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

N095072262		
FACILITY: MICHIGAN METAL COATINGS		SRN / ID: N0950
LOCATION: 2015 DOVE STREET, PORT HURON		DISTRICT: Warren
CITY: PORT HURON		COUNTY: SAINT CLAIR
CONTACT: Steve Hlywa, Quality and Engineering Manager		ACTIVITY DATE: 05/30/2024
STAFF: Robert Joseph COMPLIANCE STATUS: Compliance		SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled compliance inspection of coating facility		
RESOLVED COMPLAINTS:		

On May 30, 2024, I, Michigan Department Environment, Great Lakes, and Energy-Air Quality Division staff Robert Joseph, conducted an on-site scheduled inspection of Michigan Metal Coatings (SRN: P0950), located at 2015 Dove Road (plant #1) and 1720 Dove Road (plant #2), Port Huron, Michigan. The purpose of the inspection was to determine the facility's compliance with the requirements of the Federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451; the Michigan Department Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules, and conditions of the facility's three Permits to Install (PTI); #24-19B, #116-06D, and #139-06.

Background information

Michigan Metal Coatings (MMC) is comprised of two facilities, Plant 1 and Plant 2, with approximately 160 employees specializing in coatings applied to metal parts (nuts, bolts, springs, fasteners, etc) for the automotive industry as well as other transportation services. There are two types of coatings primarily used by the facility, Geomet and Dorken. Geomet coatings offer a thin layer of anti-corrosion and protect a wide variety of metallic surfaces. Dorken coatings prevent stress corrosion cracking and require minimal coating thickness – yet maintain high durability.

The facility is Japanese-owned and was established in 1986. In 2015, MMC installed a Regenerative Thermal Oxidizer (RTO) to lessen its footprint on the environment, per facility personnel. In addition, the facility installed the Nicchu J-Belt Blaster, which is a heavy-duty shot-blasting station and the automated, double coating, tilt dip-spin buckets in 2016-2017 (designed by the manufacturer WMV). This equipment allows parts to be re-oriented so the coating can be applied in one step and spun off to ensure the dip-spin process provides coated parts productively.

The facility modified their permit for Plant 1, #116-06C, in early 2023 and it was reissued as permit #116-06D in March 2023. This was due to the addition of emission unit coating Line 6 (referenced as Line 7 at the facility since it's the 7th operating line, but there are only 6 Lines that operate as coating lines).

Opening introduction

I arrived on-site at Plant 1 at 10:30 a.m. and met with Mr. Steve Hlywa, Engineering & Quality Manager. I introduced myself and stated the purpose of my visit. Plant 1 is permitted through PTI #116-06D and Plant 2 is permitted through PTI #24-19B. General Permit #139-06, sets conditions for the burn-off oven in Plant 2 and the associated secondary chamber. Both plants operate 24 hours a day, 5 days a week, with three work shifts and occasionally on weekends to meet project scheduling.

Facility tour

Permit #139-06 (General Permit – only those sections with conditions are referenced).

I. EMISSION LIMITS

No visible emissions were originating from the burn-off oven located in Plant 2.

II. MATERIAL LIMIT(S)

Natural gas is the only fuel used in the burn-off oven and the facility does not process other materials in the oven other than cured paints, oil/grease on metal parts, racks and/or hangers.

III. PROCESS/OPERATIONAL RESTRICTIONS

MMC does not use the oven for the thermal destruction or removal of rubber, plastics, uncured paints, or any other materials containing sulfur or halogens. In addition, the facility does not load transformer cores into the oven that are contaminated with PCB-containing dielectric fluid, wire or parts coated with lead or rubber, or any waste materials such as paint sludge or waste powder coatings.

IV. DESIGN/EQUIPMENT PARAMETERS

The facility has installed a secondary chamber for the oven, and it was operating in the temperature range of 1500 – 1600 F at the time of inspection. An automatic temperature control system for the primary and secondary chambers is installed and operated on the oven. In addition, an interlock system shuts down the primary chamber when the secondary chamber is not operating properly. A temperature gauge measures the secondary chamber temperature continuously and it is recorded via a pie chart readout.

VI. MONITORING/RECORDKEEPING

The facility monitors and records the temperature of the secondary chamber of the burn-off oven continuously via a pie chart every 10 minutes. The thermocouples for the primary and secondary chambers were calibrated on Feb. 7, 2024, by NovaStar Metrology. MMC also maintains all malfunction events including the date and duration of each event by the Joseph Day company. The chemical composition of each material used (which includes the weight percent of each component) is maintained via Safety Data Sheets (SDS). Manufacturer information regarding the automatic temperature control system for the primary and secondary chamber is maintained – as well as that for the interlock system which shuts down the primary chamber burner when the secondary chamber is not operating properly.

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from EU-BURNOFF appear to discharge unobstructed vertically as no visible emissions were observed.

IX. OTHER REQUIREMENTS

The facility has not made any modifications or replacements for any portion of EU-BURNOFF.

Facility tour - Plant #1

The plant houses six coating lines – Lines 1A (previously 1), 2A (previously Line 2), and 5 apply topcoats and basecoats, Lines 3 and 4 apply only topcoats, and Line 6 applies only basecoats. Lines 1A, 3, and 4 contain two dip-spin booths., Lines 2A and 6 contain one dip-spin booth, and Line 5 contains 4 dip-spin booths. All parts coated in each line are cured in one natural gas oven except for Line 5 which has parts cured in two ovens.

Lines 1A, 2A, and 5 all release gases into the RTO. In addition, Line 5 also contains six shot-blasting stations. Shot-blasting stations are an exempt process per Rule 285(2)(I)(vi) (B) since the emissions vent into a dust collector baghouse which contains large double filters. The collectors are equipped with a pressure monitoring device that was approximately 3.4 inches H₂O (negative pressure). The filters are changed at least monthly or when pressure readings prevent adequate collection within the plant environment.

Permit #116-06D – only those sections with conditions are referenced.

GENERAL CONDITIONS

There were no concerns with these conditions.

EU-COATER 6 (Emission Unit Conditions)

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario
1. VOC	15.0 tpy	12-month rolling time period as determined at the end of each
		calendar month

Records indicate that this Coater did not begin operating until November 2023. The current 12-month rolling total is less than 1 ton which is less than the permitted limit.

Time Devicel / One wetter

II. MATERIAL LIMITS

Pollutant	Limit	Scenario
	3.5 lb/gal (minus water)	Daily volume-weighted
1. VUC	as applied	average.

Records indicate the daily volume weighted average has been under 1 lb/gal which is under the permitted limit.

https://intranet.egle.state.mi.us/maces/WebPages/ViewActivityReport.aspx?ActivityID=24... 6/23/2024

III. PROCESS/OPERATIONAL RESTRICTION(S)

There were no visible open waste containers on-site as all were closed and there were no visible emissions due to the improper handling of the materials.

V. TESTING/SAMPLING

The facility determined the VOC content, water content, and density of their coatings via federal Test Method 24 in September 2016.

VI. MONITORING/RECORDKEEPING

The facility maintains a current listing from the manufacturer of the chemical composition of each coating which details the Hazardous Air Pollutants (HAPs), density, and VOC + Exempt (with water) and VOC – Exempt (minus water). These were determined via EPA Method 24 and are referenced as Air Quality Data Sheets.

The facility maintains the gallons (with water) of each coating used and reclaimed. The coating, Plus XL, had a usage of 74.3 gallons in December 2023. Records indicate that 83.7% VOC emissions are being captured with a destruction efficiency of over 96%. The VOC content (minus water and with water) of each coating as applied is also documented. Plus XL (density 8.92 lb/gal) has a 0.10 lb/gal of VOC with water and minus water. The daily VOC emissions (volume-weighted average VOC content of the coatings) as applied is under 1 lb per day.

Both the monthly emission rate and annual emission rate (12-month rolling time period) in tons has been under one ton.

VII. <u>REPORTING</u>

The facility inadvertently did not provide notification of the installation of Line 6 upon completion within 30-days and was instructed during the inspection to do so via compny letterhead to avoid a violation notice to be issued. This has not impacted the facility's emissions.

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks appear to vent upwards unobstructed and there were no visible emissions emanating from the stacks.

FG-COATERS (Flexible Group Conditions)

I. EMISSION LIMITS

2. VOC

Pollutant

Limit 50.0 tpy Time Period / Operating Scenario 12-month rolling time period as determined at the end of each calendar month

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The current VOC limit is 16 tons for a 12-month rolling time period which is below the permitted limit.

II. MATERIAL LIMITS

Pollutant	Limit	Time Period / Operating Scenario
	3.5 lb/gal (minus water)	Daily volume-weighted
2. VUC	as applied	average.

The VOC daily volume-weighted average is below the permitted limit of 3.5 lbs/gal and varies between 0.5 and 1.5 lbs/gal.

III. PROCESS/OPERATIONAL RESTRICTION(S)

There were no open waste containers on-site as all were closed. The facility MAP for the RTO maintenance program includes the supervisory personnel (maintenance staff member of each shift) responsible for overseeing the inspection, maintenance, and repair of the aircleaning device. A description of the items that shall be inspected such as the control cabinet are identified, the frequency of the inspections (annual or semi-annual), and an identification of the major replacement parts that shall be maintained in inventory for quick replacement (items like the burner spark plug and actuator motor).

The facility also details the air-cleaning device operating variables that shall be monitored to detect a malfunction or failure such as the RTO's operating temperature, inlet temperature, and exhaust temperature with the normal operating range and a description of the method of monitoring or surveillance procedures.

The RTO MAP also details the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

IV. DESIGN/EQUIPMENT PARAMETER(S)

The RTO was operating at the time of inspection and was operating within the established testing parameters. The combustion chamber of the RTO is equipped with a temperature monitoring device that monitors the temperature continuously. The RTO temperature was operating between 1500 - 1600 F at the time of inspection, and the natural gas-fired ovens for each line were operating between 600 - 700 F. Both the burn-off oven and RTO monitoring devices were calibrated in February 2024.

V. TESTING/SAMPLING

The facility determined the VOC content, water content, and the density of their coatings via federal Test Method 24 in September 2016. In addition, the RTO destruction efficiency was tested at 96.05% with an 87.30% capture efficiency. The AQD has not required a destruction efficiency nor capture efficiency test since then.

VI. MONITORING/RECORDKEEPING

The facility maintains a current listing from the manufacturer of the chemical composition of each coating which details the Hazardous Air Pollutants (HAPs), density, and VOC + Exempt (with water) and VOC – Exempt (minus water). These were determined via EPA Method 24 and are referenced as Air Quality Data Sheets.

The facility maintains the gallons (with water) of each coating used and reclaimed. The coating, Plus XL Red had the highest usage in December 2023 at 103 gallons. The percentage of VOC emissions being captured and destructed by the RTO indicates 83.7% and 96%, respectively.

The VOC content (minus water and with water) of each coating as applied is also documented. Coating WB Echote Black has a 0.10 lb/gal and 0.50 lb/gal VOC content with water and minus water, respectively. On December 1, 2023, the facility processed a volume -weighted average VOC content of the coatings for each emission unit as follows: Line 1A (0.80 lbs/gal), Line 2A (0.76 lbs/gal), Line 3 (0.38 lbs/gal), Line 4 (0.41 lbs/gal), Line 5 (0.76 lbs/gal), and Line 6 (0.03 lbs/gal) as applied on a daily basis for each individual emission unit. Each is below the permit limit of 3.5 lbs/gal.

The VOC mass emission calculations determining the monthly emission rate in tons per calendar month ranges between 1.19 tons (low - December 2023) and 1.47 tons (high – August 2023) for FG-COATERS. The VOC mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month was 13.4 tons in 2023 for FG-COATERS.

The facility also monitors and records the temperature in the combustion chamber of the thermal oxidizer on a continuous basis for Lines 1A, 2A, and 5 which are used for basecoats. The RTO temperature was approximately 1515 F at the time of inspection.

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks appear to vent upwards unobstructed and there were no visible emissions emanating from the stacks.

<u>FG-FACILITY CONDITIONS</u> (applies source-wide to all process equipment including equipment covered by other permits, grand-fathered equipment and exempt equipment).

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario
1. Each Individual HAP	Less than 9.0 tpy	12-month rolling time period as determined at the end of each calendar month
2. Aggregate HAPs	Less than 22.5 tpy	12-month rolling time period as determined at the end of each calendar month

The facility's usage records indicate that each limit is being met with totals under 2 tons for each.

The prominent HAP emitted by the coating's usage is Methanol. The facility used EPA Test Method 18 and EPA Test Method 308 in 2016 and 2020, respectively, to analyze the sample coatings.

VI. MONITORING/RECORDKEEPING

The facility maintains the gallons and pounds of each HAP-containing material used and is not currently reclaiming any HAP-containing material. The HAP content, in pounds per gallon of each HAP-containing material, is maintained via Safety Data Sheets and recorded. The Geomet coatings contain Methanol at approximately 0.5 lbs/gal.

The facility maintains the individual and aggregate HAP emission calculations determining the monthly emission rate of each in tons per calendar month. The highest individual HAP monthly emission rate was Methanol in August 2023 at 0.2903 tons and the highest aggregate HAP emission total occurred in August 2023 at 0.2905 tons.

The facility also maintains the individual and aggregate HAP emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month. The highest individual HAP 12-month rolling total was Methanol in December 2023 at 2.86 tons and the highest aggregate 12-month rolling total also occurred in December 2023 at 3.10 tons.

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks vent upwards unobstructed and no visible emissions were emanating from the stacks.

Facility tour – Plant #2

I viewed the rack dip-drain-spin coating line which consists of an alkaline wash (potassium hydroxide) with a 1.22 MMBtu/hr boiler that washes all parts clean, six shot-blasting stations for removing any impurities/irregularities on the parts, three dip-spin coating booths, and two natural gas curing ovens. The facility installed this equipment at this location in 2019.

The shot-blasting stations are an exempt PTI process per Rule 285(2)(I)(vi)(B), Equipment for shot-blasting that has emissions that are released only into the general in-plant environment. The emissions vent into a dust collector baghouse which contains large double filters. The collectors are equipped with a pressure monitoring device that read approximately 2.5 inches H₂O (negative pressure). The filters are changed at least monthly or when pressure readings prevent adequate collection within the plant environment. The alkaline wash system is an exempt PTI process per Rule 285(2)(I)(iii), Equipment for surface preparation of metals by use of aqueous solutions.

Permit #24-19B – only those sections with conditions are referenced.

EU-DIPSPIN

GENERAL CONDITIONS

There were no concerns with these conditions.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario
1. VOC	25 tpy	12-month rolling time period as determined at the end of each calendar month

The facility's records indicate that 2.94 tons were emitted in 2023 which is below the permitted limit.

III. PROCESS/OPERATIONAL RESTRICTION(S)

The facility's MAP (Malfunction Abatement Plan) for EU-DIPSPIN is implemented and maintained. The MAP specifies the Regenerative Thermal Oxidizer (RTO) maintenance program that includes supervisory personnel responsible for overseeing the air-cleaning device's inspection, maintenance, and repair (the maintenance staff member of each shift). In addition, a description of the items that shall be inspected such as the control cabinet are identified, the frequency of the inspections (annual or semi-annual), and an identification of the major replacement parts that shall be maintained in inventory for quick replacement (items like the burner spark plug and actuator motor).

MMC also details the air-cleaning device operating variables that are monitored to detect a malfunction or failure such as the RTO's operating temperature, inlet temperature, and exhaust temperature – with the normal operating range and a description of the method of monitoring, and surveillance procedures.

The RTO MAP also details the corrective procedures and operational changes that shall be taken in the event of a malfunction event or a failure to achieve compliance with the applicable emission limits.

IV. DESIGN/EQUIPMENT PARAMETER(S)

The RTO was in operation during the inspection and was operating within the established parameters at 1538 F. The facility operates and maintains a temperature monitoring device that was calibrated in February 2024 by Novastar.

V. TESTING/SAMPLING

In 2021, the facility determined the VOC content (ranging from 10.1 % to 13.5%), water content (ranging from 43.6% to 46.6%), and density of the coatings (ranging from 1.380 g/mL to 1.398 g/mL) using federal reference test method 24. In addition, the RTO

destruction efficiency was tested at 97.10% with an 87.64% capture efficiency. The AQD has not required additional testing beyond this.

VI. MONITORING/RECORDKEEPING

The facility maintains a current listing from the manufacturer of the chemical composition of each coating which details the Hazardous Air Pollutants (HAPs), density, and VOC + Exempt (with water) and VOC – Exempt (minus water). These were determined via EPA Method 24 and are referenced as Air Quality Data Sheets.

The facility documents the gallons (with water) of each coating used and reclaimed. The facility's coating usage in November 2023 included 1680 gallons (with water) of Geomet 720 LS used. The VOC content (with water) of each coating is also documented, which includes Delta Seal GZ Black (5.89 lbs/gal) and Plus XL Black (0.50 lbs/gal).

The VOC mass emission calculations determining the monthly emission rate in tons per calendar month range between 0.17 tons and 0.35 in 2023, and 2.37 tons and 2.94 tons per 12-month rolling time period as determined at the end of each calendar month.

The facility also monitors and records the temperature in the combustion chamber of the thermal oxidizer continuously during the operation of EU-DIPSPIN. The temperature was 1538 degrees at the time of inspection.

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks appeared to vent upwards unobstructed and there were no visible emissions emanating from the stacks.

Conclusion

Based on the EGLE-AQD inspection and records review, Michigan Metal Coatings (N0950) is in compliance with the aforementioned requirements and the conditions of the facility's Permits to Install, 139-06, 116-06D, and 24-19B.

NAME_ Robert Joseph

DATE 06-21-24 SUPERVISOR