

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

N095062330

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: 03/10/2022
STAFF: Robert Joseph	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled inspection of coating facility		
RESOLVED COMPLAINTS:		

On March 10 and March 25, 2022, I, Michigan Department Environment, Great Lakes, and Energy-Air Quality Division staff Robert Joseph, conducted a 2022 fiscal year on-site scheduled inspection of Michigan Metal Coatings (SRN: P0950), located at 1720 Dove Road (plant #2) and 2015 Dove Road (plant #1), 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, #116-06C, and #139-06.

Background information

The establishment operates as an industrial facility that applies coatings to metal parts (nuts, bolts, springs, fasteners, etc) generally used in the automotive and industrial sources. The facility specializes in two types of coatings, Geomet and Doerken coatings. Geomet is a water-based product of metallic zinc and aluminum flakes which form together as layers and becomes inorganic after curing. Doerken is a zinc flake process via a dip and spin spray which provides corrosion and surface protection to the surface.

The facility was established in 1986 and installed a Regenerative Thermal Oxidizer (RTO) in 2015 to lessen its footprint on the environment - as well as a Nicchu J-Belt Blaster, which is a heavy duty shot-blasting station. In addition, the WMV automated, double coating, and tilt dip-spin buckets were installed in 2016-2017. These allow parts to be reoriented so the coating can be applied in one step and spun off to ensure the dip-spin process provides coated parts productively.

The AQD has conducted yearly compliance inspections at the facility since 2017 and has issued seven violation notices to the facility since 2015 for various recordkeeping and emission unit operations; all have been resolved accordingly.

Opening introduction

I arrived on-site on March 10 at plant #2 shortly after 11 a.m. and met with Mr. Steve Hlywa, Engineering & Quality Manager. I introduced myself and stated the purpose of my visit. I asked Mr. Hlywa to provide some general information regarding the facility. He indicated the facility operates out of two locations, referenced previously as plant #2 (PTI 24-19B) and plant #1 (PTI 116-06C), and with a General Permit (#139-06). Plant #2 employs approximately 27 employees and typically operates Monday – Friday, 7 a.m. – 7 p.m., and occasionally on weekends to meet project scheduling. The facility intends to expand its operations to 24-hours a day as project scheduling increases. Plant #1 employs approximately 55 employees and operates three (8) hour shifts non-stop.

Facility tour – Plant #2

Mr. Hlywa introduced me to Justin Raymond, Manager. Mr. Raymond allowed me to view the rack dip-drain-spin coating line which consists of an alkaline wash (potassium hydroxide) with a 1.22 MMBtu/hr boiler which 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 contain large double filters. The collectors are equipped with a pressure monitoring device which 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 (issued May 27, 2021)

EU-DIPSPIN

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 1.43 tons were used in April 2021 as the highest VOC total, and 0.50 tons were used in December 2021 as the lowest VOC total.

II. MATERIAL LIMIT(S)

No applicable requirements.

III. PROCESS/OPERATIONAL RESTRICTION(S)

The facility's MAP (Malfunction Abatement Plan) for EUDIPSPIN is currently implemented and maintained. It specifies the Regenerative Thermal Oxidizer (RTO) maintenance program including the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of the air-cleaning device. This is 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).

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 and surveillance procedures.

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

IV. DESIGN/EQUIPMENT PARAMETER(S)

The RTO was in-operation during the inspection of the facility and was operating within the established parameters at an operating temperature of 1500 F. The facility operates and maintains a temperature monitoring device which was calibrated in February 2021 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.

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 is documenting the gallons (with water) of each coating used and reclaimed. The facility's coating usage in January 2021 included 419 gallons (highest) for Geomet 720 LS. 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 ranges between 0 tons (low - December 2021) and 0.090 tons (high - January 2021). 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 0.495 tons in 2021.

The facility also monitors and records the temperature in the combustion chamber of the thermal oxidizer, on a continuous basis, during operation of EUDIPSPIN. The temperature was approximately 1528 degrees at the time of inspection.

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks appear to vent upwards unobstructed and there was no visible opacity reading emanating from the stacks.

Facility tour – Plant #1

Upon arriving at plant #1 on March 25 I was introduced to Mr. James Hammond, Testing Coordinator, and Mr. Mark Cournaya, Plant Manager. The plant houses five coating lines – Lines 1, 2A, and 5 can apply topcoats and basecoats, and Lines 3 and 4 apply only topcoats (the facility is currently operating Line 4 since Line 4A has not been installed yet). Line 2A was retrofitted to replace Line 2 and Line 4A will replace Line 4. Each line contains two dip-spin baskets except for line 2A which contains one and Line 5 contains four. All parts coated in each line are cured in a natural gas oven.

Lines 1, 2A, and 5 all release gases into the RTO. In addition, Line 5 also contains six shot-blasting stations as well as Line 6. Both operations are an exempt process as previously stated per Rule 285(2)(l)(vi)(B) and like plant 1, the emissions vent into a dust collector baghouse which contain large double filters. The collectors are equipped with a pressure monitoring device which read 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.

The facility removed the currently permitted natural gas-fired evaporator emission unit (EUWASTEEVAP) in May 2019 and replaced it with an evaporator that collects wastewater and sludge with no ventilation. This process is exempt per Rule 285(2)(m)(i), wastewater treatment equipment designed to treat volatile organic compounds in wastewater only released into the general in-plant environment.

Permit #116-06C (issued May 2, 2019)

EUWASTEEVAP

Removed from the facility in May 2019.

FG-COATERS (Flexible Group Conditions)

I. EMISSION LIMITS

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

The VOC limit has not exceeded 13.5 tons for a 12-month rolling time period.

II. MATERIAL LIMITS

Pollutant	Limit	Time Period / Operating Scenario
1. VOC		

Pollutant	Limit	Time Period / Operating Scenario
	3.5 lb/gal (minus water) as applied	Daily volume-weighted 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 did not appear to be any open waste containers on-site as all were closed. The facility MAP for the RTO maintenance program includes the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of the air-cleaning device. This is 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).

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 to monitor it on a continuous basis as the temperature fluctuated briefly between 1531 – 1549 F during my observation. The facility was not operating coatings lines 2 (removed 2019) and 4A (not yet operational).

The natural gas-fired ovens for each line appeared to be operating between 600 – 700 F when operating (Lines 1 and 2A) and between 300 – 400 (Lines 3, 4A, and 5) when in temporary stand-by.

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.

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 Green, had a usage of 29.3 gallons on Line 3 and 2.3 gallons on Line 4 in March 2021. The percentage of VOC emissions being captured and destructed by the RTO indicates the following: Line 1 (87.3% - captured, 12.7 - fugitive), Line 2A (87.3% - captured, 12.7 - fugitive), and Line 5 (60% - captured, 40% - fugitive).

The VOC content (minus water and with water) of each coating as applied is also documented. Coating WB Echote Black has a 0.70 lb/gal and 2.90 lb/gal VOC content with water and minus water, respectively. On March 1, 2021, the facility processed a volume-weighted average VOC content of the coatings for each emission unit as follows: Line 1 (0.73 lbs/gal), Line 2A (0.76 lbs/gal), Line 3 (0.30 lbs/gal), Line 4A (0.1.11 lbs/gal), Line 5 (0.71 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 0.839 tons (low - December 2021) and 1.38 tons (high – March 2021) for FGCOATERS. 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 13.5 tons in 2021 for FGCOATERS.

The facility also monitors and records the temperature in the combustion chamber of the thermal oxidizer, on a continuous basis, during operation of Lines 1A, 2A, and 5 which are used primarily for basecoats. The RTO temperature was approximately 1538 degrees at the time of inspection.

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks appear to be vent upwards unobstructed and there was no visible opacity reading emanating from the stacks.

FG-FACILITY CONDITIONS (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.

II. MATERIAL LIMIT(S)

No applicable requirements.

III. PROCESS/OPERATIONAL RESTRICTION(S)

No applicable requirements.

IV. DESIGN/EQUIPMENT PARAMETER(S)

No applicable requirements.

V. TESTING/SAMPLING

The primary HAP that appears to be used by facility in their coating 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 is maintaining the gallons and pounds of each HAP containing material used which includes the family of Geomet coatings. The facility is not currently reclaiming any HAP containing material. The HAP content, in pounds per gallon of each HAP containing material used is also 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 was Methanol in February 2021 at 0.24 tons and the highest aggregate HAP emission occurred in March 2021 at 0.27 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 April 2021 at 2.06 tons and the highest aggregate 12-month rolling total occurred in April 2021 at 2.23 tons.

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks appear to be vent upwards unobstructed and there was no visible opacity reading emanating from the stacks.

Permit #139-06 (General Permit)

I. EMISSION LIMITS

There was no visible emissions originating from the burn-off oven.

II. MATERIAL LIMIT(S)

The facility indicates and it appears that natural gas is the only fuel used and that no other materials are cured in the oven other than cured paints, oil or grease on metal parts, racks and/or hangers.

III. PROCESS/OPERATIONAL RESTRICTIONS

The facility indicates and it appears the oven is not used for the thermal destruction or removal of rubber, plastics, uncured paints, or any other materials containing sulfur or halogens. In addition, it does not appear nor did the facility indicate that transformer cores, which may be 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 are used in the burn-off oven.

IV. DESIGN/EQUIPMENT PARAMETERS

The facility has installed a burn-off secondary chamber and it appeared to be operating in a satisfactory manner and displayed a temperature of 1520°F and a retention time of 0.5 seconds at the time of inspection. An automatic temperature control system for the primary chamber and secondary chamber is installed and operated on the unit, and an interlock system shuts down the primary chamber when the secondary chamber or afterburner is not operating properly. A temperature gauge measures the secondary chamber temperature continuously. The facility provided an output graph of these readings.

V. TESTING/SAMPLING

No applicable requirements.

VI. MONITORING/RECORDKEEPING

The facility records the burnoff oven secondary chamber temperature continuously which is displayed via a pie chart. The facility appears to be monitoring and recording this as required to ensure proper destruction of the VOC's is occurring. The facility maintains current information from the manufacturer that EU-BURNOFF is equipped with a secondary chamber. Also, an automatic temperature control system for the primary chamber and secondary chamber is maintained, and an interlock system that shuts down the primary chamber burner when the secondary chamber is not operating properly is also maintained. Maintenance is performed by the Joseph Day company and all malfunction events are logged.

The thermocouples are calibrated yearly by a third-party contractor, Novastar. This was last performed for both the primary and secondary chambers in February 2021. The facility maintains the current listing for all coatings that are processed in the secondary chamber which include the weight percent of each component.

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from EU-BURNOFF appear to discharge unobstructed vertically as no opacity reading was observed.

IX. OTHER REQUIREMENTS

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

NAME Robert Joseph

DATE 04-27-22

SUPERVISOR Joyce