

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

N603862075

FACILITY: SHAWMUT CORPORATION		SRN / ID: N6038
LOCATION: 2770 DOVE ST, PORT HURON		DISTRICT: Warren
CITY: PORT HURON		COUNTY: SAINT CLAIR
CONTACT: Nick Bastianelli , Process Engineering Manager		ACTIVITY DATE: 02/08/2022
STAFF: Mark Dziadosz	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY 2022 Inspection		
RESOLVED COMPLAINTS:		

On Tuesday, February 8, 2022, I, Michigan Department of Environment Great Lakes and Energy-Air Quality Division staff Mark Dziadosz, conducted an announced scheduled inspection of Shawmut Corporation (N6038), located at 2770 Dove Street, Port Huron, Michigan. The purpose of this inspection was to determine the facility's compliance with the Federal Clean Air Act Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act of 1994, PA 451, as amended, and Permit to Install (PTI) No. 502-96B.

I arrived at the Shawmut Corporation at 1:00 PM and met with Mr. Dean Cain, Plant Manager and Mr. Nick Bastianelli, Process Engineering Manager. During the pre-inspection meeting, we discussed the facility's PTI (No. 502-96B) and processes at the facility. Shawmut Corporation manufactures soft interior textiles (headliners, door panels, body cloth) for the automotive industry. The facility currently operates three shifts and has about 62 employees.

PTI No. 502-96B was issued for three natural gas fired flame laminators (EU00001, EU00002 and EU00003). Flame Lamination is a process used to produce laminates by bonding foam to fabric or foam to film or all three together by passing the foam over an open flame. Exposure to the flame creates a thin layer of molten polymer on the foam surface, which is then brought into contact with the secondary layer with a press to develop a bond between the two surfaces. EU00001 was in the process of being dismantled when I was onsite. EU00003 is the only emission unit currently in use. EU00002 was dismantled and removed prior to 2017.

Nick and Dean were able to provide an excel spreadsheet that was prepared to help them track requirements of PTI No. 502-96B. I asked for data from 2020 & 2021. They were able to provide monthly hours of operations, PM 10 ton/yr calculations, and HAP emissions (HCl). Rather than go through each record onsite, I asked them to e-mail me the records so I could review later. They indicated they are preparing and submitting a MAERS report and will report PM10 and HCl.

After the meeting, they accompanied me for an inspection of the facility. I observed that fumes from EU00003 were vented to a hood which is exhausted to the atmosphere. Mr. Bastianelli explained the process as follows:

EU00003 has the capability of producing 2-ply and 3-ply products. Foam rolls (manufactured elsewhere) are fed through the laminator. Each flame laminator has 2 burners which are turned on to expose the foam to a flame to produce an adhesive side. As the foam exits the machine, fabric is rolled onto it and then pressed to develop a bond between the two surfaces. For 3-ply products this process occurs again on the other side of the foam.

The bonded product is then either rolled and shipped to customers or sent to the facility's cutting operation to produce blank parts. The facility has die presses to cut the laminated foam into different shapes that are used in automotive interiors. The facility also has product inspection machines which are used in flagging the rolls or cutting the rolls into lengths specified by the customer. The die casting machines and inspection machines appear to be exempt from permitting pursuant to Rule 285(2)(I)(ii) and 285(2)(I)(vi)(B). The remainder of the building is used for storage of raw and finished products. Mr. Cain stated that the facility has no solvent cleaners, degreasers, or emergency generators.

PTI No. 502-96B has emission limits for PM and PM₁₀ for each laminator, PM-10 for FG-Laminators, and facility-wide hazardous air pollutant (HAP). The PTI also includes requirements to keep monthly hours of operation and annual hours of operations based on 12-month rolling for each laminator. The operation data for each laminator is digitally tracked. Mr. Bastianelli double checks the material usage data with purchase/inventory records and then calculates emissions.

EU-00003

SC 3.1a and 3.1b limit PM-10 and PM emissions to 4.5 pounds per hour and 0.10 lbs per 1000 lbs of exhaust gases calculated on a dry gas basis, respectively. AQD has not required Shawmut to perform a stack test to verify compliance with the PM-10 or PM emission limits.

SC 3.3a and b: The facility records the monthly hours of operation as well as annual hours per 12-month rolling time period. The hours of operation are used to calculate PM-10 emissions based on an equation in Appendix A of the PTI.

SC 3.4 The exhaust stacks for EU 00003 appear to discharge vertically and unobstructed. Stack dimensions not confirmed during this inspection.

FG-Laminators

SC 4.1 limits PM-10 emission to 39.8 tons per year.

SC 4.3a and b: The facility calculates the PM-10 emissions based on a calculation in the PTI, as required. Hours of operation are multiplied by an emission factor (4.5 lb/hr) to determine tons/month and rolling 12-month annual emissions. The PM10 yearly emissions for 2021 FG-Laminators were approximately 5.28 tons in 2020 and 5.20 tons in 2021, which are below the FG-Laminators limit of 39.8 tpy. The highest reported rolling 12-month PM-10 emissions in the previous 24-months were reported in May 2021 (6.13 tons).

FGFACILITY

SC 5.1a and 5.1b limits Individual HAP emissions to 9 tons per year and aggregate HAP emission to 22.5 tons per year, respectively.

SC 5.2: The facility is keeping the required records. The facility uses manufacturer formulation data to determine HAP content.

SC 5.4a-the facility is tracking each material used

SC 5.4b-N/A the facility does not reclaim any materials

SC 5.4c-the facility tracks the HAP content of each material used

SC 5.4d-the facility determines individual and aggregate HAP emissions in tons per month (HCl is the only HAP tracked by the facility).

SC 5.4e- the facility determines individual and aggregate annual HAP emissions in tons per 12-month rolling time period (HCl is the only HAP tracked by the facility).

The source wide HAPs for 2020 were approximately 0.95 tons and 0.90 tons for 2021 of HCL which are below the permit limit 9.0 tpy for single HAP. The highest 12-month rolling total for HCl was in May 2021 (1.17 tons). Shawmut calculates HAP emissions based on the emission factors provided in the permit application (See attached emission factors). The calculated emissions are below the single HAP emission limit and the aggregate HAP emissions. HCl is the only HAP reported by Shawmut Corporation. According to the PTI application the other potential HAPs from the process are toluene diisocyanate (TDI) and hydrogen cyanide (HCN). The submitted SDS for the foam indicates HCN and TDI are by-products of burning the foam. Ether NFR 2 ply and ether NFR 3 ply are the most used foams. The EFs for HCN and HCl are similar. The emissions of HCN should be approximately the same amount as HCl (~1 ton). The facility is now using 1 of 3 laminators in the PTI. Previous inspections noted them only tracking HCl. I notified the

facility they should be tracking HCN and TDI also. According to the permit application, EU-003 (the remaining laminator) had the lowest expected HCN emissions. I reviewed the SDS sheet for the most used foam and didn't see PFAs/PFOA.

Conclusion:

Based on the information gathered during the inspection, Shawmut Corporation appears to be in compliance with the Federal Clean Air Act Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act of 1994, PA 451, as amended, and PTI No. 502-96B.

3.0 EMISSION ESTIMATES

The amount of PM, HCl, TDI and HCN emitted by the flame lamination process is related to the types of foams being processed. Shawmut Corporation processes four basic foam types known as Ester FR, Ester NFR, Ether FR and Ether NFR. FR denotes flame retardant contained in the foam, while NFR denotes no flame retardant. In general, the FRs have higher emissions. Emissions testing for PM and HCl was conducted in 1988; TDI in 1995 and HCl, TDI and HCN in 1997 at Shawmut Corporation facility in W. Bridgewater, MA on a variety of these products, from which emission factors (lb/mmyd) have been derived as follows:

Foam Type	PM (lb/mmyd)	HCl (lb/mmyd)	TDI (lb/mmyd)	HCN (lb/mmyd)
Ester FR (2 ply)	157	235	2.5	113
Ester FR (3 ply)	314	470	5	226
Ester NFR (2 ply)	79	104	2.5	113
Ester NFR (3 ply)	158	208	5	226
Ether FR (2 ply)	538	638	2.5	113
Ether FR (3 ply)	1076	1276	5	226
Ether NFR (2 ply)	79	104	2.5	113
Ether NFR (3 ply)	158	208	5	226

The 3 ply factors are based on processing the material with two burners so both sides of the foam are laminated simultaneously.

Image 1(Shawmut EFs) : Shawmut EFs from PTI application.

NAME Mark Dziadosz

DATE 3/22/2022

SUPERVISOR K. Kelly