

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

B645561935

FACILITY: CURTIS METAL FINISHING CO		SRN / ID: B6455
LOCATION: 6645 SIMS DRIVE, STERLING HTS		DISTRICT: Warren
CITY: STERLING HTS		COUNTY: MACOMB
CONTACT: Walt Kacher , Chemical and Coatings Manager		ACTIVITY DATE: 01/19/2022
STAFF: Kaitlyn Leffert	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY2022 Scheduled Inspection		
RESOLVED COMPLAINTS:		

On January 19th, 2022, I, Kaitlyn Leffert, conducted a scheduled inspection of Curtis Metal Finishing Company (SRN: B6455), located at 6645 Sims Drive, Sterling Heights, Michigan. The purpose of the inspection was to determine the facility's compliance with the requirements of the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); the administrative rules; and the conditions of Permit to Install (PTI) No. 383-00J.

Curtis Metal coats a variety of small metal parts, which are supplied to the automotive industry, as well as military, aerospace, agricultural, and energy industries. Curtis Metal is a synthetic minor source for Volatile Organic Compounds (VOCs) and has opt-out limits for hazardous air pollutants (HAPs).

I arrived at the facility around 2:30 pm on January 19th. I met Walt Kacher, Chemical and Coatings Manager and I explained the purpose of my visit. We first went to a conference room to discuss the purpose of the inspection. Mr. Kacher explained that they no longer have an environmental staff person located at the facility and that the emissions and material usage records are maintained by their consultant off-site.

Facility Walk Through

Following the initial meeting, Mr. Kacher led me through the facility to observe the process. Curtis Metal operates three shifts, typically five days per week. The plant is typically operating most or all coating lines during that time. During my inspection, there were several staff out and therefore many of the coating lines were not operating.

Curtis Metal is permitted to operate a total of twelve miscellaneous metal parts dip spin coating lines, plus one electrodeposition coating line. All of the dip spin coating lines operate in a similar manner. Miscellaneous metal parts are loaded into baskets, which are then dipped in vats of coating. The baskets are then spun to remove excess coating and parts are then cured in attached curing ovens.

Seven of the dip spin lines (Lines 21-26, and 28) are controlled by a common regenerative thermal oxidizer (RTO1), while two of the lines (Lines 27 and 29) are controlled by a different RTO (RTO2). Emissions from the remaining three dip spin lines (Lines 18 – 20) are uncontrolled. Lines 18 and 19 are in a separate area of the building, designated as Plant 2. These units were previously controlled by RTO3. However, this RTO unit had an explosion and is now inoperable. The permit was modified in 2021 to allow Lines 18 and 19 to operate with uncontrolled emissions. The facility plans to eventually replace the RTO.

The facility walk-through began by first observing the three phosphate lines at the facility. The phosphate lines are used to pre-treat the metal surface of parts that will be coated with solvent-based coatings. The phosphate lines consist of a series of tanks with various solutions, including zinc phosphate tanks, sulfuric acid pickling tanks, oil tanks, and rinse tanks. Emissions from the phosphate lines are released into the general in-plant environment. The phosphate lines are exempt from the requirement to obtain a permit to install according to Rule 290.

Located near the phosphate lines is the electrodeposition coating (e-coat) line, which consists of an e-coat tank, rinse tanks, and cure oven. The facility also has an e-coat stripping line, which uses caustic alcohol to remove the e-coat from the metal parts in the case of mistakes or errors.

I inspected RTO1, which controls emissions from Lines 21-26 and 28. The permit requires that Curtis Metal continuously monitor the combustion chamber temperature of RTO1 (EUDIPSPIN, Special Condition (S.C) VI.2). I entered the control room for this RTO and observed that the temperature was being continuously monitored. I noted that the RTO combustion chamber temperature was consistently operating above 1,500°F, which is above the permitted minimum temperature of 1,400°F (EUDIPSPIN, S.C. IV.1).

I also observed the area around RTO2, which is the control for Lines 27 and 29. The combustion chamber temperature of RTO2 is continuously monitored, as required by PTI No. 383-00J, FGDIPSPINS, S.C. IV.2. At the time of my inspection, the RTO combustion chamber temperature was 1,594°F, which is in compliance with the permit requirement of a minimum RTO chamber temperature of 1,400°F (FGDIPSPINS, S.C. IV.1).

The temperature for both RTOs are recorded, and records of the temperature are maintained by the facility. Based on an on-site review of the temperature records, the facility appears to be continuously operating in compliance with minimum RTO temperature of 1,400°F, as specified in EUDIPSPIN S.C. IV.1 and FGDIPSPINS, S.C. IV.1.

Lines 18 and 19 are located in a separate area of the plant, identified as Plant #2. Line 19 is a robotic dip spin line, which means the loading and unloading of parts from the line is done fully robotically. Line 18 is a Spingtool Company dip spin machine and is the smallest one operated at the facility. Both of these lines were previously controlled by RTO3. However, last year the RTO exploded, resulting in the need for the facility to modify their permit to account for Lines 18 and 19 operating uncontrolled. I inspected the unit and observed that it did have a large hole in the side of it, rendering it inoperable. The facility does plan to replace the unit eventually.

The permit requires that waste materials be captured and stored in closed containers and that all VOC and HAP- containing materials be handled in a manner that minimizes fugitive emissions. While walking throughout the facility, I noted that all coatings were stored in closed containers, and lids were only removed as needed to mix the coating or load it into the dip spin machines.

Curtis Metal operates sand blasters, which are used in the surface preparation of metal parts that are coated using water-based coatings. The sand blasters vent to the general in-plant environment and are considered exempt from the requirement to obtain a PTI according to Rule 285(2)(I)(vi).

In addition, the facility operates shot blasters, which are used to clean parts and remove baked-on coatings from the baskets used in the dip spin lines. Emissions from the shot blasters are controlled by a fabric filter dust collector. The shot blasters appear to be exempt according to Rule 285(2)(I) (vi).

Records Review

On January 27th, 2022, I was supplied all requested records by Stephanie Jarrett, Fishbeck. The records review below is organized by emissions unit or flexible group. For all emissions units, VOC emissions are calculated based on the VOC content provided in the manufacturer's formulation information. VOC emissions are determined for each type of coating used in each respective line and then totaled by emission unit or flexible group.

EUDIPSPIN (Lines 21-26, and 28)

I was provided records of emissions calculations for VOCs and dibutyl ethers from EUDIPSPIN for 2021, as required by EUDIPSPIN S.C. VI.4. A VOC destruction efficiency of 98.8% for the RTO is used in the emission calculations. VOC emissions from EUDIPSPIN are limited to 51.5 tons per year (tpy) (S.C. I.1), calculated based on 13 – four week rolling time periods. VOC emissions for each 4-week period in 2021 ranged from 1,519 to 2,108 pounds. Annual VOC emissions at the end of 2021 were 23,776 pounds, or 11.9 tons. The highest rolling annual VOC emissions over the previous year were 13.1 tpy, which was recorded at the end of the 7th four-week period.

Emissions of dibasic ester (DBE) from EUDIPSPIN are limited to 3.7 tpy, again calculated using 13 – four week rolling time periods. Based on the provided records, annual emission of DBE at the end of 2021 were 0.25 tpy. The 4-week time period with the highest rolling annual emissions were the 7th and 9th 4-week periods, which each had 0.59 tpy of DBE emissions.

EUECOAT

Emissions of VOCs from the e-coat line are limited to 800 pounds per four-week period (S.C. I.1). I was provided emissions records with VOC emissions calculations for each 4-week period in 2021. For the final (13th) 4-week period in 2021, VOC emissions were 26.61 pounds. The four week period with the highest emissions was the 3rd period in 2021, with 133.14 pounds of VOCs emitted.

In addition, the permit has an annual emission limit of 4.7 tpy, calculated as a 13-four week rolling time period, determined at the end of every four-week period (S.C. I.2). Annual emissions at the end of the 13th four-week period in 2021 were 0.48 tpy. The highest rolling annual emissions were reported at the end of the 1st and 2nd four-week periods in 2021, with 0.78 tpy.

FGDIPSPINS (Lines 27 and 29)

The permit limits VOC emissions from FGDIPSPINS to 18.0 tpy, based on 13 four-week rolling time periods. Annual VOC emissions at the end of 2021 were 13.9 tpy. The highest rolling annual period was recorded in the 11th four-week period, at 14.4 tpy. A VOC destruction efficiency of 98.1% for the RTO is used in the emissions calculations for Lines 27 and 29.

FGDIPSPIN2 and FGRULE621 (Lines 18, 19, and 20)

The permit sets an annual VOC emission limit of 10.0 tpy for each individual coating line, as determined on a 12-month rolling time period (FG DIPSPIN2, S.C. I.1). These emission limits and associated recordkeeping requirements are new to Lines 18 and 19, so emissions records for these two lines were only available from August 2021 through December 2021 and therefore a full 12-month rolling total is not yet available. VOC emissions from August to December were 0.35 tons for Line 18 and 1.49 tons for Line 19. For Line 20, the 12-month rolling total emissions as of December 2021 were 6.75 tons. The highest rolling annual emissions were recorded at the end of October 2021, at 6.83 tpy.

In addition, each of these coating lines has a monthly VOC emission limit of 2,000 pounds per month (FGDIPSPIN2, S.C. I.2). A summary of the highest monthly emissions for each of the three coating lines in this flexible group is provided below.

Coating Line	Highest Month	Emissions (lbs)
Line 18	December 2021	336.4
Line 19	October 2021	1,104.7
Line 20	August 2021	1,832.9

Finally, there is an additional VOC emission limit of 30.0 tpy, as determined on a 12-month rolling basis, which applies to all three of these coating lines combined. If each coating line is below the 10 tpy limit for each individual line, then compliance with this emission limit is also expected. The provided records indicate that 12-month rolling emission for all three units combined at the end of December 2021 were 8.60 tpy.

FGFACILITY

Curtis Metal has facility-wide opt-out limits for hazardous air pollutants (HAPs). I was provided records of individual and aggregate HAP emissions, calculated on a tons per 13 4-week rolling time period basis. Emissions of all HAPs combined at the facility are limited to 22.5 tons per year. At the end of 2021, annual emissions of HAPs were 2.14 tons. The highest rolling annual HAP emissions were recorded at the end of the 11th four-week time period, at 2.24 tons.

The permit also contains a 9.0 tons per year limit on any individual HAP. The individual HAP that consistently had the highest emissions was methanol. At the end of the final four-week period in 2021, annual emissions were reported to be 1.20 tons. The highest methanol emissions were recorded at the end of the 12th four-week period in 2021 at 1.25 tons.

Facility-wide VOC emissions are limited to 89.9 tpy (FG-FACILITY S.C. I.3). Total VOC emissions at the end of 2021 were 36.36 tpy. The highest rolling VOC emissions in 2021 were recorded at the end of the 11th 4-week period at 37.27 tons per year. The facility appears to be operating in compliance with the facility-wide VOC emission limit.

In addition, PTI No. 383-00J FG-FACILITY contains limits on coating usage. There are seven coating usage limits, five of which apply to machines 18, 19, and 20, and two that apply to the e-coat line.

The coating usage limits are grouped by VOC content of the coatings. The coating groups and associated limits are provided in the FG-FACILITY Materials Limits table.

FG-FACILITY S.C. VI.4 requires Curtis Metal to maintain records of coating usage according to the groupings identified in the Materials Limits table. I was provided copies of facility coating usage records, which were adequately maintained according to the requirements of the permit. These material usage limits were added to the permit in the most recent permit revision, so the records were provided for August 2021 through December 2021.

Since recordkeeping for these requirements has only been maintained for five months so far, there were not 12-month rolling records of coating usage to review yet. The total usage over the five months of records provided is below all permitted material usage limits. Based on the average monthly coating usage from August through December 2021, Curtis Metal is on track to comply with the grouped material usage limits.

MAERS

The Michigan Air Emissions Reporting System (MAERS) report for Curtis Metal was submitted on March 25, 2022. The facility reported 37 tons of VOC emissions for calendar year 2021, which aligns with the records provided during the inspection.

Conclusion

Based on the on-site inspection of the facility, as well as review of all provided records, Curtis Metal Finishing appears to be operating in compliance with all conditions of PTI No. 383-00J and all other applicable air quality rules and regulations.

NAME Kaitlyn Zeffert

DATE 04/27/2022

SUPERVISOR K. Kelly