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

N514568873

FACILITY: INDUSTRIAL METAL COATINGS INC		**SRN / ID:** N5145
LOCATION: 6070 18 MILE RD, STERLING HTS		**DISTRICT:** Warren
CITY: STERLING HTS		**COUNTY:** MACOMB
CONTACT: Scott Roach , General Manager		**ACTIVITY DATE:** 08/24/2023
STAFF: Robert Joseph	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Scheduled inspection of the coating facility		
RESOLVED COMPLAINTS:		

On August 24, 2023, I, Michigan Department Environment, Great Lakes, and Energy-Air Quality Division staff, Robert Joseph, and AQD staff, Owen Pierce, 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 25-16A), and Consent Judgment 2021-95-CE.

Background Information

The facility's current permit, 25-16A, was issued on May 23, 2023, after its previous permit, 25-16, originally issued on April 20, 2016, was modified as required per the facility's Consent Judgment 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 the facility since 2017. The facility has since received five more VNs since the issuance of the Consent Judgment (CJ) between October 2022 - September 2023. The primary reason the facility has received these VNs is due to the facility's inability to satisfactorily resolve state rule 901 nuisance odors that originate due to the facility's e-coating operations - the AQD has received 88 nuisance odor complaints against the facility since June 2017. At the time of inspection, the facility had not fully met its Consent Judgment requirements regarding the submittal of a remedial action plan to resolve the ongoing nuisance odors verified by AQD staff. The AQD Attorney General filed a contempt and motion to enforce the consent judgment on August 28, 2023. The facility is expected to appear in circuit court on October 5, 2023.

General Facility Information

The facility is a tier III automotive supplier and is classified as a minor source. The facility's operation is e-coating also 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 and 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

We arrived onsite shortly before 11 a.m. and met with Grace Vigna, Receptionist, of the facility. We introduced ourselves, presented our credentials, and stated the purpose of our visit. We then met with Scott Roach, Manager, who accompanied us on a tour of facility. Scott stated the facility operates with approximately 100 employees and operates two work shifts, morning and afternoon. Scott states the morning shift conducts the facility's operations and the afternoon shift primarily performs organizational tasks. The facility operates a paint line consisting of an 8-stage parts washer with the aforementioned e-coat dip tank, 3 post rinses, and a curing oven. In addition, 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 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 old permit, 25-16. The facility has since installed the a secondary chamber on two of the four ovens given that the two ovens were the only two the facility stated it intended to use in its operations, per the CJ. However, in early September 2023, the facility installed a secondary chamber on the remaining two ovens also. At the time of inspection, only the natural gas lines were observed to have been installed on the remaining two ovens. The facility's current PTI, 25-16A, only references two of the four given its issuance date.

The automotive parts are hung on a rack 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 curing bake oven operating at approximately 350 degrees Fahrenheit. AQD staff has detected the odors off-site which originate from the curing oven possibly due to the resin mixing/baking. The curing oven has four stacks which emit the emissions from this emission unit. 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. The facility also utilizes a wastewater treatment system on-site to treat the used water from the e-coat tank which is then deposited of by a third party from the facility.

The facility 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 prior to 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: 25-16A

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 was 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

There is a 7.7 lbs/hr emission limit and a 21.5 tons/yr 12-month rolling time period emission limit that the facility must adhere to. 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. In addition, the facility has not satisfactorily (calculation errors, missing values, inaccuracy) documented and maintained 12-month rolling VOC records, however, based on the provided information the facility appears to be emitting just under 5 tons/yr. A violation notice will be issued regarding the unsatisfactory recordkeeping.

II. MATERIAL LIMITS

The SDS of the Powercron coating indicates a 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 in a manner which minimizes the introduction of air contaminants to the outer air every few months and it is containerized. I did witness anything that would refute that claim.

IV. DESIGN/EQUIPMENT PARAMETER(S)

There are no applicable conditions for this section.

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. The facility's non-compliance activity primarily pertains to nuisance odors. Although the facility has displayed poor recordkeeping, they are not believed to be exceeding their established permit limit.

VI. MONITORING RECORDKEEPING

The facility maintains one product used for its operations, Powercron Black Feed 6000CX, which is a water-based coating. Information is maintained via SDS. Gallons of the material were viewed on-site and received electronically. The validity of the usage values were questioned though no further action currently has been taken regarding them. As previously stated, the facility has not satisfactorily maintained 12-month rolling VOC emission records. Based on the provided information, the facility is emitting just under 5 tons/yr per 12-month rolling time period.

VII. REPORTING

There are no applicable conditions for this section.

VIII. STACK/VENT RESTRICTION(S)

There are four stacks that exhaust from the e-coat curing oven, three stacks are 16 inches in diameter, and one stack is 12-inches in diameter. In addition, there are two stacks (18-inch diameter) 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. The e-coat curing oven stacks - namely the southern and eastern most stacks have been viewed to be emitting visible emissions during complaint investigations (5-10% opacity).

IX. OTHER REQUIREMENT(S)

There are no applicable conditions for this section.

FG-OVENS

Two natural gas burn-off ovens used for the removal of e-coat from metal production racks. As previously stated, the facility has now installed secondary chambers on the remaining two ovens as well. Each oven is controlled by its own secondary chamber (afterburner).

I. EMISSIONS LIMITS

The burn-off ovens were not operating at the time of inspection so no visible emissions were observed.

II. MATERIAL LIMITS

Similarly to the 12-month rolling VOC totals, the facility did not satisfactorily maintain 12-month rolling cart totals. Based on the records viewed, the total number of racks is under the limit of 1,920 carts of paint racks with amounts varying between 1,000 - 1,600. It appears the facility only burns natural gas in the ovens as viewed on-site, nor do they place anything in them other than 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 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 September 2022. The facility was reminded to schedule an appointment as soon as possible given the one year requirement.

IV. DESIGN/EQUIPMENT PARAMETER(S)

Although not operating at the time of inspection, the secondary chamber (afterburner) on the ovens is installed, maintained, and appears to operate in a satisfactory manner. Satisfactory operation of the secondary chamber (afterburner) includes maintaining a minimum temperature of 1400° F and a minimum retention time of 0.5 seconds.
The monitoring device of the ovens indicated the operating temperatures were over 1500 degrees Fahrenheit (the automatic temperature control system) for the primary chamber and secondary chambers (afterburner) being installed, maintained, and operated in a satisfactory manner. The interlock system which shuts down the primary chamber when the secondary chamber (afterburner) is not operating was not verified to be operating properly given Scott's lack of knowledge regarding it. The facility's staff supervisor, Lena, previously has indicated that this operates properly.

V. TESTING/SAMPLING

There are no applicable conditions for this section.

VI. MONITORING RECORDKEEPING

The facility has not maintained the required records in an acceptable format. The facility was advised to retain a consultant to assist in this given staff's inability to properly document this. It appears the ovens operate in a satisfactory manner with a monitoring device to continuously monitor the temperature in the secondary chamber (afterburner) and is recorded least once every 15 minutes. The facility provided calibration records of the ovens but claims that no malfunctions or maintenance has been performed regarding that recordkeeping requirement. The facility maintains material information via SDS, and as previously indicated, the facility has not satisfactorily maintained records of the number of carts processed in the burn-off ovens on a monthly basis nor 12-month rolling time period as determined at the end of each calendar month.

VII. REPORTING

There are no applicable conditions for this section.

VIII. STACK/VENT RESTRICTION(S)

Given that the ovens were not operating at time of inspection, there did not appear to be any stationary concerns with them at the time of inspection.

IX. OTHER REQUIREMENT(S)

There are no applicable conditions for this section.

FG-NMP

The Nuisance Minimization Plan related to odors regarding the curing oven and two burn-off 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 FGNMP 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, details staff monitoring of this, and their attempts to minimize odors 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.

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 advised to also detail if there were any issues observed during these inspections. The facility did not provide a timeline for any physical changes implemented, however, the facility claims the modifications referenced in (b) were installed last year in 2022. It was unverified if more fan power or air vents have been installed.

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 when odors are detected and provided an odor survey form to be utilized by staff to investigate this.

e) A description of the corrective procedures or operational changes that shall be taken in the event of an elevated odor event. As previously 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 NMP should be modified to include the following:

1) The parameters to be monitored on the burn-off ovens, afterburners (secondary chamber), 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 oven, should be shut down to investigate odors and be remedied before the curing oven is restarted.

4) All burn-off ovens must be shutdown and repaired if needed within 10-days.

Consent Judgment 2021-95-CE

Some of the requirements in the CJ are detailed in the facility's modified permit (25-16A) such the NMP submittal, afterburner installation, stack height adjustments, and inspections. However, the facility has been non-compliant 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) Within 30-days of completing the odor evaluation, IMC must submit a report to the AQD regarding the results and identify if the process modifications in the plan are sufficient or if additional measures are needed.

4) The submittal of a Remedial Action Plan, 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.

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 25-16A, and Consent Judgment 2021-95-CE. The facility has not satisfactorily maintained the required recordkeeping regarding 12-month rolling totals, nor has the facility satisfied the the requirements of the Consent Judgement or resolved the ongoing nuisance odors impacting the surrounding community. A violation notice will be issued at later date regarding the unsatisfactory recordkeeping.

NAME Robert Joseph DATE 09-29-23 SUPERVISOR Joyce