

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

N725672494

FACILITY: UNIVERSAL COATING INC.		SRN / ID: N7256
LOCATION: 5204 ENERGY DR., FLINT		DISTRICT: Lansing
CITY: FLINT		COUNTY: GENESEE
CONTACT: Julie Taylor , Risk Manger - Q.M.R.		ACTIVITY DATE: 06/26/2024
STAFF: Matthew Karl	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: On Wednesday, June 26th, 2024, an announced site inspection of Universal Coating, Inc. was conducted as part of a full compliance evaluation (FCE). Universal Coating, Inc. is subject to the requirements of permits MI-ROP-N7256-2024 and PTI No. 28-24.		
RESOLVED COMPLAINTS:		

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**Autumn Cole colea20@michigan.gov 517-930-3790**

**Purpose:**

On Wednesday, June 26, 2024, an announced site inspection of Universal Coating, Inc., (Universal Coating) was conducted as part of a full compliance evaluation (FCE). Universal Coating is subject to the requirements of permits MI-ROP-N7256-2024 and PTI No. 28-24.

**Background:**

Universal Coating is located at 5204 Energy Drive, Flint, Michigan in Genesee County. The facility is located to the south of the Genesee Power Plant and to the north of the Ajax Asphalt Plant on Energy Drive. Universal Coating operations include the manufacture of miscellaneous metal and plastic parts for various industries, mainly for the automotive industry. Process equipment consists of various coating and adhesive lines including spindle line spray booths, phosphate pre-treatment lines, dip spin units, a roll coater line, a powder coating booth, hand spray booths and tumble spray lines. Emissions from the spindle lines, roll coater line, and tumble spray lines are controlled by a regenerative thermal oxidizer (RTO). The facility has a burn-off oven, vapor degreaser, natural gas fired furnaces for comfort heating and three natural gas fired boilers used to heat the phosphate pre-treatment tanks. Metal repair operations include welding units, a metal punch, grinder, drill press and other maintenance equipment.

**Regulatory Analysis:**

Universal Coating is subject to the requirement to obtain a renewable operating permit (ROP) under Title 40 CFR Part 70 because the potential to emit (PTE) of volatile organic compounds (VOC) exceeds 100 tons per year (TPY). Also, the PTE of hazardous air pollutant (HAP) under Clean Air Act (CAA) Section 112 for a single HAP exceeds 10 TPY and for total HAPs combined is equal to or greater than 25 TPY.

The table below lists the permitted emission units and flexible groups as they appear in the permit MI-ROP-N7256-2024 and PTI No. 28-24, including the control equipment, the state rules and/or federal rules they are subject to, and the compliance status at the time of this evaluation:

Emission Units/ Flexible Groups	Control Equipment	State Rules and/or Federal Rules	Compliance (Y/N)
EU-SANDBLAST	Particulate Control (two baghouses)	Rules 224, 225, 301, 910; 40 CFR 52.21(c)&(d)	Y

<b>EU-METALREPAIR</b>	<b>NA</b>	<b>Rules 224, 225; 40 CFR 52.21(c)&amp;(d)</b>	<b>Y</b>
<b>EU-HEATING</b>	<b>NA</b>	<b>Rules 205, 225; 40 CFR 52.21(c)&amp;(d)</b>	<b>Y</b>
<b>EU-BURNOFF</b>	<b>NA</b>	<b>Rules 205, 224, 225, 301, 910, 912; 40 CFR 52.21(c)&amp;(d)</b>	<b>Y</b>
<b>EU-DEGREASER</b>	<b>NA</b>	<b>Rules 225, 702; 40 CFR 63 Subpart T; 40 CFR 52.21(c)&amp;(d)</b>	<b>Y</b>
<b>EU-POWDERCOAT</b>	<b>Particulate Control</b>	<b>Rules 224, 225, 301, 331, 910, 40 CFR 52.21(c)&amp;(d); 40 CFR 63 Subpart MMMM; 40 CFR 63 Subpart PPPP</b>	<b>NA, in storage.</b>
<b>FG- PHOSPHATELINES</b>	<b>NA</b>	<b>Rules 225, 702; 40 CFR 52.21(c)&amp;(d); 40 CFR 63 Subpart MMMM; 40 CFR 63 Subpart PPPP</b>	<b>Y</b>
<b>FG-DIPSPINS</b>	<b>NA</b>	<b>Rules 205, 225, 702, 40 CFR 52.21(c)&amp;(d); 40 CFR 63 Subpart MMMM; 40 CFR 63 Subpart PPPP</b>	<b>Y</b>
<b>FG-H1/H2/H3</b>	<b>Exhaust Filters</b>	<b>Rules 224, 225, 301, 702, 910, 40 CFR 52.21(c)&amp;(d); 40 CFR 63 Subpart MMMM; 40 CFR 63 Subpart PPPP</b>	<b>Y</b>

<b>FG-MISC METAL/PLASTIC</b>	<b>NA</b>	<b>Rules 205, 702; 40 CFR 63 Subpart Mmmm; 40 CFR 63 Subpart Pppp</b>	<b>Y</b>
<b>FG-RTO</b>	<b>Permanent total enclosure (PTE) and Regenerative thermal oxidizer (RTO)</b>	<b>Rules 205, 224, 225, 301, 370, 702, 910, 911, 40 CFR 52.21(c)&amp;(d); 40 CFR Part 64; 40 CFR 63 Subpart Mmmm; 40 CFR 63 Subpart Pppp</b>	<b>Y</b>
<b>FG-MACT Mmmm</b>	<b>Permanent total enclosure (PTE) and Regenerative thermal oxidizer (RTO)</b>	<b>40 CFR 63 Subpart Mmmm</b>	<b>Y</b>
<b>FG-MACT Pppp</b>	<b>Permanent total enclosure (PTE) and Regenerative thermal oxidizer (RTO)</b>	<b>40 CFR 63 Subpart Pppp</b>	<b>Y</b>
<b>FG-MACT DDDDD</b>	<b>NA</b>	<b>40 CFR 63 Subpart DDDDD</b>	<b>Y</b>
<b>FG-MACT T</b>	<b>NA</b>	<b>40 CFR 63 Subpart T</b>	<b>Y</b>
<b>FG-RULE287(2)(c)</b>	<b>NA</b>	<b>Rules 287 and 910</b>	<b>Y</b>

### Annual Emissions Report for 2023:

The following table summarizes the actual emissions of air pollutants reported for 2023.

<b>Pollutant</b>	<b>Amount (TPY)</b>
<b>Carbon monoxide (CO)</b>	<b>1.44</b>

Lead	0.00001
Nitrogen oxides (NOx)	1.71
PM10-PRI	0.13
PM10-FIL	0.032
PM2.5-PRI	0.13
PM2.5-FIL	0.032
PM-CON	0.097
Sulfur dioxide (SO <sub>2</sub> )	0.01
VOC	7.89
Ammonia	0.05
HAP-Formaldehyde	0.001
HAP-Hexane	0.03
HAP-Trichloroethylene	0.82

**Site Inspection:**

Nick Carlson, Ed Schleusener, Autumn Cole, Loren Hicks, and I (Matt Karl) arrived on site at 9:15am. We met with Julie Taylor and Chris Occhipinti. Julie requested that we perform the walkthrough portion of the inspection first. I have detailed the equipment we reviewed below:

**EU-SANDBLAST**

- This emission unit currently consists of nine (9) blast cabinets. There were previously as many as seventeen (17), but about half are now either not in use or are in storage. The blasting/abrasive operations use aluminum oxide which is 60 grit, and steel shot which is 50 grit for pre-treatment of metal parts.



- Emissions are controlled from the blasting equipment by two (2) baghouse control devices. These baghouses are ducted to exhaust back into the blasting room.
- The facility changes out the abrasive media based on a fines sieve test. Once the abrasive media reaches a certain level of fines, it is removed and replaced with new media.
- Julie Taylor informed us that Tim Johnson was in talks with a new media provider, and was also looking into upgrading/replacing the baghouse controls at some point in the future.
- The blasting room appeared clean, there were no visible emissions or fines around the baghouses.

## **EU-METALREPAIR**

- This emission unit consists of various welding units, a metal punch, grinder, drill press, etc. This equipment is used for making trays for the dip spin units.
- There are very minimal emissions generated from these activities and they are discharged into the general in-plant environment.

## **EU-HEATING**

- This emission unit consists of a furnace in the chemical storage area. It is used to keep the chemical storage area above freezing during the winter. It is rated at 0.2 MMBTU/hr.
- The other equipment covered by this emission unit consists of air make-up units rated at 2.5 MMBTU/hr for indoor air heating/ventilation.
- All this equipment is natural gas fired.

## **EU-BURNOFF**

- This emission unit is a batch-type natural gas-fired burn off oven with a secondary chamber afterburner that is used to remove excess coating from tooling equipment.
- Burn time in the main chamber is 1 hour.
- Maximum processing 1 batch per day, but this is rarely achieved and is usually used less. It was not operating during our inspection.
- The burn chamber operating temperature is set at 800°F.
- The afterburner operating temperature is set at 1400°F.
- The thermocouples that monitor the temperature in the burn chamber and afterburner are frequently checked as part of the facility's routine maintenance procedures. The thermocouples are not recalibrated but are replaced if they do not read accurately. Julie Taylor reviewed the maintenance logs and informed us that they were last replaced on 2/10/24 and 4/22/24.

## **EU-DEGREASER/FG-MACT T**

- This emission unit is a vapor degreaser that uses a trichloroethylene (TCE) solvent.

- The degreaser was not in use during our inspection.
- Instructions on how to use the degreaser are posted above it. A log is located next to it that allows the date, part type, amount cleaned, the amount of solvent added and the run time to be recorded. It appeared that the degreaser was used once a month recently.
- Highest VOC emissions from January-May 2024 occurred in May 2024 and was 243.53 pounds per month. See records reviewed below.
- EU-DEGREASER SC I.1 VOC 268.8 lb/month/3-month rolling average. All the 3-month rolling averages reviewed over the period from January-May 2024 were below the permitted emission limit. The highest 3-month rolling average occurred in February 2024 and was 144.1 pounds per month. See records reviewed below.
- EU-DEGREASER SC II.1 Solvent-TCE 22.2 gallons/3-month. All the 3-month rolling averages reviewed over the period from January-May 2024 were below the permitted usage limit. The highest 3-month rolling average usage rate occurred in February 2024 and was 11.8 gallons per month. See records reviewed below.
- FG-MACT T SC I.1 Halogenated HAP Solvent 150 kg/m<sup>2</sup>/3-month (30.6 lbs/ft<sup>2</sup>/month). All the 3-month rolling average halogenated HAP solvent emissions reviewed over the period from January-May 2024 were below the permitted emission limit. The highest 3-month rolling average occurred in February 2024 and was 16.5 pounds per square feet per month. See records reviewed below.

## **EU-POWDERCOAT**

- This emission unit consists of one portable, manual, powder coating application booth that has built in filters for particulate matter (PM) control. It is currently not in use and is in storage. When it was being used, it was placed inside one of the other hand spray booths and operated there. The filters were changed when they clogged to the point that they restricted air flow.
- Exhaust gases are released only into the in-plant environment.

## **FG-PHOSPHATELINES**

- This flexible group consists of three (3) phosphate lines. Line 1 is for steel parts, Line 2 is for "Iron on Aluminum" parts, and Line 3 is for parts on a mandrel which also uses a bulk dryer. The lines act as a parts cleaner that pre-treats and prepares parts for being coated. The general process consists of various tanks with alkaline cleaners, water rinses, acid (HCl) treatment, and phosphate treatment and dryers.
- The tanks are steam heated by natural gas fired boilers. The facility is permitted for three (3) boilers, but only two (2) are in use.
- SC I.1 VOC 1.0 TPY. Monthly and 12-month rolling records. I reviewed records for the VOC emissions for FG-PHOSPHATELINES for January through May 2024. During this time period the VOC emissions were well below the permitted emission limit, at 0.1 tons per 12-month rolling time period.

## **FG-DIPSPINS**

- This flexible group consists of three (3) dip spin units that were permitted together as part of the same project and were installed at the same time on May 1, 2005. The process consists of parts being loaded by weight into a basket, which is placed into a dip spin unit, which submerges the parts in coating, then spins them. These dip spin units use solvent based coatings. There is a log associated with every dip spin unit that the operator logs information about the batches processed.
- They share use of four (4) batch drying ovens with the hand spray booths. The batch drying ovens have both spiral chart wheels to monitor and record the oven temperature, as well as a log to record information about each batch processed in each oven. The temperature the ovens operate at depends on the coatings used. Most commonly they operate at either 650°F or 475-480°F.
- There are six (6) dip spin units total. The other three dip spin units were installed later and will be described below. The other dip spin units are part of the FG-RULE287(2) (c) exempt emission unit group.
- SC I.1 VOC 5.0 TPY. I reviewed records for January through May 2024 for FG-DIPSPINS. Over this time period, the flexible group was well below the permitted emission limit, with the max VOC emissions over this time period being 0.05 tons per year. See records review below.
- SC I.2 VOC 2,000 lb/month. I reviewed records for January through May 2024 for FG-DIPSPINS. Over this time period, the VOC emissions were well below the permitted emission limit. Over this time period, the maximum VOC emissions were 37 lbs per month in March 2024. See records review below.

### FG-H1/H2/H3

- This flexible group consists of three (3) manual spray booths for coating miscellaneous metal/plastic parts. A shared exhaust header feeds all three booths to a common stack. Only two (2) booths EU-H1 and EU-H2 are used for manual spray coating. The third booth (EU-H3) is used to clean the spray guns from the tumble spray units.
- The face velocity in these booths is also kept above 200 feet per minute (FPM). Julie Taylor demonstrated the negative pressure air flow with a feathered dog toy in booth 1 which was in operation during the inspection. We noted filters in were in place in the booths. The filters are replaced on a schedule dependent on when the pressure drop reaches a certain level indicating restricted air flow.
- The hand spray booths share the four (4) batch drying ovens with the dip spin units. The batch drying ovens have both spiral chart wheels to monitor and record the oven temperature, as well as a log to record information about each batch processed in each oven. The temperature the ovens operate at depends on the coatings used. Most commonly they operate at either 650°F or 475-480°F.
- SC I.1 VOC 5.0 TPY. I reviewed records for January through May 2024. During this time period, the VOC emissions were well below the permitted emission limit. The maximum VOC emission occurred in March 2024 and was 0.02 tons per 12-month rolling time period. See records review below.
- SC I.2 VOC 2,000 lb/month. I reviewed records for January through May 2024. During this time period, the VOC emissions were well below the permitted emission limit. The maximum VOC emissions occurred in March 2024 and was 12 pounds per month. See records review below.



## FG-MISCMETAL/PLASTIC

- This flexible group consists of the three (3) permitted dip spin units (FG-DIPSPINS) and the three (3) manual hand spray booths (FG-H1/H2/H3).
- The metal parts coating is exempted under Rule 621(10)(b) which exempts metallic surface coating that complies with "total VOC emissions from all metallic surface coating lines do not exceed 30.0 TPY". SC I.1 VOC 30 TPY. All plastic parts coating must remain below 30 TPY VOC. SC I.2 VOC <30 TPY.
- I reviewed records for FG-MISCMETAL/PLASTIC for January through May 2024. During this time period, the VOC emissions were well below the permitted emission limits. Over this time period the VOC emissions from this flexible group were 0.1 tons per 12-month rolling time period. See records review below.

## FG-RTO

- This flexible group consists of:
- EU-CE1 through EU-CE7, which are seven (7) spindle conveyor coating lines, consisting of thirteen (13) automatic spray booths, six (6) infrared (IR) ovens, an electric oven, three (3) preheat ovens, and three (3) dry ovens. Each spindle conveyor line has two booths except line 3 which is a single. Each of the spindle conveyor lines consists of a primer and a topcoat booth. Each booth's duct has a pitot tube that measures the pressure in the duct, which is used to calculate the face velocity in each booth. Julie Taylor demonstrated the negative pressure air draw in booths 13 and 12 with a feathered dog toy. Each booth has a log that has a daily run sheet that provides information about the operations of each booth. There is a red-light alarm that is triggered on the top of the lines if the face velocity drops below the set point of 220 feet per minute on any booth. The pitot tubes are cleaned monthly and are tested with a portable meter, and a replaced if they do not validate correctly.
- EU-RC: A roll coater line equipped with an (infrared) drying oven. This roll coater line uses solvent-based coatings.
- EU-TS3 through EU-TS6: four (4) tumble spray (TS) lines. Only two (2) are currently installed and operating (EU-TS3 and EU-TS4). PTI No. 28-24 approved the facility to install two additional tumble spray units (EU-TS5 and EU-TS6). However, these new units have not been installed yet, because they have sat for so long that their ES Logic software needs replacing.
- The capture efficiency (CE) of the permanent total enclosure (PTE) and the destruction efficiency (DE) of the regenerative thermal oxidizer (RTO) were last tested on November 2-3, 2021, by H & H Monitoring, Inc. Results from the testing confirmed the PTE achieves 100% capture efficiency and 98.2% DE.
- The next performance testing is required in November 2026.
- The following parameters were observed:
- RTO chamber temperature (previously 1550, 1573, 1560): 1583.6°F.
- RTO inlet temperature (previously 102.8, 104.9): 106.4°F.
- RTO outlet temperature (previously 245.0, 216.4): 263.0°F.
- RTO fan (previously 49.1, 51.85): Not observed.
- RTO pressure drop (1.2, 0.4, 20): 0.4" W.C.
- RTO temperature maintained above 1550°F (SC VI.2)? Yes, 1583.6°F.

- The following face velocities were observed from the November 2-3, 2021 test report:

<b>Emission Unit</b>	<b>Measured Face Velocity (min 200 ft/min for PTE)</b>
<b>EU-CE1</b>	<b>250.24 ft/min</b>
<b>EU-CE2</b>	<b>324.87 ft/min</b>
<b>EU-CE3</b>	<b>267.14 ft/min</b>
<b>EU-CE4</b>	<b>378.51 ft/min</b>
<b>EU-CE5</b>	<b>277.01 ft/min</b>
<b>EU-CE6</b>	<b>295.80 ft/min</b>
<b>EU-CE7</b>	<b>295.21 ft/min</b>

- Review of Emission Limits SC I.1 and SC I.2:

*Needs #3*

<b>Month-Year</b>	<b>SC I.1 VOC, acetone and methyl acetate, combined 48.0 tons/12-month rolling time period</b>	<b>SC I.2 Methyl Isobutyl Ketone 4.6 tons/12-month rolling time period</b>	<b>Compliance (Y/N)</b>
<b>January-2024</b>			
<b>February-2024</b>			
<b>March-2024</b>			
<b>April-2024</b>			
<b>May-2024</b>			

### Source-Wide

- SC I.1 Ethyl benzene 8.9 tons/12-month rolling time period. All the 12-month rolling averages were below the permitted emission limit over the time period reviewed from January through May 2024. The highest emission over this time period was 0.8 tons per year, well below the permitted emission limit. See records reviewed below.

### FG-MACT MMMM

- Summary emissions of HAPs from metal parts coating were reviewed for the July 1, 2023, through December 31, 2023, operating period. Review of the Miscellaneous Metal Parts Coating MACT information showed the following emission rates:

Coating Category	December 2023 Emissions Organic HAP emission rate lb/gal per 12- month rolling time period	Emission Limit Organic HAP emission rate lb/gal per 12- month rolling time period	Compliance (Y/N)
Rubber-to-metal	1.1	37.7	Y
General Use	0.0	2.6	Y
Extreme Performance	1.0	12.4	Y
High Performance	0.0	27.5	Y

There were no deviations from the emission limitations during the reporting period from July 1, 2023, through December 31, 2023. The organic HAP emission rates for each compliance period were all less than the applicable emission limits, as shown in the table above. There were no deviations reported from the operating limitations, work practice standards or periods during which the continuous parameter monitoring systems (CPMS) were out-of-control. A copy of the report is available on Content Manager.

### FG-MACT PPPP

- Emissions of HAPs from plastic parts coating were reviewed for the July 1, 2023, through December 31, 2023, operating period. Review of the Miscellaneous Plastic Parts Coating MACT showed the following emission rates:

Coating Category	December 2023 Emissions Organic HAP emission rate lb/lb per 12-month rolling time period	Emission Limit Organic HAP emission rate lb/lb per 12-month rolling time period	Compliance (Y/N)
General Use	0.05	0.16	Y

There were no deviations from the applicable emission limitation and no deviations from the operating limitations during the reporting period. The organic HAP emission rate was less than the emission limit as shown in the table above. There were no deviations from the work practice standards and there were no periods during which the continuous parameter monitoring systems (CPMS) were out-of-control during the reporting period. A copy of the report is available on Content Manager.

#### FG-MACT DDDDD

- Tune-ups conducted every 5-years? Yes. The boilers are tuned-up twice a year.

*(not true, that's just a City type inspection. Does not include CO Measurement & re tune of Air 2 Fan ratios)*

#### FG-RULE287(2)(c)

- Dip Spin (DS) units: EU-DS4, EU-DS5, EU-DS6, EU-DS7
- The three (3) exempt dip spin units (EU-DS4, EU-DS5 and EU-DS6) were installed separately on 6/1/2012, 1/1/2015 and 11/1/2017 respectively. They are the same units as the permitted units in FG-DIPSPINS and operate the same way. EU-DS6 was coating parts with a water-based coating, so the parts are put on racks to air-dry instead of being dried in the four (4) batch drying ovens. The amount of air-drying time depends on the size of the parts, and the temperature and humidity at the time. Normally it takes at least 20 minutes. Each of the dip spin units has a log for recording information about the batches being processed in each unit.
- Tumble Spray (TS) lines: EU-TS1, EU-TS2
- Operate under exemption Rule 287(2)(c). I reviewed records that show that these emission units used less than 200 gallons per month of coatings. See records review below.

**Records Request: Emailed to Julie Taylor and Mary Mello on Friday June 21-24.**



- Source-Wide SC VI.3(a)-(e) monthly material and emission records. From January-May 2024.
  - Gallons (with water) of each ethyl benzene containing material used.
  - Gallons (with water) of each ethyl benzene containing material reclaimed.
  - The ethyl benzene content (with water) in pounds per gallon of each material used.
  - Ethyl benzene mass emission calculations determining the monthly emission rate in tons per calendar month.
  - Ethyl benzene mass emission calculation determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.
- EU-SANDBLAST SC VI.1 Monthly particulate control records. From January-May 2024.
- EU-BURNOFF temperature records and listing of materials processed. From January-May 2024.
  - SC VI.1 & 3 Burnoff oven secondary chamber/afterburner temperature records.
  - SC VI.2 Last thermocouple calibration.
  - SC VI.4 Any malfunctions of the burnoff oven.
  - SC VI.5 Current listing of coating, oil or grease processed in the burnoff oven.
- EU-DEGREASER SC VI.2(a)-(d) solvent records and emissions. From January-May 2024.
  - The dates and amounts of solvent added/removed.
  - The solvent composition of wastes removed.
  - Net usage of solvent on a monthly and 3-month rolling average as determined at the end of each calendar month.
  - Calculations showing monthly and 3-month rolling average emissions.
- EU-POWDERCOAT SC VI.1 Monthly particulate control records. From January-May 2024.
- FG-PHOSPHATELINES SC VI.3(a)-(f) material usage and emissions. From January-May 2024.
  - VOC content of each material used.
  - VOC concentration "as mixed" in each in each phosphate bath, based on the VOC content of the material and the dilution rate within the prepared bath.
  - Open surface area of baths containing products with VOCs.
  - Vapor pressure of products containing VOCs.
  - VOC mass emission calculations determining monthly emission rate in tons per calendar month.
  - VOC mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.
- FG-DIPSPINS SC VI.3(a)-(d) material usage and emissions. From January-May 2024.
  - Gallons (with water) of each coating, reducer, clean-up solvent, etc. (materials) used and reclaimed.
  - VOC content (with water) of each material as applied.
  - VOC mass emission calculations determining the monthly emission rate in both pounds per month and tones per month.
  - VOC mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

- FG-H1/H2/H3 SC VI.3(a)-(d) material usage and emissions. From January-May 2024
  - Gallons (with water) of each coating, reducer, clean-up solvent, etc. (materials) used and reclaimed.
  - VOC content (with water) of each material as applied.
  - VOC mass emission calculations determining the monthly emission rate in both pounds per month and tones per month.
  - VOC mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.
- FG-MISCMETAL/PLASTIC SC VI.3 (for metal parts coating lines) and VI.4 (for plastic parts coating lines). From January-May 2024.
  - Gallons or pounds of each VOC containing material used.
  - VOC content, in pounds per gallon or pounds per pound as applied, of each VOC containing material used.
  - VOC emission calculations determining the monthly emission rate in tons per calendar month.
  - VOC emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.
- FG-RTO records for the regenerative thermal oxidizer (RTO) as described below: requesting the records below from January-May 2024.
  - SC VI.4(a)-(d) material usage and emissions
    - Gallons (with water) of each coating, reducer, purge and clean-up solvents, etc. (material) used and reclaimed.
    - VOC content (with water), acetone content, and methyl acetate (CAS No. 79-20-9) combined mass emission calculations determining the monthly emission rate in tons per calendar month.
    - VOC, acetone (CAS No. 67-64-1), and methyl acetate (CAS No. 79-20-9) combined mass emission calculations determining the monthly emission rate in tons per calendar month.
    - VOC, acetone (CAS No. 67-64-1), and methyl acetate (CAS No. 79-20-9) combined mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.
  - SC VI.5(a)-(d) material usage and emissions
    - Gallons (with water) of each methyl isobutyl ketone (CAS No. 108-10-1) containing material used.
    - Where applicable, the gallons (with water) of each methyl isobutyl ketone (CAS No. 108-10-1) containing material reclaimed.
    - The methyl isobutyl ketone (CAS No. 108-10-1) content (with water) in pounds per gallon of each material used.
    - Methyl isobutyl ketone (CAS No. 108-10-1) mass emission calculation determining the monthly emission rate in tons per calendar month.
    - Methyl isobutyl ketone (CAS No. 108-10-1) mass emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.
  - SC VI.6(a)-(c) permanent total enclosure (PTE) records
    - The direction of air flow into the enclosure at all times; and either
    - The facial velocity of air flow through all natural draft openings; or
    - The pressure drop at or above the facial velocity limit or pressure drop.



- SC VI.7 RTO temperature records.
- SC VI.8 Calculated facial velocity through natural draft openings (NDOs).
- FG-RULE287(2)(c) SC VI.1(a)-(b), requesting records over the period from January-May 2024.
  - Volume of coating used, as applied, minus water, in gallons.
  - Documentation of any filter replacements.

### **Records Reviewed:**

**I reviewed the following records as part of this inspection, and all of them have been uploaded to Content Manager under “Inspection Records 2024 – Universal Coatings”.**

**On Friday June 28, 24 I received the following records via email from Julie Taylor:**

**The EU-SANDBLAST SC VI.1 Monthly particulate control records and EU-BURNOFF temperature records (sample of each month) from January-May 2024.**

**For EU-SANDBLAST, the record provided is the “2024 Sieve Verification Testing for Blast machines In-Use.pdf”. The way that the source shows that the particulate control systems are installed, maintained, and operating in a satisfactory manner is that they perform monthly sieve tests. The purpose of the sieve test is to show that the abrasive media used in the blast cabinets is the appropriate size to effectively smooth the parts to the degree required. If they media is the appropriate size, it will be controlled effectively by the particulate control system. If the media starts to degrade, or become too fine to effectively abrade the parts, it will also be getting too fine to be effectively controlled by the particulate control system. At this point it needs to be replaced for new media.**

- Machine #1 uses steel grit, had sieve tests performed at least monthly (and often several times a month) and the media is mostly in the 35-40 sieve cup size. The cutoff to consider dumping is when the media is in the 45-sieve cup size or finer.
- Machine #2 uses steel grit and is tested at least monthly.
- Machine #12 uses aluminum oxide grit and has sieve tests performed at least monthly. The cutoff to consider dumping is when the media is in the 45-sieve cup size or finer.
- Machine #17 uses aluminum oxide grit and is tested at least monthly.
- Machine #18 uses steel grit and is tested at least monthly.
- Machine #8 and #5 both use aluminum oxide grit and are available for service but are currently not in use.

**For EU-BURNOFF, the record provided is the “Burn Off Oven Logs 1 each month jan – May 2024.pdf”. The records consist of a spiral chart for the temperature for the burn off oven, with a green line representing the oven temperature, and a red line representing the afterburner temperature. The record also includes a table which**

lists the chart #, the date, what is being burned off, a check column to note whether the afterburner reached a minimum 1400°F, a time in, the operator, the time out, and the operator. I reviewed all of the records provided, and for the months reviewed, the burn off oven processed one or two batches of tooling a day. In each case the burn off oven was operated at least at 800°F and the afterburner was operated at least at 1400°F. The time the tooling was left in the oven was 2-3 hours.

On Tuesday July 2, 24 I received the following records from Julie Taylor and Mary Mello:

For the Source-Wide conditions, the following record was provided "Source-Wide Records\_SC VI.3(a)-(e).pdf" which includes tables that track ethyl benzene emissions for emission units EU-DS1 through EU-DS6, EU-H1 through EU-H3, EU-TS1 through EU-TS6, EU-CE1 through EU-CE7 and EU-RC. I have summarized the top table for Monthly and 12-month rolling emission rates below:

Month-Year	Ethyl Benzene (lbs/month)	Ethyl Benzene (tons/month)	12-Month Rolling Ethyl Benzene Emissions (tpy)
Jan-24	97.34	0.05	0.8
Feb-24	85.49	0.04	0.8
Mar-24	83.44	0.04	0.8
Apr-24	77.93	0.04	0.8
May-24	84.79	0.04	0.7

The other table presented contains the following columns: As Applied Coating Identification, Actual Gallons Used, Ethyl Benzene Content (lb/gal) as applied, Uncontrolled Ethyl Benzene Emissions (lbs/month), Controlled Ethyl Benzene Emissions (lbs/month). A footnote to the table notes the control reduction efficiency ("Red Eff") is 99.4% for January 2017 through December 2021 (based on Enclosure Capture Efficiency of 100% and RTO Destruction Efficiency of 99.4% from testing conducted January 31, 2017) and 98.2% beginning January 2022 (based on Enclosure Capture Efficiency of 100% and RTO Destruction Efficiency of 98.2% from testing conducted November 2-3, 2021). Note: the RTO Destruction Efficiency of 98.2% corresponds to the 3-hour RTO temperature average of 1570.55 °F established during the November 2021 test event.



For EU-DEGREASER, the record provided was "EU-DEGREASER\_SC VI.2(c)-(d).pdf" which included the vapor degreaser VOC and Halogenated HAP Solvent Emissions. I have summarized the information in the table provided below:

Month-Year	Net Monthly Solvent Usage Rate (gallons/month)	Monthly VOC Emission Rate (lbs/month)	Net 3-Month Rolling Average Usage Rate (gallons/month)	3-Month Rolling Average Emission Rate (lbs VOC/month)	3-Month Rolling Average Halogenated HAP Solvent Emissions (lb/ft <sup>2</sup> /month)
Jan-24	12.5	152.21	9.2	111.6	12.8
Feb-24	13.0	158.29	11.8	144.1	16.5
Mar-24	2.5	30.56	9.3	113.7	13.0
Apr-24	8.0	97.41	7.8	95.4	10.9
May-24	20.0	243.53	10.2	123.8	14.2

As explained in the footnotes to this table, the usage rate represents the "net usage" amount of trichloroethylene-based solvent added to the vapor degreaser. The net usage rate is determined as the difference between the solvent added per month and the amount of solvent contained in the wastes removed from the vapor degreaser (the source does not take credit for the solvent removed). The VOC emissions are equal to the net usage rate times the VOC content of Neu-Tri Solvent (12.176 lbs VOC/gallon). The halogenated HAP solvent emission limit for batch vapor solvent cleaning machines (40 CFR 63.464) is 150 kg/m<sup>2</sup>/month, based upon a 3-month rolling average, which is equivalent to 30.6 lbs/ft<sup>2</sup>/month. Halogenated HAP solvent emissions are calculated pursuant to 40 CFR 63.465(c), equations (2) and (4).

The record also includes the following Vapor Degreaser Specifications:

**Manufacturer:** Baron-Blakeslee

**Model Number:** MVR-425

**Type of Machine:** Batch Vapor Degreaser

**Date of Installation:** March 8, 1985

**Solvent/Air Interface Area: 1,260 square inches (8.75 sq. ft)**

**Cleaning Machine Size: Interface Area = 28" x 45" x 25", Cleaning Capacity = 24" x 41" x 30".**

**Controls:**

- a. Freeboard Ratio of 1.0
- b. Freeboard Refrigeration Device
- c. Working Mode Cover
- d. Reduced Room Draft
- e. Dwell
- f. High Temperature Control/Safety Vapor Control

For FG-PHOSPHATELINES the record provided was "FG-PHOSPHATELINES SC VI.3 (a)-(f).pdf". This record is for the emission units EU-PHOSPHATE1, EU-PHOSPHATE2, EU-PHOSPHATE3 and EU-PHOS-PROTO. The top table in this record has the following columns: Product Containing VOCs, VOC Content (lb/gal), VOC Content "as mixed" (lb/gal), Bath Surface Area (ft<sup>2</sup>), Product Evaporation/ Vapor Pressure, Assumed Worst-Case VOC emission rate (lb/hr) per bath, Total Number of Baths in FG-PHOSPHATELINES, Hourly VOC Emissions (lb/hr) and Average Usage (hr/day). The footnotes to this table describe that the worst-case VOC emissions are based on the HCl bath emission rate, consistent with the application for PTI 96-03D. It is assumed that if the phosphate baths surface area and vapor pressures are within the parameters of the HCl bath, then the VOC emission rate will be within this worst-case rate of 0.01 lb/hr estimated for HCl. Consistent with the assumption used during review of PTI 96-03D, it is assumed that the evaporation of the Gardolene bath will be similar to that of water, as the Gardolene bath is largely composed of water (i.e. Gardolene is highly diluted). The approximate usage is as follows: Gardolene is used 16 hours per week. Robonds are used for 8 hours per month, and Houghto-Clean 8150 is used 24 hours per day.

I have included the Monthly and 12-Month Rolling VOC Emission Rates table below:

Month-Year	VOC (lbs/month)	VOC (tons/month)	12-Month Rolling VOC Emissions (tpy)
Jan-24	19.4	0.01	0.1
Feb-24	18.2	0.01	0.1
Mar-24	19.4	0.01	0.1

<b>Apr-24</b>	<b>18.8</b>	<b>0.01</b>	<b>0.1</b>
<b>May-24</b>	<b>19.4</b>	<b>0.01</b>	<b>0.1</b>

For FG-DIPSPINS, the following record was provided “FG-DIPSPINS SC VI.3(a)-(d).pdf”. These records are for emission units: EU-DS1, EU-DS2, and EU-DS3. The record consists of VOC emission calculation tables for each month, which contain the following columns: As Applied Coating Identification, Actual Gallons Used, VOC Content (lb/gal) as applied, and Uncontrolled VOC Emissions (lbs/month).

I have included the Monthly and 12-Month Rolling Emission Rates table below:

<b>Month-Year</b>	<b>VOC (lbs/month)</b>	<b>VOC (tons/month)</b>	<b>12-Month Rolling VOC Emissions (tpy)</b>
<b>Jan-24</b>	<b>19</b>	<b>0.01</b>	<b>0.05</b>
<b>Feb-24</b>	<b>13</b>	<b>0.01</b>	<b>0.04</b>
<b>Mar-24</b>	<b>37</b>	<b>0.02</b>	<b>0.05</b>
<b>Apr-24</b>	<b>20</b>	<b>0.01</b>	<b>0.04</b>
<b>May-24</b>	<b>1</b>	<b>0.001</b>	<b>0.05</b>

For the flexible group FG-H1/H2/H3, I reviewed the following record “FG-H1\_H2\_H3 SC VI.3(a)-(d).pdf”. This flexible group covers the hand spray booths, emission units EU-H1, EU-H2 and EU-H3. This record consists of tables for monthly VOC emission calculations, which consists of the following columns: As Applied Coating Identification, Actual Gallons Used, VOC Content (lb/gal) and Uncontrolled VOC Emissions (lbs/month).

I have included the Monthly and 12-Month Rolling Emission Rates table below:

<b>Month-Year</b>	<b>VOC (lbs/month)</b>	<b>VOC (tons/month)</b>	
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			12-Month Rolling VOC Emissions (tpy)
Jan-24	1	0.0004	0.01
Feb-24	2	0.001	0.01
Mar-24	12	0.01	0.02
Apr-24	0	0	0
May-24	5	0.002	0.01

For the flexible group FG-MISCMETAL/PLASTIC, I reviewed the record “FG-MISCMETAL\_PLASTIC SC VI.3(c)-(d) SC VI.4(c)-(d).pdf”. This record covers VOC emissions from miscellaneous metal and plastic coating operations in the dip spin emission units EU-DS1, EU-DS2, and EU-DS3 and the hand spray booth emission units EU-H1, EU-H2 and EU-H3. The VOC containing material usage and VOC emissions are already covered under flexible groups FG-DIPSPINS and FG-H1/H2/H3, but are also covered here under Rule 336.1621(10)(b) for metal parts coating and Rule 336.1632(15)(a) for plastic parts coating, which limit the VOCs from those operations to 30 tons per 12-month rolling and less than 30 tons per 12-month rolling, respectively.

I have included the Monthly and 12-Month Rolling Emission Rates table below:

Month-Year	VOCs (tons/month)	12-Month Rolling VOC Emissions (tpy)
Jan-24	0.01	0.1
Feb-24	0.01	0.1
Mar-24	0.02	0.1
Apr-24	0.01	0.1



May-24	0.003	0.1
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I reviewed the following records for FG-RTO, “01012024 to 07012024 1200a\_10min\_Report.pdf” and “FG-RTO SC VI.4(a)-(d) and SC VI.5(a)-(e).pdf”. These records are for the flexible group for the regenerative thermal oxidizer (RTO) control. The first record is a 420-page table that contains the temperature data for the RTO combustion chamber temperature. The table contains seven columns: Start Date, Start Time, Stop Date, Stop Time, Duration, 1-Chamber 10 Min Average F and 1-Chamber 3 HR Average 1550 F. The report covers the time period from January 2, 2024 6:30am through June 27, 2024 7:49:59pm. The duration for each reading is 10 minutes, the 3 hour average chamber temperature was over 1550 °F over the entire reporting period as required, with the 3 hour average temperature usually around 1588 °F.

The second report “FG-RTO SC VI.4(a)-(d) and SC VI.5(a)-(e).pdf” contains information on the material usage and emissions for the RTO. The record contains two tables. The VOC and TAC emission calculations contains the following columns: As Applied Coating Identification, Actual Gallons of Materials Used (in the various emission units: Spindle, tumble spray, roll coat, booths), VOC content (lb/gal), Controlled VOC Emissions (lbs/month), Acetone Content (lb/gal) Controlled Acetone Emissions (lbs/month), Methyl Acetate Content (lb/gal), Controlled Methyl Acetate Emissions (lbs/month), Methyl Isobutyl Ketone Content (lb/gal), and Controlled Methyl Isobutyl Ketone Emissions (lbs/month).

I have summarized the VOC, Acetone, and Methyl Acetate Monthly and 12-month Rolling Emission Rates table below:

Month-Year	12-Month Rolling VOC, Acetone, and Methyl Acetate Emissions Combined (tpy)	12-Month Rolling Methyl Isobutyl Ketone Emissions (tpy)
Jan-24	5.1	0.6
Feb-24	5.0	0.6
Mar-24	4.9	0.6
Apr-24	4.8	0.6
May-24	4.7	0.5

As shown in the table above, the RTO is well below it's combined VOC, Acetone and Methyl Acetate emission limit of 49.7 tons per 12-month rolling time period, and well below it's emission limit for Methyl Isobutyl Ketone of 4.6 tons per 12-month rolling time period.

I reviewed the following record "FG-RULE287(2)(c) SC VI.1(a).pdf". This flexible group covers the tumble spray emission units EU-TS1 and EU-TS2 and the dip spin emission units EU-DS4, EU-DS5, EU-DS6 and EU-DS7 that operate under exemption rule 287(2)(c). This exemption requires the source to track the amount of coatings used in these emission units on a monthly basis and make sure that the usage does not exceed 200 gallons per month. Over the time period reviewed, units EU-TS1, EU-DS4 and EU-DS7 did not operate. I included the coating usage for the other units below:

Month-Year	EU-TS2 (gal/month)	EU-DS5 (gal/month)	EU-DS6 (gal/month)
Jan-24	4	6	21
Feb-24	0	14	26
Mar-24	0	12	28
Apr-24	0	7	23
May-24	0	14	18

**Summary:**

At the time of our inspection and records review, it appears that Universal Coating is in compliance with the requirements of permits MI-ROP-N7256-2024 and PTI No. 28-24.

NAME Matthew R. Kaul

DATE 7/3/24

SUPERVISOR AB