M3833
MANILA

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

M383350383

FACILITY: ROUSH MANUFACTURING Building 28		**SRN / ID:** M3833
LOCATION: 12068 MARKET STREET, LIVONIA		**DISTRICT:** Detroit
CITY: LIVONIA		**COUNTY:** WAYNE
CONTACT: Michelle Majetic ,		**ACTIVITY DATE:** 07/31/2019
STAFF: Terseer Hemben	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: PM and VOC from Sandblasting and spray paint booth		
RESOLVED COMPLAINTS:		

Annual Scheduled Compliance Inspection

Roush Manufacturing Inc.

12068 Market Street, Livonia MI 48150

SRN: M3833

Present: Terseer Hemben, EGLE-AQD

Responsible Official: Ms. Michelle Majetic, Roush

Date: July 31, 2019

BACKGROUND

The Roush Manufacturing facility is located along 12068 Market Street. The facility previously operated a spray paint booth (SPB) with water curtain for painting plastic auto parts. Roush opted to shut down the paint spray process and turned the facility into a warehouse and dry entertainment industry equipment assembly workshop. The facility installed 1 Sand Blast Booth, 1 Laser Cutter and 1 Spray Paint Booth for metal surface finishing. There is a stack system that vents emissions from the spray paint booth via fabric filters to the ambient. Emissions from the Laser cutter and sand blast booth are discharged inside the manufacturing area for material recycling. No gaseous products are produced owing to the manufacturing process, except for the VOC generated from spray painting process. A scheduled inspection was conducted in 2018 to evaluate the operating status of the facility's compliance with pollutant emissions. There was no emission concern identified following the inspection. Staff made the follow up scheduled site visit to the Roush Manufacturing facility to confirm continued compliance with Rule 201(1).

INSPECTION NARRATIVE

I arrived at the facility premises on July 31, 2019 at 1240 hours. The purpose of visit was to conduct a scheduled emission compliance inspection with respect to VOC, particulate matter (PM) and any other nuisance emissions. Temperature at the hour was 75 F, with wind speed 8 mph and humidity 60%. I was admitted onto the property by the Environmental Health and Safety Coordinator, Ms. Michelle Majetic. Ms. Majetic offered to lead me through the facility for the inspection. Roush installed and operated 1 Laser Cutter, 1 blast booth for polishing steel beams and rods, and 1 spray paint booth for priming the polished steel beams at the site. The facility commissioned operations of the coating line to support amusement equipment fabrication. Roush identified exemption status from Rule 201status because the booth blast and SPB were fortified with high efficiency dry filters and effective air draft systems that a least significant change in air pollutant emission as described in the text.

We inspected the manufacturing floor area. There building floor arrangement was kempt. The manufacturing process involved cutting, polishing (blasting), spray painting of steel parts and mechanical assembly. The following processes were observed:

Steel Cutting:

Roush Manufacturing Inc. installed and operated 2 laser cutters. The laser cutters shear steel structures at set points with precision. Generated micro size particulate emissions are discharged into the work area and pulled into the filter chamber via forced air draft as part of housekeeping. The Laser Cutter #1's potential to emit (PTE) was listed 5.9 tons of solids per year; and the Laser #2 has PTE 10.8 tons of solids per year [Records are on AQD file]. Air exchange in the units is connected to filter system serving the blast booth. The cutter met the exempt status from PTI under Rule 285 (2)(l)(vi)(B), for equipment or …that has emissions that are released only into the general in-plant environment.

The Blast Booth

The blast booth was installed in December 2017. The blast booth polishes cut steel for fabricating entertainment industry equipment (EIE). The blast booth uses brown aluminum oxide as fused minerals for sanding the metal parts [SDS full information is on file; Attachment RMI, pg. 20]. The trade name for the fused metal abrasive is listed as compositions of the oxide. The oxide is in solid form. The Safety Data Sheet indicates there are no VOC components. The abrasives are recovered after the blast process within the housing of the filters and sucked off the floor of booth using a vacuum machine. The recovered blast material is recycled. The air stream used in blast booth is directed into the filter system.

The blast booth is lined with dry filters along the walls, roof and a down draft suction for arresting the abrasives. Demonstration indicated the blast recovery equipment worked in satisfactory manner. The filters are made of AstroCel I material with specifications that enable collection of abrasives in the range 0.5 micron – 2.0 micron efficiently. According to the manufacturer's specifications, losses of abrasives during processing are minimized to 0.2% for a 0.5 - micron particulates; 0.1% for 1.0 micron; and 0% for 2.0-micron particulates [Information is on file]. Breakthrough particulates of abrasives fall inside the process area and are collected by the vacuum system that automatically turns on when the blast booth switch is engaged for operations. Pneumatic air stream separated at the point of abrasives recovery is recycled in aiding sand blast fluid flow system. The sandblast booth automatically shuts down operations when the vacuum system fails. The operation has PTE 27.8 tons of solids per year [Records from previous inspection report are in AQD file]. Roush identified the blast booth meets the exemption under Rule 285(2)(l)(vi)(B).

Spray Paint Booth (SPB)

The SPB system was installed to coat the polished steel parts used for the manufacture of the entertainment equipment. The booth is equipped with paint filters and overspray capture mechanism described as Best Spray Booth Overspray Arrestor (BSBOA) [Information in AQD file]. The BSBOA arrests the single-stage overspray delivered by the spray paint nozzle. Two guns deliver the spray paint at the same time with rated HPLV transfer efficiency 0.75 at 3 gallons per hour per gun. The system has 99.8% control efficiency for particulate matter. The spray comprises suspended inorganic zinc silicate powder in air stream and water based methoxysilane coating solution. The coating is delivered as liquid matrix. The paint overspray is absorbed over the dry filter surface area of fibers fabricated with significant tensile strength. The paint pocket characteristics of the dry filters enable containment and removal of the over sprayed Zinc Clad XI inorganic (Zinc Silicate) liquid paint at the following efficiencies:

The Overall Arrestance Efficiency of the system is 100.0% for 20-micron particulates; 99.8% for the 10-micron particulates; 84.5% for the 5-micron particulates; and 4.2% for the 2.5-micron particulates. The chemical composition of zinc silicate is provided in the SDS as 17.62% Potassium Silicate, 5.94% Amorphous Silicate, and 1.13% Methoxysilane by weight in water base [Information is in AQD file].

Filters for control rated at 99.83% capture efficiency reduced the PTE of solids to 0.06 lbs. per 1000 lbs. of air/hr. after control by calculations [Information is on file]. Roush identified the exempt status of this process under Rule 287(2)(c) and limited the use of the spray booth to not more than 200 gallons of coating per month, which is supported by monthly recordkeeping of coating use. Hence the fabrication line meets the requirements of Rule 278(a) with PTE calculations filed in AQD records. The overall classification of the facility is minor source.

The Oven

Roush installed and operates 1 natural gas fired oven rated 1,866,000 Btu/hr. total heat input. The oven is used for curing sprayed paint parts. The equipment consumes 1829.41 cubic ft gas per hour. The oven showed the following potential to emit (PTE) by calculations:

NO at 0.80 tons per year

CO at 0.67 tons per year

PM at 0.61 tons per year

SO2 at 0.01 tons per year, and

VOC at 0.04 [Information is in AQD file].

Emissions from the oven are discharged inside the in-plant environment, The Oven met exemption under Rule 287(2)(c), for a powder coating booth and associated ovens because it is a part of the coating line, where the booth is equipped with fabric filter control. The fabric filter control should be installed, maintained, and operated in accordance with the manufacturer's specifications or the owner or operator shall develop a plan that provides to the extent practicable for maintenance and operation of the equipment in a manner consistent with good air pollution control minimizing emissions. Attachment RMI, pgs. 4-19 indicate practicable maintenance operations for minimization of emissions.

REGULATORY SUMMARY

Rule 201 (1): The regulatory standing of Roush Manufacturing with this rule is satisfactory. The facility did not make changes to the process or equipment since the 2018 inspections. The facility meets the Rule 201(1) exemption status.

MACT, 40 CFR 63, Subpart C lists Hazardous Air Pollutants (HAPs), petition processes, lesser quantity designations, sources, categories…approval of application of control technologies for classifications of chemical materials used in manufacturing processes…: None of the components of Methoxysilane content in the Zinc CLAD paint used at the Roush manufacturing facility are classified under MACT by the EPA. No HAP is identified with the operation materials content.

Rule 301: The facility discharges filtered air into the work area except for the paint booth that discharges filtered air through high efficiency dry filters into the ambient via twin stacks. The

filters are changed at regular intervals and disposed by a contractor. AQD determined the contaminants were managed in a satisfactory manner that prevented introduction into the ambient air.

Rule 901: There was no complaint regarding any nuisance attributed to the facility operation during the time of inspection.

Rule 910: The filters and vacuum systems used for pollutant emission control at the facility performed in a satisfactory manner at the time of this inspection. The filter system was adequately maintained.

Rule 278

Rule 278a (1): The rule requires, for an operator to utilize eligibility for specific exemptions listed in R 336.1280 through R 336.1291, the operator must be able to provide information demonstrating the applicability of the exemption. The demonstration must include (a) a description of the exempt process or process equipment including the date of installation, (b) the specific exemption being used by the process or process in equipment, (c) an analysis demonstrating that R 336.1278 does not apply to the process or process equipment. Roush submitted the potential to emit calculation sheet highlighting particulate generating emissions of each equipment with respective applicable exempt rules claimed [Records of previous 2018 inspection submitted in Attachment C, Pgs. 1-6]. Historically, Roush manufacturing facility was permitted under R 336.1201(1) to operate coating equipment as a synthetic minor source. Progressively, Roush exited the permit conditions, uninstalled the equipment and stopped the process, thus resized a minor source. Roush re-installed a coating line at the same facility. Roush claimed exempt from permitting the coating line under exempt Rule 287(2)(c) covering the spray paint process claiming the use of 200 gallons per month. The facility met the requirements of this rule.

VOC: The PTE for VOCs associated with the process was reported to be less than 1.0 ton per year. The VOCs are generated in the oven during the curing process. The emissions from the oven and associated powder paint met an exemption as reported in the text.

DETERMINATION

AQD inspected the Roush Manufacturing Inc. located at 12068 Market Street, Livonia where the Company installed and operated a 1-line spray paint process comprising laser cutters, blast booth and spray paint process. The process uses an inorganic water-based paint primer controlled with dry filter system. Review of equipment and overall process relating to the fabrication process determined Roush's operation at the building met exemptions from Rule 201 (1) based on Rule 285(2)(l)(vi)(B) and Rule 287(2)(c) considerations. The facility is qualified as a minor source. Roush Manufacturing operated in compliance with air emission control requirements.

NAME hh DATE 9/19/2019 SUPERVISOR JK