

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

N514572430

FACILITY: INDUSTRIAL METAL COATINGS INC		SRN / ID: N5145
LOCATION: 6070 18 MILE RD, STERLING HTS		DISTRICT: Warren
CITY: STERLING HTS		COUNTY: MACOMB
CONTACT: Philip A. Oliver , President		ACTIVITY DATE: 06/26/2024
STAFF: Robert Joseph	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Scheduled inspection of e-coat facility		
RESOLVED COMPLAINTS:		

On June 26, 2024, I, Michigan Department Environment, Great Lakes, and Energy-Air Quality Division staff, Robert Joseph, conducted a scheduled inspection of Industrial Metal Coating (SRN: N5145), also referred to as "the facility," located at 6070 18 Mile Road, Sterling Heights, MI, 48314. 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; and the Michigan Department Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules, conditions of the facility's Permit to Install (PTI 25-16B), and Consent Judgment 2021-95-CE.

Background Information

Industrial Metal Coating's (IMC) current permit, 25-16B, was issued on April 4, 2024, after its previous permit, 25-16A, was issued on May 23, 2023. The current permit (25-16B) was issued after the facility installed a secondary chamber (afterburner) on each of the remaining two burn-off ovens, EU-OVEN 3 and 4. The previous permit (25-16A), was issued to the facility with secondary chambers installed each on EU-OVEN 1 and 2 only. The original permit 25-16, issued on April 20, 2016, was modified as required per the facility's Consent Judgment which was issued on September 2, 2022.

The Consent Judgment was issued due to the non-compliance activity of the facility for failing to adequately resolve 11 violation notices (VNs) issued to IMC since 2017. The facility has since received seven more VNs since the issuance of the Consent Judgment (CJ) between October 2022 - June 2024. IMC has received these VNs due to their inability to satisfactorily resolve nuisance odors (Air Pollution Control Rule 901) that originate from the facility's e-coat operations. The AQD has received 95 nuisance odor complaints against IMC since June 2017.

At the time of this inspection, the facility had not fully met its Consent Judgment requirements regarding the submittal of a Remedial Action Plan (RMA) to resolve the ongoing nuisance odors verified by AQD staff. This modified version was due June 13, 2024, after the AQD (via the State Attorney General) submitted a letter to IMC on May 14, 2024, as follow-up to the May 6, 2024, virtual meeting with them. The AQD requested that IMC resubmit the modified RMA which has not yet been received.

General Facility Information

The facility is a tier III automotive supplier and is classified as a minor source. The facility's operation, e-coating, is commonly known as Electrophoretic Painting, Electrocoating, or Electropainting where the coating materials (resins, pigments, additives, etc) are dispersed in water and held in a bath. The parts to be coated are immersed in the solution and an electrical current is passed through the bath using the parts as an

electrode. Electrical activity around the surface of the parts makes the resin directly in contact become insoluble in water. This causes a layer of resin (including any pigments and additives present) to adhere to the surface of the parts. The coated parts can then be removed from the bath and the coating is normally cured by baking in an oven to make it hard and durable. Voltage applied to the e-coat system dictates the thickness of the coating.

The facility utilizes the coating product, Powercron Black Feed 6000CX, to employ their e-coat operations. The main chemical constituent in this coating is 2-butoxyethanol (also known as butyl cellosolve or butyl glycol with a density of 7.52 lbs/gal at 1% - 5 % in composition per the safety data sheet) which was formerly labeled as a hazardous air pollutant (HAP) by the U.S. EPA. The U.S. EPA removed this compound in 2004 from the HAPs list at the request of the Chemical Manufacturers Association pursuant to the Clean Air Act based on data which determined that emissions, ambient concentrations, bioaccumulation, or deposition of the substance may not reasonably be anticipated to cause adverse effects to human health or adverse environmental effects. Nonetheless, the compound displays a strong, mildly sweet, musty-like odor that causes headaches and nausea depending on concentration and length of exposure.

Facility Tour

I arrived onsite shortly after 2 p.m. and met with Grace Vigna, Receptionist, of the facility. I introduced myself and stated the purpose of my visit. I inquired if staff was available to accompany me on a tour of the facility and its processes. I proceeded to wait outdoors adjacent to the facility's entrance for approximately 10 minutes. It appeared that staff was either completing a work-break or beginning one. In addition, it appeared parts were being removed from the oven hangars. Finally, Lena, facility manager, appeared and inquired about the purpose of my visit. I indicated to her that I was on-site to conduct a full compliance evaluation of the facility per its air-use permit, 25-16B. She indicated that she was unavailable due to staff shortages at the facility that day, but that Scott Roach, Parts Manager, would accompany me on a tour of the facility.

Scott stated the facility operates with approximately 100 employees and operates two work shifts, mornings (approximately 7 a.m. – 3:30 p.m.) and afternoons on occasion (4 p.m.- 12:30 a.m.). The afternoon shift when needed performs organizational tasks, whereas the morning shift conducts the facility's e-coat operations. The facility operates a paint line consisting of an 8-stage parts washer, an electrodeposition (e-coat) dip tank, 3 post rinses, and a bake oven. I asked Scott to provide me with a closer look at the operation, but he indicated that he could not do so because it was all enclosed. I questioned his statement and he then indicated to me that he was not familiar with the process and that he would provide follow-up to me. The facility provided follow-up on 07-01-24 stating that stages 1-8 are wash and rinse stages that prepare parts for the e-coat process, and post rinses wash away excess paint which is returned to the dip tank.

Once parts are coated (while hung on the oven hangers) they are cured in a bake oven. The bake oven read 294 F and I questioned the low temperature reading to Scott. He stated that it operates at a higher temperature but that it was temporarily not operating at the time of inspection.

The automotive parts are hung on a rack and then cleaned with hot water and soap in the parts washer before being primed in a zinc-phosphate system to be e-coated. Once bathed

in the e-coat tank, the parts - which are still hung on the racks, enter the bake oven operating at typically approximately 350 F. AQD staff has detected the bake oven odors off-site which originate possibly due to the resin mixing/baking. The bake oven has four stacks which emit the emissions from this emission unit.

The facility operates 4 natural gas-fired burn-off ovens for use in removing e-coatings from production paint racks. All burn-off ovens operate with a primary chamber of 0.5 MMBtu/hr and a secondary chamber (afterburner) of 0.4 MMBtu/hr. Previously, none of the burn-off ovens operated with a secondary chamber under the facility's original permit, 25-16. The facility has since installed secondary chambers on all four ovens. Residual coatings deposited on the paint racks are removed which can inhibit the e-coating deposition using the four burn-off ovens for approximately one to two hours.

It appeared both EU-OVEN 1 and 2 were operating at the time of inspection, reading 1500 F and 1436 F, respectively. I asked Scott if the interlock system (that shuts down the primary chamber when the secondary chamber afterburner is not operating) – is installed and operating in a satisfactory manner and he could not verify this. In addition, the ovens are to be equipped with a device to continuously monitor the temperature in the secondary chamber (afterburner) and record the temperature at least once every 15 minutes, however, this is performed manually by staff. I informed Scott that this is to be done electronically per the facility's permit.

IMC also utilizes a wastewater treatment system on-site to treat the used water from the e-coat tank which is then disposed of by a third party from the facility. IMC also utilizes a natural gas boiler at six million BTU/hour which allows it to be permit-exempt per state air pollution control rule 282(2)(a). In addition, the facility building has an adjacent corridor known as Industrial Metal Finishing which uses machinery to grind and smooth the automotive parts before being washed and coated. This process is permit-exempt per state air pollution control rule 285(2)(l)(vi).

The facility states that no cold cleaners are used as none were observed on-site.

PTI: 25-16B (Only those sections with applicable permit conditions are referenced)

GENERAL CONDITIONS

There were no concerns regarding these conditions at the facility at the time of inspection. No visible emissions were observed, no malfunctioning equipment, and no modifications of the facility's equipment were observed. However, as stated, the facility has been in violation of General Condition #6 due to the emission of air contaminants causing unreasonable interference with the comfortable enjoyment of life and property.

EU- ECOAT

I. EMISSIONS LIMITS

IMC has a 7.7 lbs/hr emission limit and a 21.5 tons/yr 12-month rolling time period emission limit. There are no recordkeeping requirements regarding the hourly emission rate nor has the AQD required the facility to verify VOC emission rates from EU-ECOAT by testing at the owner's expense per Section V.1, therefore, this hourly emission rate cannot be verified

with certainty. The 12-month rolling VOC limit per facility records indicate that this value ranges between 4 and 5 tons.

II. MATERIAL LIMITS

The SDS of the Powercron coating indicates 0.41 lbs/gal (minus water) which meets this limit.

III. PROCESS/OPERATIONAL RESTRICTION(S)

The facility states disposal of the collected sludge and waste coatings is performed by staff shoveling the material into a container which is then placed in a dumpster and hauled off by a third-party entity. There were no observations of air contaminants being introduced into the outer air.

V. TESTING/SAMPLING

The AQD has not required the facility to verify VOC emission rates from EU-ECOAT by testing at the owner's expense in accordance with Department requirements.

VI. MONITORING RECORDKEEPING

The facility maintains one product for its operations, Powercron Black Feed 6000CX, which is a water-based coating. Information is maintained via SDS. Records were viewed on-site as well as received electronically. Records indicate gallon usage (with water) has varied between 3,684 to 4,841 gallons per month for the last 12 months. The Powercron coating has a 0.16 lbs/gal VOC content and the 12-month rolling annual emission rate currently is 3.98 tons.

VIII. STACK/VENT RESTRICTION(S)

Four stacks exhaust emissions from the e-coat curing (bake) oven – three stacks are 16 inches each in diameter, and one stack is 12 inches in diameter. In addition, there are two stacks (18-inch diameter each) attached to the boiler. There is one stack (12-inch diameter) from the parts washer to remove excess steam. There did not appear to be any issues with the stacks at the time of inspection regarding obstruction.

FG-OVENS

Four natural gas burn-off ovens used for the removal of e-coat from metal production racks. The facility has now installed secondary chambers on each of the four burn-off ovens.

I. EMISSIONS LIMITS

It appeared EU-OVEN 1 may have been operating at the time of inspection. EU-OVEN 2 appeared to also be operating and neither had visible emissions emanating from them.

II. MATERIAL LIMITS

Based on records viewed, the total number of racks is under the limit of 1,920 carts with amounts varying between 1,100 and 1,500 in the last 12-months. Based on the natural gas lines observed connected to the ovens, it appears the ovens only utilize natural gas as the fuel source. Scott stated that the facility only uses the ovens to burn off cured paint from the paint racks.

III. PROCESS/OPERATIONAL RESTRICTION(S)

It does not appear the facility uses any of the ovens for the thermal destruction or removal of rubber, plastics, uncured paints, or any other materials containing sulfur or halogens, nor are the ovens loaded any transformer cores contaminated with PCB-containing dielectric fluid, wire or parts coated with rubber, or any waste materials such as paint sludge or waste powder coatings.

The facility provided documentation that the oven thermocouples were last calibrated in August 2023 and are scheduled to be calibrated again in August 2024.

IV. DESIGN/EQUIPMENT PARAMETER(S)

Each burn-off oven is equipped with a secondary chamber and the facility records indicate temperatures are always 1300 F during the first 15-minute reading and then either 1400 F or 1500 F during each of the remaining 15-minute periods during each 2-hour block that the ovens operate. I inquired regarding how the readings are recorded to Scott and he stated that the readings are manually recorded. I indicated to Scott that is a violation of the permit per Condition VI.2 which requires a device to continuously monitor the temperature in the secondary chamber of each oven and recorded at least once every 15 minutes. EU-OVEN1 read 1436 F and EU-OVEN2 read 1500 F.

Each oven is equipped with an automatic temperature control system for the primary and secondary chamber; however, Scott could not verify if the interlock system that shuts down the primary chamber when the secondary chamber is not operating properly, is maintained and operating in a satisfactory manner. The AQD will provide a follow-up inquiry regarding this.

VI. MONITORING RECORDKEEPING

IMC has not installed a device to continuously monitor the temperature in the secondary chamber of each EU in FG-OVENS to record the temperature at least once every 15 minutes. The facility provided calibration records of the ovens which indicates this last occurred in August 2023. In addition, the facility states that no malfunctions or maintenance has been performed regarding its recordkeeping requirement. The facility maintains material information via SDS, and records indicate the number of carts processed each month in FG-OVENS varies between 98 and 138. The current 12-month rolling processed cart value is 1,483.

VIII. STACK/VENT RESTRICTION(S)

There did not appear to be any concerns with the oven stacks at the time of inspection.

FG-NMP

The Nuisance Minimization Plan related to odors regarding the curing (bake) oven (EU-COAT) and the four burn-off ovens (FG-OVENS). The facility submitted this plan on November 7, 2022. This flexible group only contains conditions in section III.

III. PROCESS/OPERATIONAL RESTRICTION(S)

The permittee shall not operate any EU within FG-NMP unless a nuisance minimization plan (NMP) for odors is implemented. The NMP identifies the following:

- a) Identification of the sources of potential nuisance odor issues and how the odors from those sources will be minimized and monitored. The facility identifies the burn-off ovens and the e-coat curing oven as potential odor sources and states it monitors these emission units. The facility also states that attempts are made to minimize odors by investigating the emission units if odors are detected by staff.
- b) A description of the items or conditions that shall be implemented as part of the plan. The facility's plan references the installation of the secondary chamber, increased stack heights, increased stack fan power, and additional air inlets installed on the curing oven stacks (EU-COAT).
- c) The timeline for making any physical or operational changes and the frequency of any associated inspections or monitoring. The facility provided a calendar indicating that the e-coat tank and oven are inspected daily. The facility was previously advised to also detail if there were any issues observed during these inspections, however, none were reported. The facility did not provide a timeline for any physical changes implemented; however, the facility claims the modifications referenced in (b) were installed in 2022.
- d) Proposed operation and data collection. The data collected by the permittee must be made available to the Department upon request. The facility proposed not to operate the emission units in FG-NMP when odors are detected and provided an odor survey form to be utilized by staff to investigate this, however, the facility has not submitted any odor surveys stating that no odors have been detected due to the facility's operations.
- e) A description of the corrective procedures or operational changes that shall be taken in the event of an elevated odor event. As indicated, the facility proposed the modifications referenced in (b) in an attempt to prevent odors from occurring. The facility does not provide specific details regarding corrective procedures should odors be detected other than investigating the cause.

The facility will be advised to modify the NMP per Section III. PROCESS/OPERATIONAL RESTRICTION(S) to include the following:

- 1) The parameters to be monitored on the burn-off ovens, secondary chambers (afterburner), and the e-coat curing oven to ensure they are operating properly so no odors are being emitted.
- 2) The routine maintenance of the e-coat system to ensure it is operating properly so no odors are being emitted.

3) The e-coat curing oven – like the burn-off ovens (FG-OVENS), must be shut down to investigate odors and be remedied before returning to service.

4) A malfunctioning burn-off oven or its associated secondary chamber (FG-OVENS), must be shut down and repaired if needed within 10 business days before returning to service.

Consent Judgment 2021-95-CE

Some of the requirements in the CJ are detailed in the facility's permit (25-16B) regarding the NMP submittal, afterburner installation, stack height adjustments, and inspections. However, the facility has demonstrated non-compliance regarding the following;

1) Notifying the AQD within 7-days after each modification has been completed.

2) Completing an odor evaluation of the processes within 30-days after completing all modifications to determine if odors exist.

3) Section 5.4 of the Consent Judgment specifies, IMC shall conduct daily inspections of the E-coat process prior to beginning operation. These daily inspections shall include physical investigations of each stage of the E-coat process and an identification of whether odors are detected from any portion of the process. The facility provided a calendar which indicated the dates for which this occurred, however, did specify whether or not any odors were detected.

4) Section 5.5 of the Consent Judgment specifies, IMC shall create and maintain logs of its daily cleanings to the E-coat process tanks, which shall include the date of the cleaning and the method and materials used to clean the tanks. The facility provided a calendar which indicated the dates for which this occurred, however, the method and material used to clean the tanks were not provided. The AQD will not cite a violation for this at this time, however, the facility was advised of this requirement and informed that failure to properly document this will result in a violation notice to be issued.

5) The submittal of a Remedial Action Plan (RMA), which the facility must submit if two violation notices (VN) are issued to the facility within 60-days if the verification of odors are detected by AQD staff. The facility has been issued two VNs twice within two 60-day periods. The RMA was initially due June 5, 2023; however, the facility did not submit this until December 5, 2023. The AQD disapproved the plan, in part, and requested that the RMA be modified. The AQD exchanged several correspondences with IMC between January and April 2024, and then met virtually with IMC on May 6, 2024. IMC was informed on May 14, 2024, via correspondence to submit the RMA on June 13, 2024, however, the facility has done so to date.

Conclusion

Based on the AQD inspection and records review, Industrial Metal Coating is in non-compliance regarding the aforementioned requirements, the conditions of the facility's PTI 25-16B, and Consent Judgment 2021-95-CE. A violation notice will be issued regarding the facility's failure to install a device to continuously record the temperature in the secondary chamber of each burn-off oven (FG-OVENS) at least once every 15 minutes. In addition, the facility will be notified that IMC staff must be made available that are knowledgeable of the facility's processes. Mr. Scott Roach's tour assistance at the facility was appreciated, however, he was unable to verify process descriptions nor verify if equipment was operating

properly. IMC will be notified that staff must be made available who are familiar with this to ensure there are no operational concerns. Failure to do so will result in violation notices being issued to the facility regarding future visits.

NAME Robert Joseph

DATE 07-02-24

SUPERVISOR Joyce