

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

A016357761

FACILITY: Flexfab, LLC		SRN / ID: A0163
LOCATION: 1699 West M-43 Hwy., HASTINGS		DISTRICT: Grand Rapids
CITY: HASTINGS		COUNTY: BARRY
CONTACT: Patrick Lynch, Environmental Health and Safety Specialist		ACTIVITY DATE: 04/20/2021
STAFF: Eric Grinstern	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: On-site compliance inspection		
RESOLVED COMPLAINTS:		

FACILITY DESCRIPTION

Flexfab manufactures silicone-based hoses, ducts, connectors, etc. for the automotive, aerospace, and various other industrial sectors.

Silicone rubber is milled, formed into sheet stock, impregnated into fabric, and cut to size. The silicon sheets are used to fabricate the desired product on various types of lathes. The finished product is then heat cured and assembled.

The facility operates three shifts, M-F, with some Saturdays and employs approximately 300 workers.

At the facility AQD staff met Patrick Lynch, Environmental Health and Safety Specialist. Mr. Lynch accompanied staff on a tour of the facility.

The inspection was announced, to assure compliance with the facility's COVID-19 requirements. Prior to starting the day EG completed both a State of Michigan and EGLE COVID screening questionnaire. At the plant, a facility COVID health questionnaire was completed and provided to Mr. Lynch. Face masks were utilized, and social distancing was practiced.

REGULATORY OVERVIEW

The facility currently holds one air use permit, PTI No. 777-90. The PTI covers a baghouse for rubber milling. The baghouse controls the emissions of additives to the silicon rubber, such as catalysts, pigments, silica. The facility previously held a permit for a vinyl welding machine (PTI 873-91); however, the process was replaced with a process utilizing tetrahydrofuran which was deemed to be exempt under Rule 290. The facility has since removed the process using tetrahydrofuran from the facility. The facility also had a steam bonding process that utilized adhesive. The process (adhesive usage) was previously determined to be exempt under Rule 287 (c). The steam bonding process has also been removed from the facility.

Mr. Lynch stated that the facility has completed a potential to emit evaluation for their facilities. Mr. Lynch provided a table summarizing the plant's air emitting processes along with the permitting exemptions.

Summary of exempt processes:

Ovens - The facility has numerous natural gas-fired ovens used for curing. The facility utilizes Rule 282(2)(b)(i) to exempt the ovens from permitting.

Rubber Curing – The curing of the silicone rubber releases a small amount of formaldehyde during the curing process. The facility utilizes Rule 290 to exempt the curing emissions from permitting.

Pad Printing – The facility utilizes ink to label products. Exempted under Rule 285(2)(l)(ix)

Generator – Emergency natural gas generator. Exempted under Rule 285(2)(g)

Cold Cleaners – Safety Kleen solvent cold cleaners. Exempted under Rule 281(2)(h)

Welding – Maintenance welding – Exempted under Rule 285(2)(i)

Air Makeup units – Natural gas fired – Exempted under Rule 282(2)(b)(i)

Clean up solvent – Various solvent usage for cleaning – Exempted under Rule 290

Release agent and adhesives – Release agent for lathes and adhesives – Exempted under Rule 287 (2)(c)

COMPLIANCE EVALUATION

The facility has three manufacturing departments, Department 204, Department 300, and Department 333. Additional operations include the Rubber Room, Cutting Room, and the Model Shop. The M-43 facility is made up of the Main building and the East Building.

The Rubber Room contains two mills used for milling of raw silicone with additives, such as: catalyst, pigment, and silica. The facility holds a permit (PTI No. 777-90) for the baghouse controlling emissions from rubber milling. Particulate emissions are generated in one of the mills from the use of additives. Mr. Lynch stated that minimal particulate emissions are generated and that very little particulate is generated in the baghouse collection drum. Also, within the Rubber Room, the silicone is shaped into a sheet and silicone is forced onto fabric in the fabric calendar.

Adjacent to the Rubber Room is the Cutting Room. In the Cutting Room the sheets of silicon material are cut to the desired size and shape.

Material processed in the Rubber Room and Cutting Room is utilized in manufacturing Department 204, Department 300, and Department 333. Similar operations are conducted in each of the manufacturing departments. Silicone sheet is wrapped on lathes, manual and automated, and subsequently heat cured in ovens. In some cases, such as aerospace products, wire reinforcement is used in the silicone products. The production process also involves the use of release agent for the lathes, adhesives, and cleanup solvents. Within each department, there are multiple production lines that could be considered individual emission units. Emissions associated with silicone curing, release agents, adhesives, printing ink and cleanup solvent are exempted from permitting. The facility provided records (as required) documenting the applicability of each exemption used.

Silicone Curing

A small amount of formaldehyde is emitted during the silicone heat curing process. The facility utilizes Rule 290 to exempt the emissions from permitting. The facility takes a conservative approach to account for emissions, instead of documenting that each of the lines emits less than the allow 20 pounds per month, the facility documents that the entire facility emits less than 20 pounds of formaldehyde a month. The facility supplied records showing a monthly high emission rate of 0.205565 pounds of formaldehyde.

Release Agents, Adhesive usage

The facility utilizes various compounds as release agents to coat the lathes, as well as adhesives, catalysts, and paints. All of these are classified as coatings, as was documented in previous inspections. The facility utilizes Rule 287(2)(c) to exempt the use of the coatings. Rule 287(2)(c) allows for a usage of a maximum of 200 gallons of coatings per month, per coating line. The facility takes a conservative approach to account for usage, instead of tracking coating usage for each of the numerous lines, the facility demonstrates that the entire facility is below the 200 gallons of coating usage limit on a monthly basis. The facility provided records showing that they had an average usage of 55 gallons per month at the M-43 facility.

Solvent Usage

The facility utilizes solvent for cleanup and as a cutting agent throughout the facility. The facility utilizes Rule 290 to exempt the solvent usage from permitting. Once again, the facility takes a conservative approach to accounting for solvent emissions. Instead of applying the allowed 1,000 pounds of emissions (based on the solvent used) per emission units, the facility demonstrates compliance with the 1,000-pound per month emission limit based on each of the three departments at the M-43 facility. The facility assumes equal usage between Department 204, Department 300, and Department 333. The facility is combining using that occurs not only in the multiple emission units within the three departments, but also, the Rubber Room, Cutting Room, Model Shop, and all the Cook Road facility. The facility provided records demonstrating that the PTE, based on 2020 usage, was below the allowed 1,000 pound per month emission limit in each of the departments. The facility records show a maximum PTE of 425 pounds of emissions per Department. The facility provided the PTE demonstration to avoid having to calculate emissions on a monthly basis.

Miscellaneous

Additional processes observed included washing units that utilized water and non-VOC detergents, one injection molding unit and press machines in the East Building (exempt under Rule 286(2)(b)).

CONCLUSION

Based on the information obtained and observations made during this inspection, the facility appears to be in compliance with all applicable air quality rules and regulations at this time.

NAME Eric Grinstern

DATE 05/07/2021

SUPERVISOR HH