

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

N307867282

FACILITY: Michigan Foam Products LLC		SRN / ID: N3078
LOCATION: 1820 Chicago Dr SW, GRAND RAPIDS		DISTRICT: Grand Rapids
CITY: GRAND RAPIDS		COUNTY: KENT
CONTACT: Jeff Meyer , President		ACTIVITY DATE: 03/09/2023
STAFF: Michael Cox	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled Unannounced Inspection		
RESOLVED COMPLAINTS:		

Air Quality Division (AQD) staff Michael Cox (MTC) arrived at the Michigan Foam Products LLC facility located at 1820 Chicago Drive SW, Wyoming, MI at 8:30 am on March 9, 2023, to complete a scheduled, unannounced inspection. The purpose of the inspection was to determine the facility's compliance with state and federal air pollution regulations, Renewable Operating Permit (ROP) MI-ROP-N3078-2021 and Permit to Install (PTI) No. 211-02F. Prior to entering the facility, offsite odor and visible emission observations were completed. No odors or visible emissions were noted.

Facility Description

Upon arrival, AQD staff MTC met with Mr. Jeff Meyer, President, who provided all applicable records and a walk-through of the facility. Michigan Foam Products LLC is an expanded polystyrene (EPS) foam manufacturing company. The facility is in operation with Renewable Operating Permit (ROP) MI-ROP-N3078-2021 and PTI No. 211-02F. This facility is a major source of volatile organic compounds (VOCs). During the initial discussion it was concluded that no significant changes have occurred to the facility since the last inspection conducted on August 5, 2021.

Compliance Evaluation

MI-ROP-N3078-2021:

EUPLASTICRESIN

This emission unit includes the Preex 9000 vacutrans batch-type resin preexpander, canvas holding bags, Hirsch-Gruppe adjustable wall mold, hot room, wire cutting operations including one (1) GP-11000 Autowire slabbing system embossing area, and other polystyrene foam producing operations.

The EPS foam process was observed during the facility walk through. During operations steam is generated from the boiler and pumped into a wet accumulator.

The boiler was installed in 1999 and is 150 Horsepower and approximately 5.02 MMBtu/hr in size. The boiler utilizes only natural gas. Based on the size of the boiler it is not subject to New Source Performance Standards (NSPS). Additionally, the boiler appears to be exempt from air permitting per Rule 282(2)(b)(i).

EPS beads are loaded into the pre-expander and steam heated to expand the beads. Following this, the expanded beads are placed in holding bags before being steam molded to the appropriate shape. Following the mold area, one hot room was observed where foam products are stored to allow stabilization of the blocks and remaining water to evaporate. The cutting and embossing area was also observed. Emissions from operations observed here were not venting externally. In 2011 a memo was provided by Michigan Foam Products LLC stating the replacement of the mold area equipment and using a lower VOC content containing bead to be exempt per Rule 285(2)(b).

A regrind area was observed where foam material waste is reground. Emissions from this area are not vented externally. Materials reground are either shipped to customers as is or sent back to the molding process to be reused. The regrinding area appears to be exempt per Rule 285(2)(l)(vi)(B).

This emission unit is limited to VOC emissions of 115 tons per year (tpy) on a 12-consecutive month rolling basis. VOC emissions are also limited to 1,909.0 pounds per 8-hours (lbs/8hr). Emission records required by MI-ROP-N3078-2021 were requested and provided for the time period of January 2022 through February 2023. The highest 12-consecutive month VOC emission occurred during the 12-month period ending in December 2022 when 208,518 lbs (104.26 tons) of VOC was emitted. The VOC emissions and throughput were reviewed and appear to be calculated as required, by using the formulas specified in Special Conditions (SC) SC.II.2 and SC.II.3.

Per SC.II.1, VOC content of the EPS beads shall not exceed 6.3 pounds per 100 pounds of EPS beads based on a 12-month rolling total. The highest VOC content was noted to be 4.8 pounds per 100 pounds EPS beads during the 12-consecutive month period ending in December 2022.

Per SC I.3, VOC emissions are limited to 1909.0 per 8 hours of operation. Michigan Foam is keeping track of the 8-hour VOC emission limit as required. Based on the review of these records Michigan Foam did not exceed the specified 8-hour VOC emission limit.

Records were provided at the time of the inspection for the EPS bead samples tested during the 2022 reporting year. For the 2022 reporting year the pentane retention for the five samples taken was noted to be 0.49% pentane retention by weight, 0.48%

pentane retention by weight, 0.42% pentane retention by weight, 0.49% pentane retention by weight and the final bead type was noted to be 0.81% pentane retention by weight. From the records, the samples tested were conducted during the first quarter of the reporting year as required. Based on the review of the records it appears that Michigan Foam is complying with the testing and sampling requirements of MI-ROP-N3078-2021.

Four stacks are listed in association with EUPLASTICRESIN. The stacks were observed venting unobstructed vertically. All four stack heights were verified using a Nikon Forestry Pro II rangefinder. Each of the stacks were determined to be within 1 foot of the stated stack height listed in MI-ROP-N3078-2021. Due to possible human error a difference of 1 foot was determined to be acceptable.

PTI No. 211-02F

This PTI was issued for the construction of a regenerative thermal oxidizer (RTO) to control emissions from EUPLASTICRESIN. After a discussion with Mr. Jeff Meyer, the construction of the RTO has been on hold due to supply chain issues. As of this inspection the facility has not yet received the RTO, but it is expected to be on-site by the end of March 2023 or early April 2023. This PTI adds two new emission limitations on EUPLASTICRESIN not previously discussed. EUPLASTICRESIN will be limited to an hourly VOC emission rate of 1.13 pounds per hour (pph) when vented through the RTO. Also, the emission unit is subject to 129 pounds per year (lbs/yr) of Cumene emissions on a 12-month rolling basis. Based on a review of the facility's Cumene emission records for the time period of January 1, 2021, through December 2022, the facility is assuming that all EPS Beads contain 0.01% of Cumene. The highest 12-consecutive month Cumene emission occurred during the 12-month period ending in December 2021 when 22.95 lbs of Cumene was emitted.

The facility is also required to submit a Malfunction Abatement Plan (MAP) to AQD for EUPLASTICRESIN's pre-expander with RTO control. As of this inspection a MAP has not been submitted but will be expected once the RTO is on-site and operational.

The facility was made aware of the requirements for stack testing, VOC capture efficiency, and destruction efficiency for the RTO serving the pre-expander. After 180 days of trial operation or sooner the facility is expected to conduct the referenced test. The facility was also made aware of the requirement to notify AQD within 30 days of installation of the RTO.

Additional Observations

- A second building was observed during the inspection. The building is only used for storage.

Conclusion

Based on the review of the records provided and the facility walk through, Michigan Foam is in compliance with Renewable Operating Permit No. MI-ROP-N3078-2021, PTI 211-02F and all other state and federal air pollution rules and regulations.

NAME Michael T. Cox

DATE 5/2/2023

SUPERVISOR 