

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

N235468472

FACILITY: TRMI		SRN / ID: N2354
LOCATION: 100 HILL BRADY RD, BATTLE CREEK		DISTRICT: Kalamazoo
CITY: BATTLE CREEK		COUNTY: CALHOUN
CONTACT: Tyler Allard, EHS Coordinator		ACTIVITY DATE: 08/01/2023
STAFF: Amanda Cross	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Unannounced Compliance Inspection		
RESOLVED COMPLAINTS:		

The Air Quality Division’s (AQD) Amanda Cross conducted an unannounced inspection of TRMI, Inc. located at 100 Hill Brady Rd Battle Creek, Calhoun County, Michigan. The facility’s source registration number (SRN) is N2354. The purpose of the inspection was to determine compliance with the Federal Clean Air Act, Article II, Part 55, Air Pollution Control Rules, of the Natural Resources and Environmental Protection Act, 1995 PA 451, as amended (Act 451); AQD administrative rules; and Permit to Install (PTI) No. 158-11D.

TRMI, Inc. manufactures various automobile switches and circuitry as well as operating coating lines used to coat plastic automotive parts. Soldering, elepcoat, and printing process also occur at this facility. The facility submitted an application to update the PTI for new coatings to be used under FGELEPCOAT and to remove FGSTENCIL. The new PTI No. 158-11D was issued on March 31, 2023. The facility is an opt-out source for VOCs and HAPs.

The facility currently operates three shifts working 24/7, Monday through Friday. There are occasional weekend shifts, as needed. There are currently approximately 525 employees, which does not include temporary employees. The general process flow for the auto switches for windows, buttons for starting, and other parts is as follows; the facility produces the parts with plastic injection molding. Once the parts are produced, they are sent to be painted and then either pad printed, or laser etched. These are sent out as finished products. The electronics room produces circuit boards which are soldered, coated, and cut to the appropriate size. These are sent to assembly and sent to finished goods to be shipped out.

Mr. Tyler Allard is the environmental contact for the site. First, we reviewed the records for the site and then we completed a site walkthrough to observe the permitted and exempt equipment on site. Mr. Allard provided a list of the exempt equipment on site with the exemption it is operating under. This is included at the end of the report. The following will summarize the records review and facility walk through.

**EUIPA**

Use of IPA squeeze bottles at various locations throughout the facility. The IPA is used as a cleaning agent on multiple parts made by multiple emission units and flexible groups contained in the permit. There is no pollution control equipment associated with this emission unit as emissions are in-plant only.

Pollutant	Limit	Time Limit	Records

VOC	26.4 tpy	12-month rolling	6.48 tpy of VOC October 2022
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Pre-use, all materials are stored in the chemical room. There are satellite storage cabinets throughout the facility to store the chemicals in the area they are used while they are being used. One of the cabinets was opened to observe the chemicals, labeled, and stored with lids and caps. Multiple IPA squeeze bottles were observed with lids on multiple workstations.

The waste materials are stored in the waste room. The waste generated at the stations are stored in closed containers by the stations. All the waste is stored in the waste room. The facility has downgraded flooring for spill prevention and funnel top 55-gallon drums for storage of waste liquids. The satellite containers stored in the cabinets are poured in the drums. Safety Kleen is responsible for disposal of the waste on site. This is how all the generated waste is stored and disposed of from the facility.

The facility is also required to determine VOC content, water content and density of any IPA material, as applied and as received, using federal Reference Test Method 24, or, upon written approval, manufacturer’s formulation information. Facility requested and the department granted permission to use formulation data on EUSTENCIL, EUIPA, FGSOLDER, FGTOLUENE, FGELEPCOAT, and FGFACILITY once Method 24 testing has been completed on at least one coating or material per emission unit or flexible group. Thereafter the facility can use formulation data for compliance purposes.

During records review, we reviewed the Method 24 results from the required testing. Results were fairly consistent with the formulation data except for Harima GSP Lead Free Solder Paste. The SDS showed a VOC content of 13.42 lb/gallon and Method 24 testing showed a VOC content of 0.83 lb/gallon. The discrepancy could be because this is a paste and not a liquid, so Method 24 might not be appropriate for evaluation of VOC content. EUIPA and EUTOLUENE were not tested with Method 24 since the facility is assuming that they are 100% VOC and are calculating emissions based on the 100% VOC calculations.

The facility has all SDS on file for the materials used on site. Records contain gallons of all materials used and reclaimed, as waste, on-site. Waste content is determined from waste manifests. The VOC content of each material is listed in the records as well as the weight of each material. Annual and monthly VOC emissions are calculated based on the usage of those materials. This is done for all materials and emissions used and generated on site.

**FGSOLDER**

This flexible group contains 11 soldering stations. This area contains seven (7) reflow soldering machines that use non-lead solder and one (1) reflow solder machine which uses lead solder. The area also has four (4) wave solder machines. These are vented externally. The one soldering station which runs the lead solder has been decommissioned but is still on site. The facility has phased out the use of lead solder.

Emission Units: EUSOL1, EUSOL2, EUSOL3, EUSOL4, EURFSOL1, EURFSOL2, EURFSOL3, EURFSOL4, EURFSOL5, EURFSOL6, EURFSOL7

Pollutant	Limit	Time Limit	Records
VOC	12.1 tpy	12-month rolling	3.79 tpy VOC February 2023
di(ethylene glycol) hexyl ether (CAS No. 112-59-4)	0.82 tpy	12-month rolling	0.08 tpy June 2023
terpineol (CAS No. 8000-41-7)	0.07 tpy	12-month rolling	0.0025 tpy January 2023
maleic acid, dibutyl ester (CAS No. 105-76-0)	0.07 tpy	12-month rolling	0.0003 tpy January 2023
thixotropic agent (CAS No. 8001-78-3)	6.4 lb/month	monthly	1.01 lbs/month January 2023

Material	Limit	Process Equipment	Records
VOC content of solder enhancing material	6.9 lb/gal minus water, as applied	Each emission unit of FGSOLDER	Solder Paste – 0.830 VOC lb/gal (Method 24) Tamura Flux – 6.3 VOC lb/gal (SDS)

There were approximately 7 solder machines running during the inspection. The machines apply a solder to the metal connection points between the plastic chip base and the metal components. The solder machine that runs the lead-based solder was not running, but it was still onsite. The facility is still trying to determine if the machine will be removed or left on site. There are no plans to use the lead-based solder, moving forward.

The facility is tracking the HAPs for this flexible group as well as facility wide under the FGFACILITY HAPs requirement.

**FGTOLUENE**

This flexible group contains a toluene dip tank, toluene squeeze bottles, and toluene used in the in elepcoat. The toluene is used as a thinning agent for the elepcoat as well as in some squeeze bottles throughout the facility, to use as a cleaning agent.

Emission Units: EUTOLTK, EUTOLSQZBOTTLES, EUTOLELEPCOAT

Pollutant	Limit	Time Limit	Records
VOC	6.6 tpy	12-month rolling	3.34 tpy January 2022

Pre-use and waste materials for this emission unit are described above. The records are kept in the manner as described above as well. The facility has not completed Method 24 testing for EUTOLUENE as the facility is tracking emissions assuming 100% of the toluene emitted as VOC.

The facility completed the installation or modification of EUTOLTK and submitted written notification to the department. The special condition for written notification can be removed from the permit.

**FGELEPCOAT**

This flexible group contains 17 elepcoat units. Elepcoat is applied to make certain parts of the circuit board impermeable to water to keep the electronics from corrosion.

Emission Units: EUELEPCOAT1, EUELEPCOAT2, EUELEPCOAT3, EUELEPCOAT4, EUELEPCOAT5, EUELEPCOAT6, EUELEPCOAT7, EUELEPCOAT8, EUELEPCOAT9, EUELEPCOAT10, EUELEPCOAT11, EUELEPCOAT12, EUELEPCOAT13, EUELEPCOAT14, EUELEPCOAT15, EUELEPCOAT16, EUELEPCOAT17

Pollutant	Limit	Time Limit	Records
VOC	6.8 tpy	12-month rolling	1.45 tpy January 2022

Pre-use and waste materials for this emission unit are described above. The records are kept in the manner as described above as well.

The facility is also required to determine VOC content, water content and density of any IPA material, as applied and as received, using federal Reference Test Method 24, or, upon written approval, manufacturer's formulation information. Facility requested and the department granted permission to use formulation data on EUSTENCIL, EUIPA, FGSOLDER, FGTOLUENE, FGELEPCOAT, and FGFACILITY once Method 24 testing has been completed on at least one coating or material per emission unit or flexible group. Thereafter the facility can use formulation data for compliance purposes.

**FGPAINTLINES**

This flexible group consists of two paint lines used for coating plastic automotive parts and include emissions from purge and cleanup with a water curtain to control particulate emissions.

Emission Unit: EUPAINTLINE1, EUPAINTLINE2.

Pollutant	Limit	Time Limit	Records
VOC (coating only)	17.18 tpy	12-month rolling	8.55 tpy March 2023
VOC (purge and clean-up)	7.02 tpy	12-month rolling	0.0 tpy June 2023

The facility applies the Red Spot paint mixed with a Red Spot thinner. The paint is not diluted with any water or alcohol. Pre-use and waste materials for this emission unit are described above. The records are kept in the manner as described above as well. Any dried waste paint which is removed from the exempt cleaning operations is strained of cleaning fluid and disposed of via Safety Kleen.

The facility previously used methyl ethyl keytone (MEK) as a purge solvent for cleaning on the paint lines. This solvent contains VOCs. They have switched to methyl acetate which is considered a non-HAP non-VOC solvent. For this reason, the VOC emissions for the purge and cleanup solvent is now 0 tpy.

During the inspection, neither paint line was running but the water curtain was operational. The facility provided an example preventative maintenance document, via email, for the water curtain. PMs are completed both monthly and semi-annually. The facility runs 11 different paints with Piano Black being the highest usage paint on site. The facility uses HVLP applicators on the paint guns. A scale is used to weight the paint to determine paint usage, monthly. This number is used to calculate emissions.

The facility previously requested and was issued an approval letter to use formulation data from Red Spot on FGPAINTLINES. The facility is using the VOC content, as calculated by Red Spot, to calculate VOC emissions.

**FGRULE632**

All plastic parts coating lines within the stationary source including equipment covered by other permits, grandfathered equipment, and exempt equipment pursuant to Rule 632(15)(a). This flexible group was added to the permit during this last permitting cycle.

Emission Units: EUPAINTLINE1, EUPAINTLINE2

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Pollutant	Limit	Equipment	Records
VOC (excluding purge and cleanup solvents)	Less than 30.0 tpy	All plastic parts coating lines within the stationary source including equipment covered by other permits, grandfathered equipment, and exempt equipment pursuant to Rule 632(15)(a).	10.15 tpy February 2023

The facility is tracking VOCs for this flexible group on both paint lines as well as exempt equipment that coat plastic parts. Records are being kept as described above.

**FGFACILITY**

The following conditions apply source-wide to all process equipment including equipment covered by other permits, grand-fathered equipment, and exempt equipment.

Pollutant	Limit	Time Limit	Records
Each individual HAP	Less than 9.0 tpy	12-month rolling	Toluene - 4.4 tpy January 2022
Aggregate HAPs	Less than 22.5 tpy	12-month rolling	6.8 tpy January 2022
VOC	Less than 90 tpy	12-month rolling	26.5 tpy February 2023

Material Usage Group	Max VOC Content (lb/gal)	Records	Material Usage Limit (Gal/12-month rolling)	Records
EUIPA	6.6 lb/gal	6.59 lb/gal	8,000 gal	1,809 gal February 2023
FGSOLDER	6.9 lb/gal	6.3 lb/gal	3,500 gal	1,295 gal

		Tamura Flux		March 2023
FGTOLUENE	7.3 lb/gal	7.26 lb/gal	1,800 gal	876.4 gal September 2022
FGELEPCOAT	6.8 lb/gal	5.13 lb/gal	2,000 gal	435 gal January 2023
FGPAINTLINES (coatings as applied)	6.0 lb/gal	5.74 lb/gal	5,693 gal	3,078 gal March 2022
FGPAINTLINES (purge solvents)	6.7 lb/gal	0.0 lb/gal	1,200 gal	605 gal September 2022

The facility previously used methyl ethyl keytone (MEK) as a purge solvent for cleaning on the paint lines. They have switched to methyl acetate which is considered a non-HAP non-VOC solvent. For this reason, the VOC content for the purge solvent is 0.0 lb/month. The usage of MA is being tracked and is included in the spreadsheet. MEK, the previously used purge solvent, has not been used since 2019. MEK has a VOC content of 6.7 lb/gallon.

The FGPAINTLINES coating, as applied VOC lb/gallon limit is calculated based on how the facility applies the paint with the thinner added. The highest VOC lb/gallon is a 43% thinner and 57% 4800FM397C paint equation. All the 11 paints, when combined with the thinner, are below the 6.0 VOC lb/gallon limit.

The facility is using formulation data to show compliance with the required VOC lb/gallon limits and have obtained permission to do so from the district supervisor. Records are kept based on the individual recordkeeping from the previously discussed records in the applicable emission unit or flexible group recordkeeping.

**Exempt Equipment –**

The facility provided a list of all the exempt equipment on site and the exemption it is operating under. A summary of this is below.

Emission Unit	Process Description	Number of Units	Exemption	Additional Information
Robot Solder Machines	Process consists of wire solder and does not use	Multiple	Rule 285(2)(i)	Brazing, soldering, welding, and plasma cutting equipment

	solder enhancing elements. No emissions are produced.			
Plastic injection molding	Injection molding and insert molding machines that do not use mold release	55 Injection Molding 1 Insertion Molding	Rule 286(2)(b)	Plastic injection molding equipment and associated handling and storage
Tampo printing	Stamping where ink is taken from an etched plate onto a flexible pad and stamped	1 Ink Mix Room 7 Printing	Rule 287(2)(k) and Rule 287(2)(c)	Mixing operations associated with surface coating Surface coating lines using less than 200 gallons per month
Cold Cleaners	Wave solder pallet cleaner	2	Rule 281(2)(h)	Cold cleaner that have an air/vapor interface of not more than 10 square feet
Parts Washers	Spindle Cleaning Tank	1	Rule 290	Emission units with limited noncarcinogenic VOC emissions less than 1000 lbs/month, uncontrolled
Parts Washers	Ultrasonic cleaner Mask Washer	2	Rule 281(2)(k)	Aqueous based parts washers
Metal Stamping	Metal Stamping	3	Rule 285(2)(l)(vi)(B)	Equipment for carving, cutting, routing, turning, drilling, sawing, surface grinding, sanding, planing, etc metals used on a non-production basis or



				released only into the general in-plant environment
Generator	One 162 horsepower natural gas fired emergency generator	1	Rule 285(2)(g)	Internal combustion engines that have less than 10 MMBtu/hr.  This engine is subject to 40 CFR Part 63 Subpart ZZZZ
Space Heaters	Each heater rated at 150,000 BTU each	9	Rule 282(2)(b)	Natural gas space heated with a rated capacity less than 50,000,000 BTU/Hr
Laser Marker	Laser used to etch plastic parts	2	Rule 285(2)(l)(vi)(B)	Equipment for carving, cutting, routing, turning, drilling, sawing, surface grinding, sanding, planning, etc plastics used on a non-production basis or released only into the general in-plant environment
Maintenance Operations	Maintenance operations throughout the plant	5	Rule 285(2)(l)(vi)(B)	Equipment for carving, cutting, routing, turning, drilling, sawing, surface grinding, sanding, planning, etc metals used on a non-production basis or released only into the general in-plant environment
Shot Blasting Machine	Bead blasting glove box	1	Rule 285(2)(l)(vi)(B)	Equipment for carving, cutting,

				routing, turning, drilling, sawing, surface grinding, sanding, planing, shot blasting etc metals used on a non-production basis or released only into the general in-plant environment
Dust Collectors	Key Cutting Dust Collector  Printed Circuit Board Dust Collector	2	Rule 285(2)(l)(vi)(C)	Equipment for carving, cutting, routing, turning, drilling, sawing, surface grinding, sanding, planing, shot blasting etc metals controlled by an appropriately designed and operated fabric filter collector
Paint Mixing Room	Paint Mixing Room	1	Rule 287(2)(k)	Mixing operations associated with surface coating
Spray Painting Booth and Aerosol Puncturing Station	Spray painting booth in mold maintenance and aerosol puncturing station	1	Rule 287(2)(b)	Surface coating that uses only handheld aerosol spray cans, including puncturing and disposing cans
Cooling Water Tower	Cooling water tower for injection molding	1	Rule 280(2)(d)	Water cooling towers, not used for evaporative cooling of process water
Hydraulic Oil Storage	Hydraulic oil storage	Multiple	Rule 284(2)(c)	Storage of lubricating, hydraulic, and thermal oils

Battery Charging Station	Battery charging stations for forklifts	10	Rule 285(2)(l)(viii)	Battery charging operations
HVAC Units	HVAC units on the roof and ground	53	Rule 280(2)(b)	Comfort air conditioning or comfort ventilation systems not designed to remove air contaminants

A number of these exempt units were observed during the inspection.

The spray booth was not operating during the inspection. The filters looked like they were used and may need to be replaced. The facility only uses aerosol cans in this booth, which is exempt, as noted above. The booth is used about once every one or two months.

The generator was not operating during the inspection. The name on the generator is a Kohler model. The current hours meter reading was 893.6 hours. The oil filter had an hours number written on it of 852.4 hours and a date of 9/29/22. The facility runs the engine every week for about 10 minutes for readiness testing. The hours are tracked for testing and emergency operation on a spreadsheet which is maintained by the facility.

The facility appears to be in compliance with the Federal Clean Air Act, Article II, Part 55, Air Pollution Control Rules, of the Natural Resources and Environmental Protection Act, 1995 PA 451, as amended (Act 451); AQD administrative rules; and Permit to Install (PTI) No. 158-11D.

NAME Amanda Cross

DATE 8/7/23

SUPERVISOR *Cody Young* Acting D.S.  
8/7/23