

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

N005866558

FACILITY: B & L PLATING		SRN / ID: N0058
LOCATION: 21353 EDM, WARREN		DISTRICT: Warren
CITY: WARREN		COUNTY: MACOMB
CONTACT: Victor Pirrami , Plant Manager		ACTIVITY DATE: 03/07/2023
STAFF: Adam Bognar	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

On Tuesday, March 7, 2023, Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) staff, I, Adam Bognar conducted a scheduled inspection of B & L Plating, located at 21353 Edom, Warren, MI. The purpose of this inspection was to determine the facility's compliance status with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment, Great Lakes, and Energy, Air Quality Division (EGLE-AQD) rules; and 40 CFR Part 63 Subpart N, National Emission Standards for Chromium Emissions from Decorative Chromium Electroplating Tanks (Chrome NESHAP).

The facility currently operates without a permit. Based on my observations, all process tanks are exempt from Rule 201 requirements pursuant to Rule 285 (2)(r). Rule 285 (2)(r) exempts metal treatment processes such as cleaning, electroplating, and pickling from Rule 201 requirements if emissions from process tanks are released only into the general in plant environment. All emissions from process tanks at B&L plating are exhausted into the general in plant environment.

I arrived at the facility at around 10 am and met with Victor Pirrami, Manager. I identified myself and stated the purpose of the inspection. Victor showed me around the manufacturing area and provided me with the records I requested.

B & L Plating operates Monday through Friday from 8:30 am to 3:30 pm. There are around four full time employees including Geno Pirrami, president, and his son, Victor Pirrami. According to Victor, in the past B & L Plating plated parts at a production level, but now operates as an "off the street" plating facility at a much slower pace. Approximately 90% of the plating done is automotive related. Boats, household items, and other miscellaneous jobs make up the remainder of the work. Plating substrates include steel (90% of parts), Zinc, and Brass. Nearly all the plating work is custom since B&L Plating can get much higher margins on custom work compared to larger contracts.

Based on my observations during this inspection, this is not a high throughput business. Most of the completed work I observed on-site looked to be custom in nature.

Plating Operations

Victor Pirrami stated that there have not been any process changes since the last EGLE-AQD inspection in August 2022. The chrome tank is 1000-gallon capacity. At the time of this inspection the amp hour meter on the chrome rectifier read 723254 amp-hours (720155 amp-hours during August 2022 inspection). According to Victor, 240-amp hours is approximately 1 hour of plating. Victor stated that the manufacturer told him to use this approximation to determine plating time.

This equates to a total plating time of approximately 12.9 hours between August 2022 and March 2023. This makes sense when compared to the reported 30.9 hours operated in 2022.

Generally, all parts receive three layers of plating: copper -> nickel -> chrome. When parts first arrive at the shop they are sent through a series of tanks for cleaning in the following series of processes: Buffing/polishing -> alkaline cleaning -> 2x water rinse (remove cleaner) -> 2-3% sulfuric acid (remove alkaline film) -> water rinse (acid removal) -> Copper Strike (sodium cyanide) -> water rinse (cyanide is recovered) -> water -> 2-3% sulfuric acid -> final water rinse.

The alkaline cleaning tank can also be electrified to strip chromium from parts. The water rinse tank after the cyanide tank is periodically pumped to an on-site chlorine treatment tank (to treat the cyanide) before being discharged. After this cleaning process, the parts are sent to one of the plating lines. This same cleaning process is also used before the nickel plating.

After the initial cleaning, the parts are sent through the following process to receive the three-part plating: copper electroplating -> buffing -> cleaning process -> nickel electroplating (bright or semi-bright) -> chromium electroplating -> wiping/buffing -> end customer.

The current fume suppressant used in the chrome tank is "Haviland Mist Eliminator PF Free" (SDS in file). I had Victor show me the 5-gallon container of this mist eliminator during this inspection. Haviland Mist Eliminator PF Free does not contain PFOS, PFOA, or PFAS. Previous inspections by the EGLE-AQD identified the use of fluorinated fume suppressants in the chrome tank. Based on the records I reviewed, use of these fluorinated solvents stopped prior to September 21, 2015, when a change to the Chrome NESHAP began regulating their use.

Victor provided me with records of surface tension measurements for the chrome tank. B & L Plating contracts Haviland Products to perform their surface tension measurements. Samples of the chrome tank bath solution are sent offsite to the Haviland lab for testing of multiple parameters. Haviland recommends the amount of fume suppressant that should be added based on the test results.

Surface tension of the chrome tank is measured by Haviland Products using a tensiometer. The Chrome NESHAP states that surface tension shall not exceed 33 dynes/cm² when measured with a tensiometer.

The records I reviewed showed that B&L plating performs these analyses 4-5 times per year. The most recent analysis was on January 3, 2023. This test indicated a surface tension of 32 dynes/cm². The test on November 7, 2022 showed a surface tension of 25 dynes/cm².

According to the Chrome NESHAP, these tests must be taken at least once for every forty hours of plating time. Victor stated that B&L does so little plating that it would likely take over a year for this limit to be exceeded. Based on the total amp hours I recorded between my inspections, this is true. Samples are sent to Haviland more frequently than once every forty hours of plating time (4-5 times a year) so that Victor can monitor other important parameters of the tank chemistry.

Victor showed me the bottle he uses to dose the chrome tank with fume suppressant. It is 4 oz in size. Victor stated that the tank operator adds one bottle per week to the chrome tank.

In my previous inspection in August 2022, B&L Plating received a violation notice from AQD for failing to maintain records of fume suppressant additions. I verified during this inspection that records of these fume suppressant additions were kept. The operator notes that on each Monday morning at 10:30 am, 4 oz of fume suppressant is added to the chrome tank. This violation notice will be resolved as a result of this inspection.

An operation and maintenance (O&M) plan is maintained at the facility in accordance with the Chrome NESHAP. After my previous inspection in August 2022, I had B&L Plating update this plan to include a procedure for documenting fume suppressant additions.

B&L Plating maintains an ongoing compliance status report in compliance with the Chrome NESHAP. B&L Plating showed me the 2022 ongoing compliance status report during this on-site inspection. The report shows that the chrome tank was operated for 30.9 hours in 2022.

Boiler

There is one 1.6MM BTU/hr natural gas fired boiler present used for indirect heating of process tanks. Based on my observations, this boiler is exempt from Rule 201 requirements pursuant to Rule 282 (2)(b)(i).

Buffing & Polishing

Buffing and polishing operations are exhausted to a Cyclone located outside of the facility. This cyclone was installed in 1996. The cyclone is exhausted outdoors. Permit exemption Rule 285 (2)(l)(vi) for buffing/polishing operations requires a fabric filter be installed with a mechanical pre-cleaner. The cyclone can only be considered a mechanical pre-cleaner.

B & L plating is a relatively small volume plating facility. Victor Pirrami estimates that approximately 25 parts per week are plated, with each part weighing about 1-2 pounds (2,600 lbs/year). AP-42 emission factor for uncontrolled grey iron grinding is 17 lbs of PM per ton processed and 1.7 lbs of PM₁₀/PM_{2.5} per ton processed. Combining estimated throughput with this emission factor shows that potential PM emissions at B&L Plating will be approximately 22.1 lbs/year and PM₁₀/PM_{2.5} emissions will be 2.21 lbs.

It is likely that less than this will be emitted. Some of the particulate matter emissions will likely be larger diameter particles that will be captured by the cyclone.

Based on my observations and calculations, buffing and polishing operations are exempt from Rule 201 requirements pursuant to Rule 291 (2)(f). This rule states, in part, that emissions from a PM emitting process can be considered "de minimis" if they do not have a potential to emit greater than 10 tons per year of total PM, 5 tons per year of PM₁₀, and 3 tons per year of PM_{2.5}. Based on my emission calculation, B&L plating will not exceed these potential emissions even if throughput increases by 450x. If production does increase substantially from where it is now, then B&L plating may need to provide more detailed calculations or install a fabric filtration system. I did not see any evidence during this inspection that throughput has increased in a meaningful way.

Other Plating Operations

B&L Plating operates two nickel electroplating tanks and one copper electroplating tank. Based on my observations during the inspection, these tanks are exempt from Rule 201 requirements pursuant to Rule 285 (2)(r). These tanks are vented to the general in-plant environment. A wetting agent is periodically added to the nickel tanks. The SDS indicates that the wetting agent does not contain PFAS (See file). I informed Victor that he needs to maintain an annual compliance certification report in accordance with 40 CFR Part 63 Subpart W (6W) National Emission Standards for Hazardous Air Pollutants – Area Source Standards for Plating and Polishing Operations. The AQD has not taken delegation of 40 CFR Part 63 Subpart W (6W).

I left the facility at around 11:30 am.

Compliance Determination

Based on my inspection and record review, B&L Plating is in compliance with the requirements of the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment, Great Lakes, and Energy, Air Quality Division (EGLE-AQD) rules; and 40 CFR Part 63 Subpart N, National Emission Standards for Chromium Emissions from Decorative Chromium Electroplating Tanks (Chrome NESHAP).

The violation notice issued on August 23, 2022 will be resolved as a result of this inspection. I verified that B&L Plating is maintaining records of each fume suppressant addition to the chrome tank.

NAME Adam Bogner

DATE 3/7/2023

SUPERVISOR K. Kelly