

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

P058364458

<b>FACILITY:</b> FoamPartner Americas, Inc.(formerly Otto bock)		<b>SRN / ID:</b> P0583
<b>LOCATION:</b> 2923 TECHNOLOGY DRIVE, ROCHESTER HLS		<b>DISTRICT:</b> Warren
<b>CITY:</b> ROCHESTER HLS		<b>COUNTY:</b> OAKLAND
<b>CONTACT:</b> Steve Foote , Plant Manager		<b>ACTIVITY DATE:</b> 08/18/2022
<b>STAFF:</b> Adam Bogнар	<b>COMPLIANCE STATUS:</b> Non Compliance	<b>SOURCE CLASS:</b> SM OPT OUT
<b>SUBJECT:</b> Scheduled Inspection		
<b>RESOLVED COMPLAINTS:</b>		

On Thursday, August 18, 2022, Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) staff, I, Adam Bogнар, conducted a scheduled inspection of FoamPartner Americas, Inc (the “Facility” or “Foampartner”) located at 2923 Technology Drive, Rochester Hills, MI. The purpose of this inspection was to determine the facility’s compliance status with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) rules; and Permit to Install No. 207-14A.

I arrived at the facility at around 10 am. I met with Matt Spurrier, Engineering Manager and Michael Kurkowski, Regional HSE Manager. I identified myself and stated the purpose of the inspection. We held a pre-inspection meeting where we reviewed some of the records so that I could better understand their spreadsheets. I performed the detailed record review in my office after the data was emailed to me. Mike provided all of the requested records to me on September 2, 2022.

These records are available on the AQD shared drive at the following address: S:\Air Quality Division\STAFF\Bognar, Adam\Inspection Documents\Foampartners FY2022

FoamPartners manufacturers foam products using Reaction Injection Molding (RIM) technology. The facility began operating at this location in April 2011. There are around 50 employees that operate this facility 5 days a week. Most of the work is done 1<sup>st</sup> shift. Certain lines are operated on a more limited basis during 2<sup>nd</sup> and 3<sup>rd</sup> shift. Most of their products are made for the automotive or fitness industry.

Isocyanates (MDI) and polyols are the primary raw materials. The RIM process is similar to injection molding process where hot plastic material is injected into a mold, allowed to cool, and then is removed from the mold. In RIM, the difference is that instead of injecting molten plastic into the mold, a mixture of polyols and MDI is poured into the mold. The polyols and MDI undergo a chemical reaction within the mold, causing the two materials to polymerize and harden.

Each RIM line has its own material supply station. Chemical usage is tracked through a programmable logic controller. The two components (polyols + MDI) are mixed in a mix head and poured into the mold. A mold release solvent is applied by hand via sprayer to the mold to facilitate removal of the workpiece. This mold release solvent has been historically solvent based; however, Matt stated that the facility has converted approximately 50% of mold release usage from solvent based to water-based release agents. FoamPartners ideally wants to phase out solvent

borne mold release agents over time. New projects will likely use the waterborne mold release agent.

Certain workpieces receive paint spray coating after hardening. This is performed in the same way and in the same location that the mold release agent is applied. Particulate emissions from the mold release agent spraying and paint spraying are controlled by dry filters.

After the workpiece is cured and removed from the mold, the workpiece is manually trimmed to remove excess polymer. The mold is cleaned by blasting with dry ice as needed.

The raw materials are received in totes or through bulk delivery to a warehouse across the street. The storage warehouse across the street was leased by FoamPartners in 2017 or 2018 (2000 Technology Drive, Rochester Hills, MI). I verified that this warehouse is only used for raw material storage/blending. This material was previously stacked up to the ceiling in the manufacturing warehouse. The new warehouse was purchased to free up additional space in the manufacturing plant and to reduce the risk of catastrophic fire.

The new warehouse consists of four 1,000 ft<sup>3</sup> storage tanks, each containing one of four polyols used to blend final polyol products via two 400 ft<sup>3</sup> mixing tanks and one 275 ft<sup>3</sup> mixing tank.

Mike provided me with data sheets for the four polyols stored in the 1,000 ft<sup>3</sup> storage tanks. All of them have high boiling points. Vapor pressure is only listed for one of the 4 materials. It is listed at 0.000019 psia. The other materials appear to be similar polyol materials. Based on the records I reviewed, the four polyol storage tanks and two mix tanks are exempt from Rule 201 requirements pursuant to Rule 285(2)(i) since the tanks are less than 40,000 gallons and the contents have a true vapor pressure less than 1.5 psia.

Matt stated that no new air emissions generating manufacturing equipment has been installed since the previous AQD inspection in 2021. There are ten RIM lines in operation.

Emissions from the RIM process itself are expected to be small since the diisocyanates are expected to completely react with the polyols to produce the polyurethane.

There is an “electric fryer” used to clean the screws for the screw pumps used to inject RIM material into molds. The electric fryer is a heated open top cleaner which contains polyethylene glycol (Carbowax PEG 600). This is a parts washer, but somewhat unique from other parts washers. I observed that polyethylene glycol was evaporating and causing a visible vapor in the plant environment. Based on my research, polyethylene glycol is not considered a HAP or VOC and appears to be relatively benign. The safety data sheet for the compound shows that VOC content is less than 5% by weight ( $\approx 0.1\%$  based on Method 24 data). Based on my observations and review of the safety data sheet, this parts washer is exempt from Rule 201 requirements pursuant to Rule 281 (2)(k).

**PTI No. 207-14A**

**FGPOLYFOAM**

This flexible group consists of ten reaction injection mold lines.

Section I – SC 1: Limits combined VOC, acetone, and methyl acetate emissions to 89.7 tons per year.

I reviewed records from September 2021 through August 2022. The highest reported 12-month VOC emission rate is in September 2021 at 39 tons per year. Rolling 12-month methyl acetate and acetone emissions are both reported at 0 for the periods I reviewed.

Section I – SC 2: Limits VOC emissions from EUPOLY6 to 50 tons per year. The highest reported 12-month rolling total for EUPOLY6 was during September 2021 at 13.7 tons.

Section I – SC 3: Limits VOC emissions from EUPOLY2, EUPOLY3, and EUPOLY5 to 47 tons per year. The highest reported 12-month rolling total for these three emission units combined was in September 2021 at 22.3 tons.

Section I – SC 4: Limits VOC emissions from EUPOLY7, EUPOLY9, and EUPOLY10 to 43 tons per year. The highest reported 12-month rolling total for these three emission units combined was in September 2021 at 2.2 tons.

Section I – SC 5: Limits VOC emissions from EUPOLY1 and EUPOLY8 to 36 tons per year. The highest reported 12-month rolling total for these two emission units combined occurred during multiple months at 0.1 tons.

Section I – SC 6,7: Limits daily DMF emissions. DMF has not been used at this facility since March 2021. After some trial and error, FoamPartners was able to completely eliminate this HAP from their solvent-based paint. This material was not used during the periods I reviewed.

Section II – SC 1,2: Limits VOC content of paint coatings to 6.5 lb VOC/gallon (minus water as applied) and the VOC content of mold releases to 6.4 lb VOC/gallon (minus water as applied). FoamPartners provided Safety Data Sheets for the chemicals used at their facility.

FoamPartners has eliminated solvent-based paint coatings from their facility. The highest VOC content of the new water-based coatings used is 0.08 lb VOC/gallon. Solvent based mold release is still used. Around 20% of mold release use has been converted to water base. New projects will likely utilize water based mold release agents. The highest VOC content of the mold releases used is 6.24 lb VOC/gallon (Chem-Trend PU-11378).

Section III – SC 1: States that the permittee shall capture all waste materials and store them in closed containers. Waste materials were stored in closed containers. I did not observe any open waste containers/buckets during my inspection.

Section III – SC 2: States that the permittee shall dispose of spent filters in a manner which minimizes the introduction of air contaminants to the outer air. Matt stated that air filters are bagged and thrown into the dumpster. This appears to be an acceptable practice.

Section III – SC 3: States that the permittee shall handle all VOC and/or HAP containing materials in a manner to minimize the generation of fugitive emissions. All chemicals and waste coatings were stored in sealed containers based on my observations. There are few transfer operations because most chemicals are piped directly to the station where they are used.

Section III – SC 4: States that the permittee shall only apply paint coatings on EUPOLY1, EUPOLY4, EUPOLY5, EUPOLY7, and EUPOLY8. EUPOLY1 and EUPOLY5 shall only apply paint coatings if EUPOLY4 and/or EUPOLY7 are not operating. Foampartners is not in compliance with this condition. During my inspection, I noticed that paint coatings were applied on EUPOLY10. I could tell because the dry fabric filters were covered in black paint. Furthermore, the filters on this unit were not fitted correctly. There were several gaps around the edges of the filter squares.

Matt turned on the blower system to see if the filters would seat themselves when pressure was applied. I observed that the filters still had gaps around the edges even when the blower was turned on. A violation notice was sent to Foampartners for applying paint coatings on EUPOLY10 and for improper operation of the dry fabric filters.

Matt stated that Foampartners will likely need to continue spraying paint on EUPOLY10 if they can't figure something else out. EUPOLY10 is currently used as a pilot booth for new products. I explained that Foampartners may want to apply for a new permit to install. It is likely that a new permit would have less stringent conditions because Foampartners has reduced their usage of both HAPs and VOCs since their current PTI was issued.

Section III – SC 5: States that the permittee shall not apply any paint coatings containing dimethylformamide on EUPOLY5 and EUPOLY7. According to Matt and the records I reviewed, dimethylformamide is no longer used at the facility as of March 2021.

Section IV – SC 1: Requires the permittee to use HVLP applicators when applying spray coatings to parts. Matt stated that these types of applicators are used. The applicators appeared to be HVLP based on what I saw. Matt stated that test caps are available for pressure testing.

Section IV – SC 2: States that the permittee shall not operate FGPOLYFOAM unless all respective exhaust filters are installed, maintained, and operated in a satisfactory manner. Matt stated that the filters are changed as needed but generally every week. These filters are responsible for capturing overspray from both paint coating spray and from mold release spray.

Exhaust filters were installed on each emission unit; however, the filters were not installed correctly such that there are no gaps in the filters. There were gaps in the filters on EUPOLY4, EUPOLY6, EUPOLY8, and EUPOLY10. It was not clear to me whether the filters were installed incorrectly, or repeated use of the filters caused them to peel backwards. A violation notice was sent to Foampartners for this non-compliance.

Section V – SC 1: Requires the permittee to determine the VOC content of any paint coating using federal Reference Test Method 24. Alternatively, the permittee may submit a request to the AQD district supervisor asking to use manufacturers formulation data instead of performing a Method 24 analysis on each coating. FoamPartners submitted this request to the AQD on August 30, 2021.

AQD accepted this request on September 7, 2021. Previously, the AQD allowed FoamPartners to use formulation data without performing a Method 24 analysis or receiving this approval. Solvent based paint coatings are no longer used at this facility.

Section VI – SC 1,2,3,4: Specifies recordkeeping requirements for FoamPartners. Matt provided all of the records I requested. These included safety data sheets of all paints/mold releases, VOC/acetone/methyl acetate emission rates of each emission unit on a monthly basis, gallons of material used in each emission unit, and dimethylformamide usage records.

Section VIII – SC 1 through 10: Specifies stack parameters. I did not evaluate stack dimensions during this inspection. The stacks I observed appeared to be exhausted vertically upwards unobstructed.

### **FGFACILITY**

Section I – SC 1,2,3: Limits individual HAP emissions to 9 tons per year, aggregate HAP emissions to 22.5 tons per year, and VOC emissions to 90 tons per year. The highest reported 12-month aggregate HAP emissions was during February 2022 at 3.64 tons. The highest reported 12-month VOC emission rate was in September 2021 at 39 tons per year.

Section II – SC 1: Limits the production of VOC containing materials to 258,500 lb/year. The highest reported VOC containing material usage was during the 12-month period ending in July 2022 at 108,038 lbs.

Section V – SC 1: States that the permittee shall determine the HAP content of any materials as received and as applied using manufacturer's formulation data. FoamPartners uses manufacturers formulation data to determine HAP content of materials.

Section VI – SC 1,2,3: Specifies recordkeeping requirements for FGFACILITY. Foampartners keeps records of the amount of each HAP containing material used and the HAP content of each material used. This data is used to calculate the monthly and 12-month rolling totals. VOC usage/emission records are maintained based on the records I reviewed.

FoamPartners does not account for any VOC or HAP materials reclaimed.

### **Compliance Determination**

FoamPartners Americas, LLC. used paint coatings IN EUPOLY10. EUPOLY10 is not permitted to have paint coatings applied in this booth. Additionally, FoamPartners Americas, LLC did not install fabric filters correctly in EUPOLY4, EUPOLY6, EUPOLY8, and EUPOLY10. A violation notice was sent the facility to address these issues.

FoamPartner Americas, LLC. appears to be operating in compliance with all other requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules; and Permit to Install No. 207-14A.

NAME Adam Bogner

DATE 9/27/2022

SUPERVISOR K. Kelly