

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

N095040369

FACILITY: MICHIGAN METAL COATINGS		SRN / ID: N0950
LOCATION: 2015 DOVE STREET, PORT HURON		DISTRICT: Southeast Michigan
CITY: PORT HURON		COUNTY: SAINT CLAIR
CONTACT: MICHAEL LENTZ, QUALITY ASSURANCE MANAGER		ACTIVITY DATE: 06/23/2017
STAFF: Sebastian Kallumkal	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Onsite Inspection and record review		
RESOLVED COMPLAINTS:		

On Friday, June 23, 2017, MDEQ-Air Quality Division staff Sebastian Kallumkal conducted an annual inspection at the Michigan Metal Coatings Company located at 2015 Dove, Port Huron, Michigan. The purpose of the inspection was to verify facility's compliance with requirements of Article II, Air Pollution Control, Part 55 of Act 451 of 1994 and with the requirements of the issued Permits to Install (PTI) No. 139-06 and 116-06A.

I arrived at the facility at about 10:50 AM and met with Mr. Michael Lentz, Quality Assurance Manager, and Mr. Rich Rumohr, Assistant Quality Manager. I introduced myself and stated the purpose of my inspection. During the pre-inspection meeting we discussed the facility operations.

#### Pre-Inspection Meeting

During the pre-inspection meeting, we discussed the facility's operations and control equipment Regenerative Thermal Oxidizer (RTO) preventive maintenance (PM). Mike told me that the manufacturer conducted a PM during the previous week and I requested the records for it. He told me that the RTO did not have any malfunctions. They keep the RTO in idle mode (operating temperature at about 800°F) when coaters are not being used. The permit requires the RTO be operated at 1500°F when the basecoat booths (#1, #2 and #5) are used. Currently only one of the produced parts uses high VOC coatings. Some of the clients prefers low VOC coatings. They did not have any change in the coatings since the last inspection. They may make parts coated with higher VOC in the future. PTI NO. 116-06A was issued on May 29, 2015, for the installation of additional two dip coating units for base coating and the RTO to control the VOCs. The RTO was installed on July 31, 2015. The capture efficiency and destruction efficiency tests for the RTO was conducted on September 8, 2016.

The facility is a job shop dip coater with five dip spin machines. It coats small automotive parts such as nuts, bolts, fasteners, etc. All coatings are water based. They use about 5 (3 mainly) basecoats and about 30 (10 mainly) top coats. They use the coatings as received. To adjust viscosity, they add water. The facility receives VOC analysis and Air Quality Data sheet with every shipment. The coatings are received in 5-gallon or 50-gallon containers.

The facility has five coating lines; three base coat lines and two top coat lines. Each line has two dip coat booths and one cure oven except the newest automated line which has four dip coat booths and two ovens.

The facility coats about 75% automotive parts and other heavy trucks parts. The parts are made of stainless steel and include nuts/bolts/small brackets, etc. Facility has about 63 employees, operates Monday through Friday (occasional Saturday) and 24 hours per day.

#### PTI No. 139-06 EUBURNOFF (Burn off Oven)

Mr. Lentz provided me the temperature charts for the burn off oven. I reviewed the weekly charts for 2016 and 2017. Some of the charts were missing. I suggested keeping a spread sheet

of all temperature charts so they could verify if any chart is missing. He agreed to comply with my suggestion. He told me they may replace the oven and start electronic temperature records. We also discussed the other permit conditions. We discussed about calibration of the temperature monitors for the burnoff oven and the RTO. He agreed to calibrate the temperature monitors on annual basis and keep the records.

I did not observe any visible emissions from RTO or the burnoff oven stack.

PTI NO. 116-06A

#### **EUWASTEEVAP**

He provided me the waste water evaporator log for part of 2015, 2016 and 2017.

#### **FGCOATERS**

We discussed how to calculate (using capture efficiency and destruction efficiency from stack test) the daily and monthly VOC emissions from each line. He informed me that the waste paint, waste oil from part washing, shot blasting waste, wastewater sludge from wastewater evaporator etc. are hauled offsite. The facility has 11 shot blasters and the exhaust from the blasters are vented to dust collector baghouses. The dust collectors are vented into the general in plant area. The shot blasting process is exempt from permit to install pursuant to R336.1285(2)(l)(vi)(B).

After the pre-inspection meeting, he accompanied me for an inspection of the facility. Initially we inspected the EUCOATER5, a new dip spin machine (WMV unit), is fully automated. For this unit the parts washer, shot blaster, dip coating equipment and the curing ovens are parts of a single unit. For the other four units, the parts washers and shot blasters are independent units. Coating Booths No. 1, 2 and 5 are used for base coat and Units No. 3 & 4 are used for top coat. Each of the Units No. 1 through 4 has two dip coating baskets (booths) and one oven, but Unit 5 has four dip coating baskets and two ovens.

In EUCOATER5, the cleaned parts are loaded to a bucket and immersed into the coating bath (Tulz). For this coating line, the booth is covered and the bucket with the parts enters booth from the side door. The door is closed during the coating process. The bucket is spun after the coating is completed. The coated parts are dried in the pre-cure oven (200°F) and cured in the cure oven (625°F). These parts are cooled and coated for a second round in the dip coating booth, dried and cured.

The parts coating process includes alkaline (potassium hydroxide) solution cleaning, shot blasting, dip coating, and curing. The exhaust from the shot blasting process is released into the general plant environment after it is controlled by a dust collector baghouse. The shot blasting process is exempt from permit to install requirements pursuant to Rule 285(l)(vi).

We also inspected EUCOATER1, EUCOATER2, EUCOATER3, EUCOATER4, shot blasting and the paint kitchen. The emissions from base coat booths are vented to a regenerative thermal oxidizer and from the top coat booths are vented to atmosphere. All parts undergo same coating process as EUCOATER5.

EUCOATER1, EUCOATER3, and EUCOATER 5 were operating, but EUCOATER2, and EUCOATER4 were not operating. He informed me that the parts washers were relocated and were changed from drum washers to bucket washers.

He explained that they are planning to replace the two small (24") dip spin baskets for Line 1 with two larger 32" dip spin baskets. No change in the coatings used or amount of coatings used. The new design would allow tilting of the baskets which would enhance the coating on more areas of part surfaces. He inquired whether this change would require a permit

modification. On June 27, I informed him that the process change may need a permit modification prior to the change if an exemption cannot be used. I emailed him an electronic link to the MDEQ-AQD PTI Exemption Handbook.

We also visited the wastewater evaporator. The wastewater is flown into the evaporator from the tote slowly and is evaporated. The sludge is collected and hauled offsite. The wastewater evaporator is covered in PTI No. 116-06A.

Next, we visited the RTO. The temperature was at 1538°F and 1470°F for each bed during the observation.

The parts washer exhaust is vented to the outer atmosphere through stacks. During PTI review the parts washer was considered exempt from PTI requirements.

Facility's burnoff oven is covered in PTI No. 139-06. The Burn-off oven and the evaporation were operating at the time of the inspection.

#### Permit No.: 139-06- Burnoff Oven

Mr. Lentz informed me that they are using natural gas as a fuel in the burnoff oven. According to him they are only burning dip spin baskets in this oven to remove the paints. They are not burning any rubber, plastics, uncured paints, any material containing sulfur or halogens, transformer cores, wire or parts coated with lead or rubber, paint sludge, or waste powder coatings.

SC 1.6 requires that the burnoff oven be equipped with an afterburner and operate the afterburner at a temperature of 1400°F or above. I reviewed the weekly temperature records (charts) for the secondary chamber. The charts show that the oven was operated with the secondary chamber temperature above 1400°F. (See discussion above under Pre-inspection Meeting).

During the inspection, the operators started the burnoff oven with soiled dip spin baskets inside. I observed that afterburner temperature started increasing. Meanwhile the primary burner also started. The setpoint for afterburner temperature was at 1800°F and primary burner was at 800°F. I informed Mike that the permit requires an interlock such that the primary burner won't start until the secondary burner reaches the set point temperature. I observed manual switches on the control panel for both burners. He talked to the operators and they were not aware of the interlock system. He told me he will investigate what happened. This appears to be a violation of the permit condition.

SC 1.7 and SC 1.8 require that the burnoff oven is equipped with an automatic temperature control system and interlock system that shuts down the primary chamber when the afterburner is not operating properly. From the inspection, it appears that the burnoff oven is not equipped with the interlock system because the primary burner started operating before the afterburner reached the set point temperature. This is a violation of SC 1.8.

The oven is equipped with temperature monitors. Mr. Lentz told me that he is unaware whether the temperature monitors (thermocouples) are calibrated annually as required by SC 1.10. This is a violation of SC 1.10.

The facility is keeping the daily charts (24 hr) for the afterburner temperatures. The facility is required to keep the records for at least five years. I did not ask for five-year data. However, the charts were missing within the last year. This is a violation of SC 1.11.

He told me the oven did not have any malfunctions recently. They are keeping a current listing of the chemical composition of each material (cured coating) processed in EUBURNOFF. Facility also keeps information provided by the manufacturer regarding secondary chamber, automatic temperature control and interlock system. The stack height appeared to be in compliance with the permit requirements.

#### **PTI No. 116-06A: Dip Coating and Evaporator**

The permit covers 5 dip spin coating applicators (EUCOATER1, EUCOATER2, EUCOATER3, EUCOATER4, & EUCOATER5) which apply water based base/top coats to metal parts. The parts undergo base coating, top coating or both. The coated parts are cured in natural gas fired ovens. The five coating applicators are also combined into a flexible group (FGCOATERS). The permit also includes a natural gas fired evaporator (EUWASTEEVAP) used to reduce the volume of collected clean up water. This permit also includes opt out limits for the hazardous air pollutants (HAP) emissions.

As a new source of volatile organic compounds (VOC), this facility is subject to Rule 702 BACT which limits the VOC content of the coatings to 3.5 lb/gal(-water).

Recently facility started using base coats with VOC more than 3.5 lb/gal(-water). To comply with this limit, facility installed a regenerative thermal oxidizer. The emissions from EUCOATER1, EUCOATER2, & EUCOATER5 are vented to the RTO.

#### **EUWASTEEVAP: Waste water evaporator**

The VOC emissions from wastewater evaporator is limited to 5.0 TPY on a 12-month rolling time period as determined at the end of each calendar month. Facility keeps records of rinse water processed. The PTI requires the permittee to calculate VOC emissions from the evaporator using an emission factor (EF) of 0.8 lb VOC per gallon of wastewater.

The submitted records, as of May 2017, show that the VOC emissions from the EUWASTEEVAP was 1.68 TPY calculated based on a 12-month rolling time period. This is in compliance with the PTI limit. The stack dimensions were not verified, but appear to be in compliance.

#### **FGCOATERS**

**(EUCOATER1, EUCOATER2, EUCOATER3, EUCOATER4, & EUCOATER5)**

Facility submitted electronic copies of usage data, VOC content data, VOC emissions calculations and SDS and environmental data. Facility keeps combined records for all the coating lines.

Condition I.1 limits the VOC emissions from the flexible group to 50.0 TPY based on a 12-month rolling time period as determined at the end of each calendar month. The facility uses Volume coating used (-water) and VOC content (-water) to calculate the VOC emissions. The 12-month rolling period VOC emissions, as of May 2017, are 4.73 Tons.

Condition I.2 limits the VOC content of the coatings to a daily volume weighted average of 3.50 lb/gal coating (-water), as applied. The coatings are used as received. They add coating and water (thinner), to the coating tanks (baskets) daily, to replenish solids and acquire desired viscosity. He stated that they don't use any VOC solvent as thinners; instead, they only use water as the thinner. Submitted records show that each coating line is in compliance with this limit on a daily average basis except on March 29, 2017, for EUCOATER4 (VOC content=3.53 lb/gal (-water)). During subsequent months the facility is compliance with the VOC limit. Therefore, no violation notice will be sent. Currently, facility uses RTO to control VOC

emissions and show compliance with this VOC limit for EUCOATER1, EUCOATER2 and EUCOATER5.

Facility is using Technical Data Sheets (TDS) and SDS provided by suppliers to calculate the VOC emissions. The TDS shows that the VOC content was based Method 24 analysis. Facility is keeping a current listing of the MSDS from the manufacturer of the coatings. Permittee is keeping necessary records of the coating usage, VOC content, mass emission calculations, hours of operations, etc.

The Facility keeps all the waste paint material in closed containers and the waste is hauled away. The facility appears to be handling all VOC and HAP containing materials in a manner to minimize the generation of fugitive emissions.

The facility submitted an approvable Malfunction Abatement Plan (MAP) on November 18, 2015.

The facility installed and started operating a regenerative thermal oxidizer (RTO) on July 31, 2015 (based on letter from facility dated September 30, 2015).

Based on the temperature records one of the RTO beds operates above 1500°F and other bed below 1500°F. From the records review, the center temperature appears to be more than 1500°F. The performance test show that the destruction efficiency of the RTO is more than 95%. The RTO is equipped with temperature monitor.

The Facility is using manufacturer provided technical data sheet (USEPA Method 24) for each coating to determine the VOC content, water content and density of the coating. The facility is keeping a current listing of the material safety data sheets in file.

The facility was unable to conduct the destruction and capture efficiencies of the RTO within 180 days of installation of the RTO because of the delay in the completion of the modification of EUCOATER5. The test was completed on September 8, 2016. The destruction efficiency was 96.05% and the capture efficiency was 87.3%. The report was submitted on November 29, 2016.

Condition VI.1 requires that the facility shall complete all required calculations (specified in Condition VI.3) in a format acceptable to the AQD DS and make them available to the by 15<sup>th</sup> of the month. Mr. Lentz informed us that he is making all the calculations in a timely manner. I requested him to send the calculations data via email.

Facility is keeping records of the daily coating usage, hours of operation, amounts of daily VOC emissions and annual VOC emissions. It also calculated the VOC content (lb VOC/gal-water) of each coating on a daily basis for each coating line. The facility is keeping necessary temperature records. I advised him to calibrate the thermocouples once a year. He agreed to comply with my suggestion.

The dimensions of the stacks were not verified, but they appear to be in compliance with the requirements.

#### **FGFACILITY**

The facility's HAP emissions are limited to less than 9.0 tpy for individual HAP and less than 22.5 tpy for aggregate HAPs based on a 12-month rolling time period as determined at the end of each calendar month. Facility is keeping monthly individual and aggregate HAP emission calculations

The aggregate 12-rolling time period HAP emissions, as of May 2017 was 5.90 TPY and individual 12-month rolling HAP emissions, were 1.82 tpy.

Facility is keeping records of HAP content, gallons of coating used, and necessary calculations.

Note: Emission records (VOC, HAP), SDS, Environmental Data Sheets, RTO Temp data, etc. are saved in:

S://Air Quality Division/STAFF/Kallumkal/2017 Inspections/MMC.

Conclusion: Based on the inspection and records review, the facility is not in compliance with the requirements of PTI No. 139-06. A violation notice will be sent to the facility seeking compliance with the requirements.

NAME Sebastian Kallumkal

DATE 7/14/2017

SUPERVISOR

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