

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

B613859683

<b>FACILITY:</b> PLASTIC PLATE INC		<b>SRN / ID:</b> B6138
<b>LOCATION:</b> 1648 MONROE AVENUE NW, GRAND RAPIDS		<b>DISTRICT:</b> Grand Rapids
<b>CITY:</b> GRAND RAPIDS		<b>COUNTY:</b> KENT
<b>CONTACT:</b> Karen Baweja , Environmental Manager		<b>ACTIVITY DATE:</b> 08/24/2021
<b>STAFF:</b> April Lazzaro	<b>COMPLIANCE STATUS:</b> Non Compliance	<b>SOURCE CLASS:</b> SM OPT OUT
<b>SUBJECT:</b> Unannounced, scheduled inspection.		
<b>RESOLVED COMPLAINTS:</b>		

Staff, April Lazzaro arrived at the facility to conduct an unannounced, scheduled inspection. I called the company contact, Karen Baweja earlier that morning to inform her of my intention to conduct an inspection so she would have the opportunity to attend. Ms. Baweja's office is not at this location, so as a courtesy I called ahead. This is still considered an unannounced inspection.

There were additional facility staff that joined us for the inspection, including: Forou Zandeh, Plant Manager and Jeff Merryman, Maintenance Manager.

#### FACILITY DESCRIPTION

The Lacks Plastic-Plate, Inc. Monroe Facility conducts hexavalent chromium electroplating onto plastic automotive parts. This plant operates 3 shifts, 5 days a week. This hexavalent chromium plating line operates pursuant to Permit to Install No. 221-00C, which was modified on January 27, 2000. This modification was to add an EU-ETCHTANK emission unit that replaced the need for EU-CONDITIONER and eliminate the use of 1,3-dichloro-2-propanol (DCP). This change has been completed, and DCP is no longer used at the facility. The hexavalent chromium plating tanks are also subject to the National Emission Standards for Chromium Emissions From Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks, (Chrome NESHAP) found in 40 CFR Part 63, Subpart N.

The plating line consists of the following equipment as described in the Emission Unit Summary Table.

**EU-CHROME:** one chrome etch tank (3 bays), two decorative chrome plating tanks, one purification tank and one evaporator /reclaim unit. This EU is controlled by a composite mesh pad scrubber.

**EU-CATALYST:** one catalyst tank (2 bays) and one accelerator tank (1 bay). This EU is uncontrolled.

**EU-ELECTROLESS:** Electroless copper or electroless nickel process consisting of one tank (up to 4 bays) There have been zero hours of electroless copper operation at the facility. This EU is controlled by a packed bed scrubber with a mist eliminator.

**EU-NITRICSTRIP:** one nitric acid strip tank (2 bays). This EU is controlled by a packed bed scrubber with a mist eliminator.

**EU-NICKELPLATE:** exempt nickel plating tanks including two satin nickel tanks, three semi-bright nickel tanks (6 bays), two bright nickel tanks (2 bays each) and one particle nickel tank. This EU is uncontrolled.

**EU-CONDITIONER:** one tank used to condition the plastic parts prior to plating. As identified above, DCP is no longer used at this facility.

**EU-PREETCHTANK:** one tank used to pre-etch plastic parts prior to plating.

## **COMPLIANCE EVALUATION**

The compliance evaluation began on the roof of the facility.

The EU-CHROME system appeared to have some minor seepage on a seam in the ductwork prior to the scrubber (Virochrome 9,000). It was not dripping but was moist, and I noted that this spot should be closely monitored going forward. Data obtained during the inspection indicated the following scrubber parameters: Stage 1 pressure drop 2.4" H<sub>2</sub>O, stage 2 pressure drop 1.6" H<sub>2</sub>O, stage 3 pressure drop 0.2" H<sub>2</sub>O. Overall scrubber pressure drop 4.1" H<sub>2</sub>O. These values align with the operating ranges identified in the Operation and Maintenance (O&M) Plan (aka Environmental Malfunction Abatement Plan).

We went to the lab to get surface tension data for the chrome tanks, which were taken at 6:43 AM and 6:44 AM respectively the day of the inspection.

**Chrome 1:** Two values were observed: 36.8 dynes/cm, 39.5 dynes/cm.

**Chrome 2:** Two values were observed: 39.0 dynes/cm, 38.9 dynes/cm.

These values align with the operating range identified in PTI No. 221-00C and the O&M Plan which require that a chemical fume suppressant is applied in quantities and at a frequency to ensure the surface tension of each decorative chromium plating tank does not exceed 45 dynes/cm.

It should be noted that since the permit was originally issued, the surface tension limit in the Chrome NESHAP has been reduced from 45 dynes/cm to either 40 dynes/cm as measured by a stalagmometer, or 33 dynes/cm as measured by a tensiometer. Therefore, the limit of 45 dynes/cm is enforceable through Rule 225 only.

During a file review, it was noted that at the time of initial 2002 stack testing of the EU -CHROME emission unit, the Chrome NESHAP compliance method for the chrome electroplating tanks was achieved through surface tension readings. Shortly thereafter, Lacks switched compliance methods to the composite mesh pad scrubber. A review of the Chrome NESHAP found the following information.

**40 CFR 40 CFR 63.343(c)(7) states:**

**Fume suppressant/add-on control device.**

**(i) If the owner or operator of an affected source uses both a fume suppressant and add-on control device and both are needed to comply with the applicable emission limit, monitoring requirements as identified in paragraphs (c) (1) through (6) of this section, and the work practice standards of Table 1 of § 63.342, apply for each of the control techniques used.**

**(ii) If the owner or operator of an affected source uses both a fume suppressant and add-on control device, but only one of these techniques is**

needed to comply with the applicable emission limit, monitoring requirements as identified in paragraphs (c) (1) through (6) of this section, and work practice standards of Table 1 of § 63.342, apply only for the control technique used to achieve compliance.

Because Lacks Plastic Plate facility has not conducted stack testing without fume suppressant, it is assumed that both a composite mesh pad scrubber and the use of fume suppressant are required to meet the emission limit. The current surface tension limit identified in the PTI No. 221-00C and the O&M Plan utilized for the two decorative hexavalent chromium electroplating tanks is 45 dynes/cm and has been set at that value since at least 2018. The surface tension measurements obtained during the 2002 stack test were recorded by AQD staff as follows: Tank 1- 34 dynes/cm, Tank 2- 32 dynes/cm.

To confirm the above interpretation of 40 CFR 63.343(c)(7), I discussed it with the Environmental Protection Agency Region 5 specialist assigned to the Chrome NESHAP. The EPA confirmed that if there is no test without a fume suppressant, it is to be assumed that a fume suppressant is necessary for compliance with the emission limit. Furthermore, the surface tension values measured during the initial compliance testing establish the operating parameters required for continuous compliance.

Since this approach is different than what has been expected from the facility in the past the AQD is requesting that Plastic Plate, Inc. conduct stack testing to establish new operating parameters associated with compliance with the Chrome NESHAP. While the above surface tension measurements constitute a violation of the regulation, the AQD will allow Lacks to demonstrate compliance with both the permit and Chrome NESHAP emission limits at the current operating parameters. If compliance cannot be demonstrated at the current operating parameters, the affected source will be considered in non-compliance with the Chrome NESHAP.

Chrome etch: Three surface tension values were recorded the morning of the inspection for the three tank bays: 31 dynes/cm, 33 dynes/cm, 34 dynes/cm. These values align with the operating range identified in the O&M Plan (less than 55 dynes/cm).

The EU-NITRICSTRIP system was showing signs of moisture and some corrosion. This did not appear to impact operation of the scrubber itself. Data obtained during the inspection indicated the following scrubber parameters: overall pressure drop 0.9" H<sub>2</sub>O, bleed off rate 3.7 gallons per minute (gpm) and flow rate 106.1 gpm. These values align with the operating ranges identified in the O&M Plan. A file review identified information indicating that this scrubber was replaced in 2018.

The EU-CATALYST system appeared to have ashy chunks around it on the roof. There was also some greenish residue noted. Per AQD request, Lacks conducted laboratory analysis on the ashy residue using IC and an ICP machine. Results did not find any significant amounts of metals present, and Lacks conclusion was that the material did not originate from a plating bath. All materials were cleaned up, and Lacks has committed to conducting weekly visual observations, including photographs for two months to determine if the issue is ongoing. This approach is considered acceptable at this time.

The EU-ELECTROLESS system was also near the area that contained the ashy chunks of material. The origin of the material is unknown, and a detailed evaluation is noted above. This emission unit can utilize either electroless copper or nickel plating. At the time of the inspection, Lacks Monroe was utilizing the tanks for electroless nickel plating. The scrubber appeared intact, and no obvious issues were noted during the inspection. Data obtained during the inspection indicated the following scrubber parameters: overall pressure drop 2.0" H<sub>2</sub>O, bleed off rate 6.58 gpm and flow rate 112 gpm. These values align with the operating ranges identified in the O&M Plan.

Inside the facility we observed the plating line from behind a drip shield, and no specific ventilation or operational issues were noted.

Records of VOC emissions were requested for EU-PREETCHTANK, which has a limit of 222.5 pounds per year. The reported 12-month rolling total VOC emissions are 122.4 pounds. This data indicates compliance with the limit.

#### **FG-PLATINGLINE**

The conditions of this flexible group (FG) apply to each emission unit in the plastic parts plating line as specified in PTI No. 221-00C.

Emission limits apply to each emission unit, requiring that visible emissions shall not exceed 9 percent opacity, except for uncombined water vapor. No visible emissions were observed during the inspection.

Process/operation restrictions apply to the FG, including each emission unit in the plating line. Special Condition III.1 states, that the permittee shall not operate FG-PLATING line unless approvable final plans and specifications for operation and maintenance, including start-up, shutdown and malfunction plan of the controls have been submitted to and approved by the District Supervisor, Air Quality Division. The most recent O&M Plan was submitted in October 2018.

Monitoring and recordkeeping restrictions apply to the FG and the facilities O&M Plan details the parameters Lacks uses to demonstrate compliance with permit conditions and the Chrome NESHAP where applicable. Once such parameter of the plan is that Lacks will monitor and record daily a surface tension reading for the chrome etch tanks using a tensiometer. The normal operating range identified in the O&M Plan is a surface tension value less than 55 dynes/cm. A request was made for any surface tension readings above 55 dynes/cm. A review of the information received indicated that this value was exceeded 24 times between January 2020 and July 2021 while the tank was operating. This is a violation of Special Condition III.1 and Rule 911. A Violation Notice will be issued.

Special Condition VI.1 states that when using chemical fume suppressant with a wetting agent in the decorative chromium plating tanks..... the surface tension of each of the decorative chromium plating tanks/bath shall not exceed 45 dynes/cm. The underlying applicable requirement for this condition is both the Chrome NESHAP and air toxics Rule 225. A request was made for any surface tension readings above 45 dynes/cm in the decorative chromium electroplating tanks. Records provided by Lacks showed that the only surface tension exceedances above the 45 dynes/cm occurred at times where no electroplating was occurring. The

Chrome NESHAP defines tank operation as the time in which current and/or voltage is being applied to a chromium electroplating tank.

As noted in the EU-CHROME discussion above, Lacks measures surface tension per a tensiometer and has switched compliance methods to the use of the composite mesh pad scrubber along with surface tension as measured during the most recent compliance test. It should be noted that since the permit was originally issued, the surface tension limit in the Chrome NESHAP has been reduced from 45 dynes/cm to either 40 dynes/cm as measured by a stalagmometer, or 33 dynes/cm as measured by a tensiometer. Therefore, the limit of 45 dynes/cm in FG-PLATINGLINE is enforceable through Rule 225 only.

Data to demonstrate compliance with the Chrome NESHAP along with additional records required by the O&M Plan were requested. All records were provided timely.

- Annual chrome NESHAP compliance reports 2016-2021- no pressure drop deviations were identified.
- All 2021 quarterly scrubber inspection records/findings (FG-PLATINGLINE)- no issues or significant repairs were noted.
- 2019 and 2020 (and 2021 if completed) annual visual inspection records/findings of all scrubbers (FG-PLATINGLINE)- no issues or significant repairs were noted.

## CONCLUSION

Lacks Plastic-Plate, Inc. Monroe Facility was in non-compliance at the time of the inspection.

NAME April Lazzaro

DATE 09/30/2021

SUPERVISOR HH