 31.<br>(b) The report shall be submitted to the Wisconsin Department of Natural Resources Southeast Region Air Program, Waukesha Service Center within 45 days after the end of each reporting period.<br>(c) All deviations from and violations of applicable requirements shall be clearly identified in the submittal.<br>(d) Each submittal shall be certified by a responsible official as to the truth, accuracy and completeness of the report.<br>(e) The content of the submittal is described in item D. of Part II of the operation permit.<br>**[ss. NR 407.09(1)(c)3. & NR 439.03(1)(b), Wis. Adm. Code]**<br><br>(2) The permittee shall submit an annual certification of compliance with the requirements of this permit to the Wisconsin Department of Natural Resources Southeast Region Air Program, Waukesha Service Center.<br><br>(a) The time period to be addressed by the report is January 1 to December 31 of the preceding year.<br>(b) The report shall be submitted to the Wisconsin Department of Natural Resources within 45 days after the end of each reporting period.<br>(c) The information included in the report shall comply with the requirements of Part II, Section N of this permit. | |

ZZZ. **Conditions Applicable to the Entire Facility.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | (d) Each report shall be certified by a responsible official as to the truth, accuracy and completeness of the report. **[ss. NR 407.09(4)(a)3. & NR 439.03(1)(c), Wis. Adm. Code]** | |
| 4. Malfunction Prevention and Abatement Plan | (1) A malfunction prevention and abatement plan shall be prepared and followed for the plant. **[s. NR 439.11, Wis. Adm. Code]** | **(1)** A malfunction prevention and abatement plan shall be prepared and followed for the plant in accordance with the following requirements<br>(a) The malfunction prevention and abatement plan shall be developed to prevent, detect and correct malfunctions or equipment failures which may cause any applicable emissions limitation to be violated or which may cause air pollution.<br>(b) The facility shall submit the plan to the Wisconsin Department of Natural Resources, Air Management Program, Waukesha Service Center, for review and approval within 60 days from the date of this permit. The department may amend the plan if deemed necessary for malfunction prevention or for the reduction of excess emissions during malfunctions.<br>(c) All air pollution control equipment shall be operated and maintained in conformance with good engineering practices (i.e. operated and maintained according to manufacturer's specifications and directions) to minimize the possibility for the exceedance of any emission limitations.<br>(d) The malfunction prevention and abatement plan shall include installation, maintenance and routine calibration procedures for the process monitoring and control equipment instrumentation. This plan shall require an instrumentation | **(1)** A written copy of the malfunction prevention and abatement plan shall be kept at the plant and shall be updated at least once every five years. **[s. NR 439.11(1), Wis. Adm. Code]**<br>**(2)** The facility shall maintain an inventory of normal consumable items necessary to ensure operation of the control device(s) in conformance with the manufacturer's specifications and recommendations. **[s. NR 439.11, Wis. Adm. Code]** |

ZZZ. **Conditions Applicable to the Entire Facility.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
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| | | calibration at the frequency specified by the manufacturer, yearly or at a frequency based on good engineering practice as established by operational history, whichever is more frequent. Inspection and calibration shall also be conducted whenever instrumentation anomalies are noted.<br>(e) The malfunction prevention and abatement plan shall require a copy of the operation and maintenance manual for the control equipment to be maintained on site. The plan shall contain all of the elements in s. NR 439.11(1)(a) – (h), Wis. Adm. Code.<br>[**ss. NR 407.09(1)(c)1.c., NR 407.09(4)(b), NR 439.055(4), and s. NR 439.11, Wis. Adm. Code]** | |
| 5. Additional Reference Test Methods | **(1)** Whenever required by the department, fuel sampling and analysis shall be performed. **[ss. NR 407.09(1)(c) and NR 439.085(4), Wis. Adm. Code]** | (1) The permittee shall use the reference test methods specified in I.ZZZ.5.c.(1)-(7). **[s. NR 439.08, Wis. Adm. Code]** | **(1)** Reference Test Method for Coke Sampling: Whenever coke sampling is required, it shall be performed according to ASTM D2234-02, Standard Test Methods for Collection of a Gross Sample of Coal. **[s. NR 439.08(3), Wis. Adm. Code]**<br>**(2)** Reference Test Method for Preparing Coke for Analysis: Whenever preparation of a coke sample for analysis is required, it shall be performed according to ASTM D2013-01, Standard Method of Preparing Coal Samples for Analysis. **[s. NR 439.08(3), Wis. Adm. Code]**<br>**(3)** Reference Test Method of Sulfur Content in Coke: Whenever the sulfur content of a coke sample is required, it shall be determined according to ASTM |

ZZZ. **Conditions Applicable to the Entire Facility.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | D3177-02, Standard Test Methods for Total Sulfur in the Analysis Sample of Coal and Coke, or ASTM D4239-04a, Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke using High Temperature Tube Furnace Combustion Methods. **[s. NR 439.08(3), Wis. Adm. Code]**<br><br>**(4)** Reference Test Method of Heat Content in Coke: Whenever the heat content of a coke sample is required, it shall be determined according to ASTM D5865-04, Standard Test Method for Gross Calorific Value of Coal and Coke. **[s. NR 439.08(3), Wis. Adm. Code]**<br><br>**(5)** Reference Test Method for Ash Content in Coke: Whenever the ash content of a coke sample is required, it shall be determined according to ASTM D3174-04, Standard Test Method for Ash in the Analysis Sample of Coal and Coke from Coal. **[s. NR 439.08(3), Wis. Adm. Code]**<br><br>**(6)** Reference Test Method for Moisture Content in Coke: Whenever the moisture content of a coke sample is required, it shall be determined according to ASTM D3173-02, Standard Test Method for Moisture in the Analysis Sample of Coal and Coke. **[s. NR 439.08(3), Wis. Adm. Code]**<br><br>**(7)** Reference Test Method for Ultimate Analysis of Coke: Whenever the ultimate analysis of a coke sample is required, it shall be determined according to ASTM D3176-89, Standard Practice for the |

**zzz. Conditions Applicable to the Entire Facility.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | | | Ultimate Analysis of Coal and Coke. **[s. NR 439.08(3), Wis. Adm. Code]** |
| 6. State Hazardous Air Pollutants (State HAPs). | (1) No owner or operator of a source may cause, allow or permit emissions of a hazardous air contaminant that has a standard expressed as an ambient air concentration listed in Table A of s. NR 445.07, Wis. Adm. Code in such quantity or concentration or for such duration as to cause an ambient air concentration of the contaminant off the source property that exceeds the concentration in column (g) of Table A for the contaminant. **[s. NR 445.07(1)(a), Wis. Adm. Code)]***<br><br>**(2)** The owner or operator of a source that emits a hazardous air contaminant for which a control requirement is identified in column (i) of Table A in a quantity greater than the amount listed in column (c), (d), (e) or (f) of Table A for the contaminant shall control emissions of the contaminant to the level identified in column (i) of the table. The control requirement shall be applied according to the procedure in s. NR 445.08(2)(f). **[s. NR 445.07(1)(c), Wis. Adm. Code]***<br>**(3)** Except hydrogen fluoride and arsenic emissions, emissions of all other hazardous air pollutants may not exceed the applicable threshold for each hazardous air pollutant in column (e) of Table A of s. NR 445.07, Wis. Adm. Code. **[s. NR 445.08(2)(a), Wis. Adm. Code]*** | (1) When the permittee elects to significantly change the existing operation (e.g., raw material or product change or production capacity increase), the permittee shall determine, either analytically or through the use of technical calculations, the facility's new or increased potential emissions of any state hazardous air pollutant (State HAP) emitted, assuming maximum operation conditions. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]***<br><br>(2) The permittee shall determine if the facility's new or increased potential emission rate of any State HAP exceeds the applicable published emission threshold values in Table A of s. NR 445.07, Wis. Adm. Code. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]***<br><br>(3) When the facility's new or increased potential emission rate of any State HAP exceeds a published emission threshold value, the permittee shall evaluate the impact of the pollutant's emission and determine if any additional action needs to be taken to protect the ambient air quality standard. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]***<br><br>(4) The permittee shall comply with requirements in I.B.1.b.(1) – (3) to demonstrate compliance. **[s. NR 407.09(4)(a)3.b., Wis. Adm. Code] *** | (1) Whenever any hazardous air pollutant concentration or emission rate testing of any material is required for demonstrating compliance, the permittee shall use a test method and testing protocol approved by either the US EPA or the Department. **[ss. NR 407.09(1)(c)1.a. & 4(a)1. and NR 439.06(8), Wis. Adm. Code]***<br><br>**(2)** The permittee shall comply with requirements in I.B.1.c.(2) – (6). **[ss. NR 407.09(1)(c)1.b. & (4)(a)1., and NR 439.04(1)(d), Wis. Adm. Code]** |

**zzz. Conditions Applicable to the Entire Facility.**

| Pollutant | a. Limitations | b. Compliance Demonstration | c. Reference Test Methods, Record-keeping and Monitoring Requirements |
|---|---|---|---|
| | **(4)** The permittee may not cause, allow or permit emissions of hydrogen fluoride off the source property to exceed 246 micrograms per cubic meter in any one hour period.[21] **[ss. NR 445.07(1)(a), and NR 445.08(2)(b), Wis. Adm. Code]*** | | |
| | **(5)** **LAER**: The permittee shall control arsenic emissions from the mineral wool cupola using the baghouses.[22] **[s. 285.65(7), Wis. Stats. and ss. NR 445.07(1)(c), and NR 445.08(2)(f), Wis. Adm. Code]*** | | |

[21] In the operation permit renewal application submitted in December 2012, the permittee indicated that the emission testing was conducted by the permittee for US EPA during the reconsideration of the NESHAP for the mineral wool manufacturing industry. In the email dated December 18, 2013, the permittee indicated that the correct emission factor for hydrogen fluoride from the cupola (Process P30) should be 0.10 lb/ton at the outlet of the baghouse. Accordingly, the hourly emission rate of hydrogen fluoride is 1.15 lb/hr, which exceeds the threshold level in column (e) of Table A in ch. NR 445, Wis. Adm. Code. The air quality impact analysis conducted on January 17, 2014, showed that this after control emission rate met the ambient air quality standards for hydrogen fluoride.

[22] In the operation permit renewal application submitted in December 2012, the permittee indicated that the emission testing was conducted by the permittee for US EPA during the reconsideration of the NESHAP for the mineral wool manufacturing industry. The test results showed the after control emissions of arsenic exceeded the threshold level in column (e) of Table A in ch. NR 445, Wis. Adm. Code. The permittee elected to comply with LAER to achieve compliance.

## PART III
## COMPLIANCE ASSURANCE MONITORING (CAM)

| CONDITION TYPE | a. CONDITIONS |
|---|---|
| 1. Compliance Assurance Monitoring (CAM) Requirements | (1) The permittee shall comply with the following provisions from the CAM plan[23] for the mineral wool cupola (Process P30) for carbon monoxide (CO) and carbonyl sulfide (COS) emissions:<br>(a) The permittee shall monitor and record the temperature in the combustion zone of the thermal oxidizer on a continuous basis, with a minimum data recording of once every 15 minutes of operation during operation ofthe cupola.<br>(b) The 1-hour average temperature in the combustion zone of the thermal oxidizer shall be maintained at a minimum temperature of 1,300 degree Fahrenheit during the operation of the cupola.<br>(c) The permittee shall take corrective actions and record as an excursion whenever the 1-hour average temperature falls below 1,300 degree Fahrenheit.<br>(d) The temperature monitoring device used to monitor temperature in the combustion chamber of the thermal oxidizer shall have an accuracy of 0.5 percent of the temperature being measured in degrees Fahrenheit or $\pm$ 5°F of the temperature being measured, or the equivalent in degrees Celsius (centigrade), whichever is greater.<br>(e) The permittee shall inspect the temperature monitoring device monthly to ensure proper operation of the device.<br>**[s. 285.65(13), Wis. Stats., 40 CFR 64.2, and 40 CFR 64.3]**<br><br>(2) The permittee shall comply with the following provisions from the CAM plan for the mineral wool cupola (Process P30) for particulate matter, hydrogen chloride (HCl), and hydrogen fluoride (HF) emissions:<br>(a) The permittee shall monitor and record the pressure drop across the pulse jet baghouse once for every 8 hours of process operation or once per day, whichever yields the greatest number of measurements.<br>(b) The pressure drop across the baghouse shall be maintained between 0.5 and 10 inches of water column.<br>(c) The permittee shall take corrective actions and record as an excursion whenever the pressure drop measured by the electronic system falls below 0.5 inches of water column or above 10 inches of water column.<br>(d) The permittee shall perform periodic internal inspections and routine maintenance and repair to ensure proper operation of the jet pulse baghouse.<br>**[s. 285.65(13), Wis. Stats., 40 CFR 64.2, and 40 CFR 64.3]**<br><br>(3) The permittee shall comply with the following provisions from the CAM plan for Line No. 1 finishing and dimensioning (Process P33), Line No. 2 finishing and dimensioning (Process P37), and Line No. 1 mould cleaning brushes and vac-u-lift (Process P39), for particulate matter emissions:<br>(a) The permittee shall monitor and record the pressure drop across the pulse jet baghouse once for every 8 hours of process operation or once per day, whichever yields the greatest number of measurements. |

[23] The final CAM plan was submitted in February 2014.

| CONDITION TYPE | a. CONDITIONS |
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| | (b) The pressure drop across the baghouse shall be maintained between 0.5 and 10 inches of water column.<br>(c) The pressure drop monitoring device shall be accurate to within 5% of the pressure drop being measured or within +/- 1 inch of water column, whichever is greater.<br>(d) The permittee shall take corrective actions and record as an excursion whenever the pressure drop measured by the electronic system falls below 0.5 inches of water column or above 10 inches of water column.<br>(e) The permittee shall perform periodic internal inspections and routine maintenance and repair to ensure proper operation of the jet pulse baghouse.<br>**[s. 285.65(13), Wis. Stats., 40 CFR 64.2 and 40 CFR 64.3]**<br><br>(4) The permittee shall develop and implement a written quality improvement plan (QIP) for any of the monitoring requirements under Conditions III.1.a.(1), (2), or (3) if the required monitoring in Conditions III.1.a.(1), (2), or (3) shows an accumulation of excursions of the indicator ranges established in the CAM plan in excess of 5% of the operating time during a semiannual monitoring period[24]. The QIP shall contain the elements listed in 40 CFR 64.8(b). **[ss. 285.65(7), 285.65(13), Wis. Stats. and 40 CFR 64.8(a)]**<br><br>(5) The permittee shall report the following items in the semi-annual compliance monitoring report required by Condition I.ZZZ.3.a.(1) of this permit.<br>(a) the number of excursions, duration of excursions, cause of excursions, and the corrective actions taken for each excursion;<br>(b) the number, duration, and cause for monitor downtime incidents.<br>**[s. 285.65(13), Wis. Stats. and 40 CFR 64.9]**<br><br>Note: Implementation of a QIP shall not excuse the permittee from compliance with any existing emission limitation or standard, or any existing monitoring, testing, reporting or recordkeeping requirement that applies under federal, state, or local law, or any other applicable requirement of the Clean Air Act. |

[24] The semiannual monitoring periods are January 1 to June 30 and July 1 to December 31 every year.