

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection**

B600166444

FACILITY: MillerKnoll		SRN / ID: B6001
LOCATION: 855 E. Main Ave., ZEELAND		DISTRICT: Grand Rapids
CITY: ZEELAND		COUNTY: OTTAWA
CONTACT: Emily Ludwig , Multisite EHS Manager		ACTIVITY DATE: 01/31/2023
STAFF: Chris Robinson	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY '23 on-site inspection to determine the facility's compliance status with respect to PTI 9-18A and any other applicable air quality rules and regulations.		
RESOLVED COMPLAINTS:		

A) INTRODUCTION

MillerKnoll, Inc., formerly Herman Miller, (SRN B6001), located at 855 East Main Avenue in Zeeland, Michigan was inspected on January 31, 2023, by Michigan's Department of Environment, Great Lakes, and Energy (EGLE) Air Quality Division (AQD) staff Chris Robinson (CR). The purpose of this inspection was to determine MillerKnoll's compliance status with respect to Permit to Install (PTI) No. 9-18A and any other applicable air quality rules and regulations.

Prior to entry CR surveyed the perimeter of the facility for odors and visible emissions, none were observed. CR then met with Emily Ludwick, EHS Manager. The PTI and current status/issues were discussed prior to the walkthrough of the facility. Ms. Ludwick indicated that the UV and Rhodes finish lines have been removed since the previous AQD inspection, conducted in January of 2020.

During this inspection weather conditions were cloudy, approximately 24°F with northwest winds at 5mph (www.weatherunderground.com).

B) FACILITY DESCRIPTION

MillerKnoll manufactures wood office furniture and operates a wood waste boiler. The manufacturing operation is composed of wood finishing lines, adhesive application stations, woodworking equipment and maintenance parts washers. The wood finishing lines are made up of various coating booths and ovens. The coating operations include an ultraviolet finish line and the Rhodes Line3, which are used to apply stains, topcoats, and sealers. The woodworking equipment consists of carving, cutting, routing, turning, drilling, sawing, sanding, planning, and buffing wood components. Exhaust from the woodworking machinery is directed to one of eight (8) dust collection systems (baghouses). Depending upon weather conditions, the exhaust from the dust collectors can either be internally or externally vented.

C) REGULATORY ANALYSIS

In the past MillerKnoll was subject to Title 40 of the Code of Federal Regulations (CFR), Part 70. With the 2013 issuance of PTI No. 162-13 MillerKnoll became a "synthetic minor" source of Hazardous Air Pollutants (HAPs), but the facility remained subject to Part 70 due to the programs "Once in Always in" policy. With EPA's withdrawal of this policy in January 2018, MillerKnoll claimed they were an "Area" source, obtained PTI No. 9-18A and voided ROP No. MI-ROP-B6001-2014.

MillerKnoll currently operates under PTI No. 9-18A and several Rule 201 permitting exemptions which are discussed below.

D) COMPLIANCE EVALUATION

1) PTI no. 9-18A

EUBOILER3162

A 28 MMBtu/hr. wood waste fired boiler is installed at this facility that is capable of generating steam primarily for on-site space heating and cooling, some process steam heating, and electricity via a steam driven turbine generator. The fuel consists of wood and resin coated wood waste produced on-site. This unit is subject to rule 40 CFR Part 63, Subpart JJJJJ (Area Source Boiler MACT) as an existing Area Source Boiler.

This boiler was re-permitted in 2015 for modifications that included a new fuel feeding system, lower hearth combustion controls, and a new Heat Recovery Steam Generator (HRSG). However, it didn't run well and with continued operational issues it has not been run since 2016. Past inspections confirmed that the boiler is equipped with a reburn tunnel, fabric filter collector and hydrochloric acid gas sorbent injection system as required in Special Condition (SC) III.1. Fuel is limited to wood waste and there has been no fuel substitutions, therefore prior notification of substitutions has not been required (SC III.2).

This boiler is subject to the emission limits specified in SC I.1-5. Special Conditions I.1, I.3 and I.4 are all based on testing, which has not been conducted since the unit has not been able to achieve the 90% design capacity. Special Condition V.2 requires the facility to notify the AQD within 30 days after start-up of EUBOILER3162 and upon reaching 90% design capacity.

FGDUSTCOLLECTORS

The following eight (8) baghouses are used for controlling Particulate Matter (PM) emissions generated by the woodworking machinery used for cutting, shaping, sanding, boring, edge profiling, edge banding, etc., of office furniture components.

- 60,000 CFM - EUDUSTCOLLECTOR1, EUDUSTCOLLECTOR2, EUDUSTCOLLECTOR3
- 75,000 CFM - EUDUSTCOLLECTOR4, EUDUSTCOLLECTOR5, EUDUSTCOLLECTOR6
- 50,000 CFM - EUDUSTCOLLECTOR7, EUDUSTCOLLECTOR8

Emissions from FGDUSCOLLECTORS are limited to the following:

Pollutant	Limit	Time Period
PM	0.005lb/1,000lb exhaust gases, calculated on a dry gas basis	Hourly
PM	50.0 tons per year (tpy)	12-month rolling
PM2.5	50.0 tpy	
PM10	50.0 tpy	

Testing was required (SC V.1) within 270 days of permit issuance in order to verify that the facility could meet their requested emission limit for PM of 0.005 lbs./1,000 lbs. of exhaust gases. The facility tested three of the baghouses (#3, #5, & #8), one per type (50,000, 60,000 and 75,000 CFM). Testing was conducted on September 10-12, 2019. The facility provided proper notifications and reports. Results, as indicated below are within the specified limit of 0.005 lbs./1,000 lbs. of exhaust gases. Compliance with the 50 tpy emission limit for PM, PM2.5, and PM10 is demonstrated by properly maintaining and operating the baghouses, which the facility appears to be doing.

- Dust Collector #3 - 0.002 lbs./1,000 lbs. (0.42 lbs./hour)

- Dust Collector #5 - 0.003 lbs./1,000 lbs. (0.83 lbs./hour)
- Dust Collector #8 - 0.003 lbs./1,000 lbs. (0.51 lbs./hour)

An initial Malfunction Abatement Plan (MAP) was received by the AQD on January 31, 2019, which was within 30 days from the time the PTI was issued (January 4, 2019) as required per SC III.1. A revised MAP was provided on February 6, 2023, which contains the information required in SC III.1.a-c.

Per discussions and site observations made during baghouse testing on September 10, 2019, and during this inspection (January 31, 2023), the woodworking equipment is never operated without the baghouses (SC IV.1). All baghouses are equipped with broken bag detectors and pressure drop gauges (SC IV.2 & VI.1). The broken bag detector continuously monitors for the presence of PM (SC VI.1). The baghouses vent both internally and externally depending on building heat requirements throughout the year. If the broken bag detector alarm is activated, the facility follows the requirements in their MAP, which includes conducting non-certified visible emission checks when the collector is discharging to the outside air. Work Orders are created for all alarms for documentation (SC VI.2 VI.3). Site personnel also take visual pressure gauge readings once per week (SC VI.4). Records were reviewed onsite, and examples of the weekly pressure log are attached.

FGGENERALPERMIT

This section includes both the UV Finish Line (EUUVFINLINE1) for topcoats and the Rhodes finish line (EURHODESLINE3) for staining. Both were decommissioned and removed in October of 2022. Since they did operate in 2022 records are still required to be maintained for 5 years, therefore they were requested and are attached. Each line was limited to 10 tpy or 2,000 pounds per month of VOCs, based on a 12-month rolling time period. Emission calculations were provided for January 1, 2022, through December 31, 2022. The 12-month rolling total VOC emissions for EURHODESLINE3 was 0.35 tons with a highest monthly total of 0.092 tons (February). The 12-month rolling total emissions for EUUVFINLINE1 was 0.51 tons with a highest monthly total of 0.089 tons (March). The permit also limited VOC emissions from all coating lines combined to 30 tpy. The 12-month rolling total for both lines combined was 0.85 tons. Records appear to indicate that the facility is in compliance with the specified emission limits. Although none of the equipment was on site, per past inspection observations high volume-low pressure (HVLP) spray guns were used and dry filters were installed and maintained (SC III.1 & III.2). At that time all waste coatings and reducers from these lines were being captured and stored in closed containers and disposed of in an acceptable manner (SC IX.1).

Monthly and annual VOC content, usage rates and emission rate calculations were provided as required per SC VI.2-5. Ms. Ludwick indicated that the facility uses point of use records, therefore monthly records of purchase orders and invoices are not required to be kept as required by SC VI.1.

FGFACILITY CONDITIONS

HAP content records and individual and aggregate HAP emission calculations are attached. The facility is subject to a facility-wide individual HAP limit of 9 tpy and an aggregate limit of 22.5 tpy. Based on the provided calculations for January 1, 2022, through December 31, 2022, the 12-month rolling aggregate total was 0.0033 tons and the highest 12-month rolling individual total was 0.0028 tons for Triethylamine. Both the aggregate and individual HAP emissions are well under the limits.

The facility's calculation spreadsheet indicates that safety Data Sheets are being used to determine the HAP content of materials applied. SC V.1 of their permit requires the HAP content to be determined using manufacturers' formulation data. Herman Miller will need to transition to them as soon as possible.

2) Rule 201 Permit to Install Exemptions

The facility has one cold cleaner located in the maintenance area. Instructions are posted and the lid is kept closed when not in use. This cold cleaner appears to be exempt from Rule 201 permitting requirements per

Rule 281(2)(h) as noted in MAERS.

The facility operates six (6) emergency generators which are listed below. All six appear to be exempt from Rule 201 permitting requirements per Rule 285(2)(g) for internal combustion engines with a maximum heat input of 10,000,000 Btu/hour. They also do not appear to be subject to the New Source Performance Standard (NSPS) for Stationary Spark Ignition Internal Combustion Engines promulgated in 40 CFR, Part 60, Subpart JJJ since they were installed prior to 6/12/2006. The diesel fired engines do not appear to be subject to the NSPS for Stationary Compression Ignition Internal Combustion Engines promulgated in 40 CFR, Part 60, Subpart III since they were installed prior to 7/11/2005.

All of the engines appear to be subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR, Part 63, Subpart ZZZZ (RICE MACT). The facility is an AREA source for HAPs, therefore subject to the AREA Source RICE MACT, which the AQD does not regulate. However, the facility has installed non-resettable hour meters and appears to be conducting the proper maintenance.

Location	Fuel Type	Engine Make	Engine Model	Install Date
IT North A/C	nat. gas	Kohler	200RZD	2001
Fac Maint	diesel	Detroit Diesel	PTA-1SD-273	1976
Fac Maint	nat. gas	Kohler	45RZ72	2004
IT	diesel		SR4	2002
Mezzanine over office	diesel	Kohler	50ROZJ71	5/31/1995 (purchase)
Bldg B	diesel	Kohler	125ROZJ71	1994

Five (5) spreader stations are currently being used for applying adhesive (3 panel express stations and 2 panel glue stations). A sixth station (Hot press) was decommissioned in 2022. The facility is claiming that the gluing operations are exempt per Rule 290. A Rule 290 evaluation and safety data sheets were reviewed during the previous inspection in 2020. No changes have been made since. Four (4) types of adhesives are being used, two (2) of which are water-based. The facility tracks monthly usage and emissions for each type of adhesive. The maximum reported VOC emissions for all adhesives combined for all of 2022 was 240.38 pounds. The month with the highest emissions was 29.79 lbs. in March. Although, emissions should be separated by station, the combined totals are less than the 1,000 lbs. per month per emission unit limit. Based on the information provided and discussions the adhesive stations appear to be exempt.

The facility operates two 25.1 MMBtu/hr. natural gas fired boilers manufactured in 1977 and 1979 and installed shortly after. Both were re-permitted when they were moved to the newly constructed energy center in 1981. Originally, they were permitted to burn both fuel oil and natural gas but at some point, the piping required to bring oil to the boilers was removed, making them not capable of burning fuel oil. The permit that covered these boilers was voided in 2000. Both of the boilers appear to be exempt from Rule 201 permitting requirements per rule 282(2)(b)(i) since they are used for indirect heating, rated at less than 50 MMBtu/hr., and only combust sweet natural gas.

4) MAERS

The facility's 2022 MAERS emissions data was not available (due March 15th) for review by the time this inspection was completed, and the 2021 data was not selected for audit during the 2022 auditing period. In order to complete an FCE CR conducted a cursory review of the facility's 2021 data, which is summarized in the table below. The reported information is consistent with the

information submitted in the past. The facility is using a combination of Mass balance calculations and MAERs emission factors. The emissions for EUAdh Roll Coat show a 249.6% increase from 2020 to 2021 while the throughput decreased by 26.8%. Increases and decreases in emissions and throughputs should be similar therefore this discrepancy may represent an error in the data. No changes to the 2021 data are required, however the facility should watch for this in the 2022 data. AQD will review the 2022 data once it becomes available.

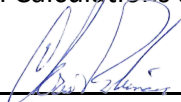
Pollutant	Tons
CO	0.66
NOX	3.28
PM10, FLTRBLE	1.74
PM10, PRIMARY	0.29
PM2.5, FLTRBL	1.74
PM2.5, PRIMRY	0.29
SO2	0.02
VOC	3.86

E) COMPLIANCE DETERMINATION

Based on observations and discussions made during this inspection and a subsequent records review, MillerKnoll appears to be operating in compliance with PTI No. 9-18A and other applicable air quality rules and regulations.

Attachments

Current Malfunction Abatement Plan
Emission Calculations and Usage Records

NAME 

DATE 2/28/2023

SUPERVISOR 