

M3833

MANILA

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

M383345321

FACILITY: ROUSH MANUFACTURING Building 28		SRN / ID: M3833
LOCATION: 12068 MARKET STREET, LIVONIA		DISTRICT: Detroit
CITY: LIVONIA		COUNTY: WAYNE
CONTACT: Mark Gomez , Environmental Health Coordinator		ACTIVITY DATE: 04/09/2018
STAFF: Terseer Hemben	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: PM		
RESOLVED COMPLAINTS:		

Annual Scheduled Compliance Inspection

Roush Manufacturing Inc.

12068 Market Street, Livonia MI 48150

SRN: M3833

Present: Terseer Hemben, AQD

Responsible Official: Mr. Mark Gomez, Roush Manufacturing

Date: April 9, 2018

BACKGROUND

The Roush Manufacturing facility is located along 12068 Market Street. The facility previously housed 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. No gaseous products were produced from the process therefore no gaseous pollutant exchange was made with the ambient. A scheduled inspection was conducted in 2014 to verify the operating status of the facility's compliance with pollutant emissions. There was no emission concern identified following the inspection. In 2018, a scheduled compliance inspection was due. Hence staff made a follow up site visit to the Roush Manufacturing facility to conduct a compliance inspection.

INSPECTION NARRATIVE

I arrived at the facility premises on April 9, 2018 at 1400 hours. The purpose of visit was to conduct a scheduled emission compliance inspection with respect to VOC, particulate matter (PM) and odor emissions. Temperature at the hour was 33 F, with wind speed 4.6 mph coming from the ENE, and humidity 78%. I was admitted onto the property by the Environmental Health and Safety Coordinator, Mr. Mark Gomez. During the pre-inspection conference, Mr. Gomez informed Roush installed and operated 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.

We inspected the manufacturing floor area. There were many spatial changes made to the building floor arrangement: the process, the spatial arrangement, new equipment installation, and workshop inventory. Mr. Gomez informed the Company was awarded contracts to fabricate equipment for entertainment industry, such as rides and amusement equipment, for Walt Disney and other companies. The fabrication involved cutting, polishing (blasting), spray painting of polished steel products and mechanical assembly. The following processes were observed:

Steel Cutting:

The company installed and operated 2 laser cutters. The laser cutters shear steel structures at set points with precision. Generated micro size particulate emissions were discharged into the work area and pulled into the filter chamber via forced air draft as part of housekeeping. Emission calculations summed that Laser Cutter #1 has potential to emit (PTE) 5.9 tons of solids per year [Attachment pg. 2], and the Laser #2 has PTE 10.8 tons of solids per year [Attachment C, Pg. 3]. Air exchange in the units is connected to filter system serving the blast booth. Roush presented the equipment met an exemption under the Rule 285 (2)(I)(vi)(B) (Attachment c).

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 [Attachment A2]. 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 directly 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 [Attachment A1]. 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. Air stream separated at the point of abrasives recovery is discharged inside the sanding area. The sandblast booth automatically shuts down operations when the vacuum system fails. The operation has PTE 27.8 tons of solids per year [Attachment C, Pg. 1; C2,]. Roush identified the blast booth meets the exemption under Rule 285(2)(I)(vi).

Spray Paint Booth

The SPB system was installed in the late months of 2017 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) [Attachment B1]. 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 [Attachment B2].

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 [Attachment Pg. 4; C2]. Roush identified the exempt status of this process under Rule 287(2)(c) and will limit 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 supports meets the requirements of Rule 278(a) in applied prevention of significant deterioration of air quality. The overall classification of the facility is minor source.

The Oven

Roush installed and operates 1 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 power hour. The oven shows 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 [Attachment C, Pg. 4].

REGULATORY REQUIREMENTS

Compliance with regulatory rules was evaluated as follows:

Rule 201 (1): The regulatory standing of Roush Manufacturing with this rule is satisfactory. The facility previously shut down and removed all equipment used for processes that caused to discharge air pollutants to the environment. The building #28 was converted to an assembly and storage warehouse for dry hardware assembly. The current installation of blast booth and inorganic paint operation met the rule exemption due to insignificant change to emissions from the facility. The facility meets the Rule 201(1) exemption status.

Rule 301: The facility discharges filtered air into the work area except for the paint booth that discharges filtered air through high efficient dry filters into the ambient via twin stacks. The filters are changed at regular intervals and disposed by a contractor. Contaminants were

managed in a satisfactory manner that prevented re-introduction into the ambient air.

MACT, 40 CFR 63: None of the components of Methoxysilane content in the Zinc CLAD paint and members of homologous series are classified under MACT by the EPA. No HAP is identified with the operation materials content.

Rule 901: There was no issue with nuisance attributed to the 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.

Rule 278

Rule 278a(1) . Roush Manufacturing satisfied the requirements of this rule. 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 [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 six months ago 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.

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.

DETERMINATION

In determination, AQD found the Roush Manufacturing Inc. located at 12068 Market Street, Livonia 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) 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 th DATE 8/9/2018 SUPERVISOR JK