

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

P058330851

FACILITY: OTTO BOCK POLYURETHANE TECHNOLOGIES, INC		SRN / ID: P0583
LOCATION: 2923 TECHNOLOGY DRIVE, ROCHESTER HLS		DISTRICT: Southeast Michigan
CITY: ROCHESTER HLS		COUNTY: OAKLAND
CONTACT: Steve Foote , Plant Manager		ACTIVITY DATE: 06/03/2015
STAFF: Francis Lim	COMPLIANCE STATUS: Compliance	SOURCE CLASS: Syn Minor Opt Out
SUBJECT:		
RESOLVED COMPLAINTS:		

On June 3, 2015, I conducted an inspection at Otto Bock Polyurethane Technologies, Inc. located at 2923 Technology Drive, Rochester Hills. The purpose of the inspection was to determine compliance 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 Environmental Quality, Air Quality Division (MDEQ-AQD) Administrative Rules; and Permit-to-Install No. 207-14. Mr. Steve Foote, Plant Manager, and Mr. Mohsen Kambod assisted me during the inspection. A copy of the booklet Environmental Inspections: Rights and Responsibilities was presented to Mr. Foote.

Otto Bock, a German-based company, started the Rochester Hills operations in April 2011. This facility is a manufacturer of noise/vibration dampening and energy absorbing polyurethane foams, foam mats and child seats for the automotive industry and foam-based retail products. Foam products are manufactured using reaction injection molding (RIM) machines. This facility operates 2 shifts.

Isocyanates and Polyols are the main raw materials. The required chemicals are received and stored in totes. The raw materials are weighed and mixed in a chemical blending area. The polyol is blended with the other components: surfactant (to lower the surface tension between liquids which allows for penetration rather than beading), catalyst, and blowing agent. Polyol is an alcohol containing multiple hydroxyl groups. Blowing agent is a chemical substance that is used to expand plastics to create foam.

The blended chemicals are transferred to the injection molding machines. Each RIM machine has its own material supply station. Chemicals are transferred from the totes to a day tank. Chemical usage is tracked through the programmable logic controller (PLC). The two components are mixed through a mix head and the mixture poured into a mold. An open mold is a mold that opens up and then closes after the mixture is poured. A closed mold has a small opening where the mixture is injected to the mold under high pressure. The closed mold opens up so that the molded foam product can be pulled out. Amount of time before foam starts rising dictates whether a closed-mold or open-mold is appropriate. Average time for foam molding is 6 minutes. Solvent-based mold release is applied to the mold to assist release of molded foam. The operators pull the molded foam off the mold and trim it. The mix head is occasionally cleaned with acetone, and sent out for thorough cleaning every 8 months. The mold is cleaned by blasting with dry ice.

Foam is a substance that is formed by trapping pockets of gas in a solid. This facility produces flexible open-cell foams (for example, sound absorbing automotive parts) where the gas pockets connect with each. Water is used as blowing agent for the open-cell foams. This facility also produces integral skin foam (for example, energy absorbing foam mats) where a high density skin is formed on the foam.

Polyurethanes are in the class of compounds called reaction polymers. Emissions from RIM machines are expected to be small since the diisocyanates are expected to completely react with the polyols to produce the polyurethane.

Some of the molded foam products are spray-coated with solvent based coatings. Overspray is controlled by dry fabric filters.

RIM machines are exempt from permits-to-install under Rule 286(e). RIM machines that involve the use of solvent-based mold release agents and paint spray coatings are not exempt.

Permit-to-Install No. 207-14

This permit is for 10 RIM machines with application of mold release and paint spray booths, identified as follows:

EUPOLY1 RIM machine installed in April 2011
EUPOLY2 RIM machine installed in August 2011
EUPOLY3 RIM machine installed in April 2012
EUPOLY4 RIM machine installed in September 2012
EUPOLY5 RIM machine installed in February 2013
EUPOLY6 RIM machine installed in September 2014
EUPOLY7 RIM machine installed in October 2014
EUPOLY8 RIM machine installed in July 2014
EUPOLY9 RIM machine installed in December 2014
EUPOLY10 RIM machine installed in October 2013

Special Condition I.1. VOC limit of 77.0 tpy, based on a rolling 12-month period and calculated at the end of each calendar month, for all 10 machines. Permit was recently approved in May 13, 2015. Facility has started a spreadsheet to calculate emissions. For 2014 MAERS, facility reported 45.98 tons of total VOC emissions from all 10 lines.

Special Condition I.2. VOC limit of 50.0 tpy, based on a rolling 12-month period and calculated at the end of each calendar month, for EU-POLY6. Permit was recently approved in May 13, 2015. Facility has started a spreadsheet to calculate emissions.

Special Condition I.3. VOC limit of 47.0 tpy, based on a rolling 12-month period and calculated at the end of each calendar month, for EUPOLY2, EUPOLY3 and EUPOLY5. Permit was recently approved in May 13, 2015. Facility has started a spreadsheet to calculate emissions.

Special Condition I.4. VOC limit of 43.0 tpy, based on a rolling 12-month period and calculated at the end of each calendar month, for EUPOLY7, EUPOLY9 and EUPOLY10. Permit was recently approved in May 13, 2015. Facility has started a spreadsheet to calculate emissions.

Special Condition I.5. VOC limit of 36.0 tpy, based on a rolling 12-month period and calculated at the end of each calendar month, for EUPOLY1 and EUPOLY8. Permit was recently approved in May 13, 2015. Facility has started a spreadsheet to calculate emissions.

Special Condition I.6. Dimethylformamide (DMF) limit of 58.5 lbs./day for EUPOLY4 and EUPOLY8. Permit was recently approved on May 13, 2015. Facility has started a spreadsheet to calculate emissions. Facility uses 2 types of coating. Only used on EUPOLY4 and EUPOLY8. The other coating without DMF is used in other machines. Facility will be testing other coatings without DMF to verify if an acceptable substitute can be used.

Special Condition II.1. Non-automotive paint coatings has a VOC limit of 5.0 lbs./gal (minus water), as applied. Coatings are used as applied. If ever a solvent is needed, acetone is used. Facility uses 2 coatings, Performix F988 and F953(non-DMF). Facility estimated VOC content as: F988, 4.98 lbs./gal; F953, 4.82 lbs./gal. The VOC content estimate was not done properly since it was not estimated based on lbs. VOC/gal, less water and exempt solvent. AQD's calculation showed 6.2 and 6.4 lbs. VOC/gal, less water and exempt solvent. A notice of violation was issued to the facility.

Special Condition II.2. Mold release has a VOC content limit of 6.4 lbs./gal (minus water), as applied. Facility has 2 suppliers for the mold release: Stoner and Chem Trend. Stoner has a VOC content of 5.44 lbs./gal, less water; Chem Trend has a VOC content of 6.24 lbs./gal, less water. The mold release consists of aliphatic hydrocarbons and VM & P Naphta, no Hazardous Air Pollutants.

Special Condition III.1. All waste materials are stored in closed containers. Hazardous waste is processed by Advanced Resource Management.

Special Condition III.2. Spent filters are disposed of properly.

Special Condition III.3. VOC and HAP containing materials are handled properly to minimize fugitive emissions.

Special Condition IV.1. Facility uses HVLP spray guns.

Special Condition IV.2. Dry filters are installed properly on the paint spray booths and the molding machines. Dry filters are replaced weekly.

Special Condition V.1. Facility presented manufacturer's MSD information to verify VOC content of coatings and mold release.

Special condition V1.1 to VI.4. Facility keeps adequate information to verify compliance with the VOC limits. Coatings and mold release are tracked daily. For consistency of tracking, a dedicated operator is assigned this task. Eight of the RIM machines have weighing scales to track mold release usage. For EUPOLY2 and EUPOLY3, the dipstick method is used to track volume usage of the mold release.

Special Condition VII. NA

Special Condition VIII. Staff did not verify stack dimensions but relied on company information for proper stack dimensions.

Facility-wide Permit Conditions for Hazardous Air Pollutants (HAPS)

Special Condition I.1. Limit for each individual HAP is less than 9.0 tpy based on a rolling time period and calculated at the end of each calendar month. Permit was recently issued in May 13, 2015. Facility has started a spreadsheet to calculate emissions.

Special Condition I.2. Limit for aggregate HAPs is less than 22.5 tpy, based on a rolling 12-month period and calculated at the end of each calendar month. Permit was recently issued in May 13, 2015. Facility has started a spreadsheet to calculate emissions.

Special Condition II. NA

Special Condition III. NA

Special Condition IV. NA

Special Condition V.1. Facility presented manufacturer's MSD information to verify HAP content of coatings. There are no HAPs in the mold release agent.

Special Condition VI.1 and VI.2. Facility keeps adequate information to verify compliance with the HAPs limits.

Special Condition VII, VIII, and IX. NA

The NOV for using noncompliance coatings has been resolved. Facility obtained a permit modification allowing the facility to operate using a higher VOC content. A more rigorous permit conditions were added to the permit. The permit modification PTI No. 207-14A was issued on August 18, 2015.

NAME *J. M. A. J.* DATE 8-28-15 SUPERVISOR CJE

