

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

B585467870

<b>FACILITY:</b> Romeo RIM, Inc.		<b>SRN / ID:</b> B5854
<b>LOCATION:</b> 74000 Van Dyke Avenue, ROMEO		<b>DISTRICT:</b> Warren
<b>CITY:</b> ROMEO		<b>COUNTY:</b> MACOMB
<b>CONTACT:</b> Wade Spurlin , Council & Environmental Manager		<b>ACTIVITY DATE:</b> 06/27/2023
<b>STAFF:</b> Owen Pierce	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> FY 2023 Inspection Report		
<b>RESOLVED COMPLAINTS:</b>		

On June 27th, 2023, I (Owen Pierce Michigan Department of Environment, Great Lakes and Energy -Air Quality Division (EGLE-AQD)), performed a scheduled targeted inspection at Romeo RIM, Inc. located at 74000 Van Dyke Avenue, Romeo, Michigan. Sebastian Kallumkal (EGLE-AQD) and Marie Reid (EGLE-AQD) joined me on the inspection. The purpose of the inspection was to determine the facility's compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules; the Renewable Operating Permit (ROP) No. MI-ROP-B5854-2020; and the conditions of Permit to Install (PTI) No. 158-22. Upon arrival, Sebastian, Marie, and I met with Wade Spurlin-Counsel & Environmental Manager, and Evan Cusumano-Safety Coordinator, and conducted a pre-inspection meeting where we introduced ourselves, presented our credentials, and stated the purpose of the inspection.

During the pre-inspection meeting, Wade explained the facility's processes and equipment. The facility produces reaction injection molded (RIM) plastic parts for trucks and fleet type vehicles (bumpers), and some John Deere products. Various sized "clamps" are used to mold these plastic parts. The primary parts produced are engine covers, bumpers and storage pallets. Some parts are coated by in-mold painting (IMP) while some other parts are coated after being molded and using spray guns in paint booths. Plastics processed are polyurethane and dicyclopentadiene (DCPD). When DCPD is used, no mold release agent or IMP is used. When polyurethane is processed, mold release agents are used, and IMP may be used. Facility's processes are subject to Michigan Administrative Rule 632 for coating of plastic parts and subject to 40 CFR 63, Subpart PPPP- National Emission Standards for Hazardous Air Pollutants (NESHAP) for Surface Coating of Plastic Parts and Products.

The facility has two plants. In Plant No. 1, there are currently 4 stand-alone clamps in operation, FG-PLT1-RIM-IMP [LFI-1 (IMP-26); LFI-2 (IMP-28); BBG-1 (IMP-51); BBG-2 (IMP-52)]; 2 stand-alone clamps not in operation, [LFI-5 (IMP-24); LFI-4 (IMP-29)]; 3 stand-alone clamps that have been dismantled and removed, [Cinci-1 (IMP-2); LFI-3 (IMP-12); Cinci-2 (IMP-50)]; one High Gloss In-Mold Paint Long Fiber Injection (HGIMP-LFI) process (FG-SHUTTLECLAMP) a.k.a. Shuttle Clamp Process (with the ability to process two shuttling molds); one Rotary Carrier (started operation in March 2017), which has the capacity to have seven clamps in motion and two paint spray booths; FG-PLT1-SCL 1 & 2 (EU-PLT1-Line 1 and EU-PLT1-Line 2). The shuttle clamp is installed in a building connected to the Plant 1. Plant 2 has one paint spray booth (EU-PLT2-LINE1) and 4 RIM booths (RIM42, RIM43, RIM44, RIM45).

The operational conditions of the clamps are listed in the table below. The facility was issued a new PTI (No.158-22) in 2022 which includes the addition of two new stand-alone clamps [BBG-3 (IMP-53); BBG-4 (IMP-54)]. According to Wade, BBG-3 has been partially installed and installation for BBG-4 won't begin until 2024. PTI No.158-22, FG-PLT1-RIM-IMP, SC VII.1 requires the facility to notify, EGLE-AQD District Supervisor within 30 days of the installation, in writing, of the completion of the activity. Wade informed us that he would send the notification to AQD following the completion of the installation.

Wade explained that the facility regularly uses about 20 coatings. They keep a spreadsheet which identifies the coatings, the dates EPA Method 24 analyses for VOC content of the coatings are conducted, dates for next analyses due, etc. The facility is required to analyze coatings once in every five years.

In order to make the tracking of acetone usage easier in Plant 1, the coating lines in Plant 1, LFIs, the Rotary clamps, and the shuttle clamps have dedicated, separate acetone drums. The material handler logs the usage and physically measures using sticks on monthly basis, however Wade informed us that the facility has not collected acetone in the last two months due to an electrical problem. The same method is used for Plant 2 emission units (3 emission groups and 3 acetone drums). The IPA and mineral spirits are also tracked similarly.

Most of the clamps use polyurethane (polyol), MDI and Wollastonite (a filler) to make the parts. RIM 42, RIM 43 and RIM 44 use dicyclopentadiene (DCPD) also. In the shuttle clamps, Rotary, and LFI (3 clamps) fiber glass strands are added for strength.

For the paints, a thinner is not always added and is only added to post applied paint (EU-PLT1-SCL1&2; EU-PLT2-LINE1). In the Plant 1 booths, paints, catalysts, and MAK (Methyl Amyl Ketone) are used. In the Plant 2 booth, paints, catalysts, MAK, and acetone are used. No acetone is used for IMP. Each RIM has paint, catalyst, and purge drums.

The electronic Work Center has all the product information (by serial numbers) for each coating mix. The coatings and catalysts are automatically pumped based on the mix ratio input into the system. The VOC and HAP are calculated based on the information inputted into the system based on the serial number.

The paint guns used at the facility are compliant applicators, efficient as high volume, low pressure (HVLP) guns.

VOC concentration through the carbon adsorption booths which controls RIM 42, 43 and 44 are conducted every time DCPD is run. They haven't experienced any breakthroughs yet for either adsorption unit. Each unit has two banks of filters. Every 6 months, end of February and August, the filters are switched and replaced. The 1<sup>st</sup> filter is moved to the 2<sup>nd</sup> filter position and the 1<sup>st</sup> filter is replaced with a fresh carbon filter. The second filter is sent out to refresh the carbon.

We discussed the facility's VOC calculations regarding reclaim and recycle. They claim that 90% of the solvent is collected and assumes that 10% solvent used for purge is emitted to the atmosphere. Each line is purged without solvent if the line has not been used for a few minutes. If painting has not been done for a long time (shift change/equipment issue/color change, etc.), acetone is used to purge the line. In both cases, the waste paint and acetone are stored in a purge tank. They haven't analyzed the waste to verify how much solvent is collected. The waste is manifested out as hazardous waste. With both paint and solvent in the same drum, it is hard to evaluate how much solvent is collected. Wade suggested they would do a study in one clamp where they would collect the purge paint and purge paint with solvent (which would mostly be solvent) separately and then compare the solvent used versus solvent collected. This would give them a basis of estimating that 90% solvent used is collected.

In the Shuttle Clamp (FG-SHUTTLECLAMP), the solvent is reclaimed via a self-contained distillation unit (18-gallon capacity) from the collected waste (Paint and solvent). In this clamp, the paint is purged often, and the tubing that carries the paint is longer than other clamps. So, more solvent is being used which allows the reclamation cost effective. This unit was installed about 5 years ago. This process is exempt from permit to install pursuant to R285(2)(u).

They haven't done a study on the percent solvent recovery for this process. They estimate that about 10% is emitted to atmosphere. They recover about 500 gallons per month. The unit is run every

other day. They plan to evaluate the percent recovery with amount of solvent used versus amount recovered.

### Facility Walkthrough Observations:

After the pre-inspection meeting, Wade lead us on an inspection of the facility. In Plant 1, we inspected RIM clamps, post-mold paint booths, Shuttle Clamps, and ROTARY clamps. We observed they are using rags with 50/50 Water/IPA solution to wipe the parts. These emissions are included in the VOC calculations. The filter conditions and operational status are explained below. Some of the RIMs were operational and were used at the time of the inspection.

#### Summary of filter conditions during inspection:

<b>Emission Unit ID</b>	<b>Emission Unit Description</b>	<b>Filter Conditions</b>	<b>Comments</b>
<b>EU-PLT2-LINE1</b>	<b>Plant 2, Paint Line 1</b>	<b>Volvo Paint; Good &amp; In-Place</b>	<b>Operational (* ) Not operating at the time of inspection</b>
<b>EU-PLT2-RIM45</b>	<b>Plant 2- RIM 45 (11x14)</b>	<b>Good &amp; in-Place  (Filters on both sides; will be checked before use)</b>	<b>Operational. (* ) Not operating at the time of inspection.  Operates approximately once a month.</b>
<b>EU-PLT1-IMP2</b>	<b>Plant 1 - Clamp No.2 (Cinci-1)</b>	<b>N/A</b>	<b>Dismantled</b>
<b>EUPLT1-IMP51</b>	<b>Plant 1 – BBG Clamp No. 51 (BBG-1)</b>	<b>Good &amp; in-place. Located up top.</b>	<b>Operational.</b>
<b>EUPLT1-IMP52</b>	<b>Plant 1 – BBG Clamp No. 52 (BBG-2)</b>	<b>Good &amp; in-place. Located top.</b>	<b>Operational.</b>
<b>EU-PLT1-IMP12</b>	<b>Plant 1 - Clamp No. 12 (LFI-3)</b>	<b>N/A</b>	<b>Dismantled</b>
<b>EU-PLT1-IMP24</b>	<b>Plant 1 - Clamp No. 24 (LFI-5)</b>	<b>N/A</b>	<b>Not in operation.</b>
<b>EU-PLT1-IMP26</b>	<b>Plant 1 - Clamp No. 26 (LFI-1)</b>	<b>Good &amp; in-Place</b>	<b>Operational.</b>
<b>EU-PLT1-IMP28</b>	<b>Plant 1 - Clamp No. 28 (LFI-2)</b>	<b>Good &amp; in-Place</b>	<b>Operational.</b>
<b>EU-PLT1-IMP29</b>	<b>Plant 1 - Clamp No. 29 (LFI-4)</b>	<b>N/A</b>	<b>Not in operation.</b>

<b>Emission Unit ID</b>	<b>Emission Unit Description</b>	<b>Filter Conditions</b>	<b>Comments</b>
<b>EU-PLT1-IMP50</b>	<b>Plant 1 - Clamp No. 50 (Cinci-2)</b>	<b>N/A</b>	<b>Dismantled.</b>
<b>EU-PLT1-LINE1</b>	<b>Plant 1, Paint Line 1- Includes spray booth #1</b>	<b>N/A</b>	<b>Not in operation.</b>
<b>EU-PLT1-LINE2</b>	<b>Plant 1, Paint Line 2- Includes spray booth #2</b>	<b>Good &amp; in-Place Filters are changed at least once a month.</b>	<b>Operational; Painted earlier in the day.</b>
<b>EU-PLT2-RIM42</b>	<b>Plant 2-RIM 42 (5x7)</b>	<b>Good &amp; in-Place (Filters both sides)</b>	<b>Operational. (* ) Not operating at the time of inspection Using DCPD.</b>
<b>EU-PLT2-RIM43</b>	<b>Plant 2- RIM 43 (11x6)</b>	<b>Good &amp; in-Place (Filters on both sides) Could not verify VOC. Press. Diff.= 0.45"WC</b>	<b>Operational. (* ) Not operating at the time of inspection Using DCPD. Carbon adsorber running. Time= 12:00 PM</b>
<b>EU-PLT2-RIM44</b>	<b>Plant 2- RIM 44 (10x12)</b>	<b>Good &amp; in-Place (Filters on both sides) Could not verify VOC and Diff. Pr.</b>	<b>Operational. (* ) Not operating at the time of inspection. Using DCPD. Vented to carbon adsorber system.</b>
<b>EUCLAMPBOOTH1</b>	<b>Paint/catalyst mixture and barrier coat will be applied to a mold inside this booth.</b>	<b>Good &amp; in-Place</b>	<b>Operational. (* ) Not operating at the time of inspection</b>
<b>EUCLAMPBOOTH2</b>		<b>Good &amp; in-Place</b>	<b>Operational.</b>

<b>Emission Unit ID</b>	<b>Emission Unit Description</b>	<b>Filter Conditions</b>	<b>Comments</b>
	<b>Paint/catalyst mixture and barrier coat will be applied to a mold inside this booth.</b>		<b>(*) Not operating at the time of inspection</b>
<b>EUSPACOATING</b>	<b>Manually applied (sprayed) coating to spas (molded parts).</b>	<b>Stain applied manually (wiping)</b>	<b>Booth moved to the prior location of LFI 3, 4, and 5.</b>
<b>EUROTARYPAINT</b>	<b>Mold release is applied to the mold. High efficiency dry fabric filters will be used to control particulate from overspray.</b>	<b>Did not observe the filters  (can run 7 clamps; currently running up to 3 clamps)</b>	<b>Operating.</b>
<b>EUROTARYBC</b>	<b>Barrier coat will be applied to a mold inside this booth.</b>	<b>N/A</b>	<b>Operating.</b>
<b>EUROTARYLFI1</b>	<b>Two part polyurethane mixture with embedded glass fibers is injected into the mold (reaction injection molding).</b>	<b>N/A</b>	<b>Operating.</b>
<b>EUROTARYLFI2</b>	<b>Two part polyurethane mixture with embedded glass fibers is injected into the mold (reaction injection molding).</b>	<b>N/A</b>	<b>Operating.</b>
<b>FGCOLDCLEANERS</b>	<b>Two cold cleaners/parts washers</b>	<b>Removed</b>	<b>No longer at the facility.</b>

We did not inspect the staining area. The stain is a water-based coating which is applied to plastic parts after painting.

Next, we inspected the shuttle clamp process. This process is also called the "double shuttle" process which means that two parts can be manufactured during each cycle. The process has one top clamp (fixed in the middle room) and two bottom clamps located inside each of the two spray booths. Initially mold release is manually sprayed on the mold. Next, paint mixed with catalyst is applied to the interior of the mold using robotic HVLP applicators. The mold is moved to the top clamp where the two-part resin mixture mixed with long fibers is injected into the mold. The injection of the two-part resin and fiber is called a "shot". After this, the mold is opened, and moved back to the booth where the part is removed and then undergoes finishing operations such as sanding, trimming, drilling, etc. Both clamps were not in operation at the time of inspection, and we were able to view the clamps and filters up close. The filters were observed as being good and in-place. Wade informed us that the North prep area dust collector is vented into the general in plant area.

We also inspected the Rotary carrier in-mold paint, long fiber technology, reaction injection molding process (Rotary Carrier System) (FG-ROTARY). The process can utilize up to 7 carriers, but Wade informed us that they only use 3 out of the 7 carriers. Each carrier goes through mold release application (EUROTARYPAINT), barrier coat application (EUROTARYBC) and reaction injection molding process (EUROTARYLFI1 or EUROTARYLFI2, polyurethane mixture with embedded glass fiber application). Each carrier takes about 20-45 minutes for one cycle for the applications and curing. The process was operational at the time of my inspection. Wade explained that facility staff changes the filters after approximately 1,400 minutes of operation. Differential pressure monitors are also installed for the booths. At the time of inspection, the differential pressure was 0.12" WC. The monitor is marked to change the filters when pressure differential is above 0.3" WC, however Wade explained that the practice of changing the filters approximately every 1,400 minutes may occur before the differential monitor reaches the 0.3" WC mark.

Next, we inspected Plant 2. RIM 42 (Clamp 5x7) was in operation earlier in the day during the day of the inspection but during the inspection of this emission unit the workers were at lunch and we were able to view RIM 42 up close. DCPD was not used on that day. RIM 43 (Clamp 11x6), was not running that day. We inspected the carbon adsorption unit CA No. 2 which controls the exhausts from RIM 42 and 43. When the exhaust is vented to the carbon adsorption system, the filter vents are not used. According to Wade, Romeo Rim staff monitor the VOC readings every day that they run DCPD.

RIM 44 (10 x12) was in operation earlier in the day but not during the inspection as the workers were at lunch, and Wade told us that DCPD may be used later that day. The fan switch and vent switch showed that the exhaust was vented to the carbon adsorption system. CA No. 3 which controls emissions from RIM 44 was located on an elevated platform, so we could not inspect it. It is equipped with a ladder to access the filter system.

RIM45 (11x14) was not operating during the inspection. According to Wade it is operated approximately once a month, and the filters are checked prior to operation. DCPD is not used in this booth.

We observed a mixing vessel located near the corner wall behind the carbon adsorption unit (CA No.2) for the RIM42/43. There is a wall exhaust fan nearby the process vessel. Process was not operating at the time of the inspection. Wade told me that in that vessel, they mix wollastonite, a filler with polyol to prepare the mix to make the plastic parts in the reaction injection molding. The mixing takes place approximately every other day. Not all RIM processes use the wollastonite. They also have a similar process in the Plant 1 for the Plant 1 RIMs. A permit to install has not been issued for these processes. During a 2021 inspection Wade was asked to verify if this process needs to be permitted and if required, submit a permit application.

On July 19, 2021, the facility informed AQD the following:

"The wollastonite filler material is a calcium silicate, which is not a toxic air contaminant and does not present any air toxics issues, and the polyol liquid and carbon black pigment paste are not anticipated to result in quantifiable emissions. As such, the wollastonite particulate matter (PM) emission from the operation is nuisance particulate.

Using a conservative emission factor of 0.5% during the mixing process, losses in the range of 20 – 40 lbs per month of wollastonite PM is expected at current operating levels for the mixing operation. This emission is well within the limits for a Rule 290 exemption, and it does not appear that any of the Rule 278 exclusions apply to this process.

The facility will prepare an Exemption Demonstration and continue to track wollastonite usage to support this exemption."

In an Activity Report completed by AQD Staff on September 30, 2021, it was determined that the explanation given by the facility for the use of Rule 290(2)(a)(ii) to exempt the Wollastonite mixing process from PTI

requirements was acceptable as long as the total emissions from the process are less than 1000/500 pounds per month for uncontrolled and controlled respectively. According to records from June 2021 through June 2023 the emissions for Plant 1 and Plant 2 both meet the exemption requirements.

Next, we inspected EU-PLT2-LINE1. Only Volvo parts are coated in this booth. The booth was not being used at the time of the inspection and we were able to inspect the filters up close. Wade told me that the filters in both stages are changed on a weekly basis.

All records are kept electronically and Wade provided them on a flash drive after the facility walkthrough. The facility keeps check lists for filter conditions for each clamp. Discussions of the requirements are given below under each emission group and flexible group.

### **Compliance Evaluation:**

#### **Renewable Operating Permit No. MI-ROP-B5854-2020**

The ROP contains following emission units and flexible groups:  
EU-PLT2-LINE1, EU-PLT2-RIM45, FG-PLT1-RIM-IMP, FG-PLT1-SCL1& 2,  
FG-RIMPROCESS, FG-SHUTTLECLAMP, FGROTARY, FG-RULE287(c),  
FG-MACT-SUBPART\_PPPP, FG-COLDCLEANERS

#### ***EU-PLT2-LINE1:***

Plant No. 2 Spray Coating Line 1 consisting of one paint spray booth, one flash-off area, one bake oven, and parts-wiping (done prior to coating). This line uses acetone for purging and includes a post-mold paint storage and mixing room. The exhaust filters control particulate matter emissions from the booth.

#### Volatile Organic Compounds (VOC) emission rates:

The facility keeps monthly records of the types of the coatings, coating usage, VOC content in pounds per gallon of coating (minus water), as applied, hours of operation, VOC emissions per hour, month and annual, etc. Wade provided me with the VOC content records of each coating used and the hourly and 12-month rolling VOC records from June 2021 - May 2023.

The hourly VOC emission rate records from June 2021 - May 2023 were all below 6.0 lb/hr (permit limit) and were in compliance. The highest hourly emission rate was 0.93 lb which occurred in May 2023.

The highest 12-month rolling VOC emission rate from June 2021 - May 2023 was 0.82 tons per year (tpy) (May 2023), which is in compliance with the permit limit of 18.7 tpy.

The records show that the VOC content of the coating was in compliance with the ROP limit of 3.9 lb VOC/gal of coating (minus water) as applied. The facility only coats the same types of parts (Volvo parts) in this booth and uses the same coatings (T01610001XXA-Polane P, Conductive Primer, Black, E67BC1704, Volvo and T01620001XXX-Solvent Blend-Compliance Thinner, Reducer). The VOC content of the mix is set to 3.09 pounds per gallons (minus water). The suppliers are provided the VOC content limit from the permit, so the coatings, catalysts, reducers, thinners, etc. are formulated to meet the VOC content limit.

Acetone: The records show that the hourly acetone emissions from June 2021 - May 2023, from the line purging process, were all below the limit of 0.6 lb/hr, and the highest hourly acetone emission rate recorded was 0.43 lb/hr, which occurred in January 2022. Records show that the facility collects about 90% of the purge acetone.

The records show that the highest 12-month rolling acetone emission from the line purging process from June 2021 to May 2023 was 0.29 tpy, which is in compliance with the permit limit of 1.7 tpy.

Testing/Sampling: See discussion below (following FGROTARY).

Monitoring & Recordkeeping:

The exhaust filters are properly installed in the booth. The facility is using compliant spray guns to apply coatings. The Facility is keeping adequate monthly records for each coating sprayed, the total hours of operation, the parts-wipe process, the monthly VOC emission calculations, acetone used and collected, and acetone emission rates. Wade informed us that the facility keeps a current listing of the chemical composition of each coating used. The facility is currently using the information from Material Safety Data Sheet and other manufacturer's information to calculate VOC emissions.

The facility is keeping records of the filter replacements and conditions of the filters. The records indicates that the Stage 1 and Stage 2 filters are replaced as often as required in Appendix 3.1.

The filter change frequency is calculated based on the actual hours the paints are applied on parts, not on the time the parts are in the booth. The excel spreadsheet provided has actual hours of operation when the booth is in operation. The booth filters were in good condition and in place during my inspection. The records regarding monitoring of the filter conditions as specified in Appendix 4 was provided.

During the inspection, I observed drums of solvent and wipe rags waste kept at the facility. They were all covered.

***EU-PLT2-RIM45***

This emission unit is a 600-ton (11x14) Pacific Reaction Injection Molding (RIM) press which processes polyurethane-containing materials. When polyurethane materials are processed, mold release agents are used, and in-mold painting (IMP) may also be used. The equipment includes a vent hood enclosure with two banks of particulate filters (in series) for exhaust gases. HVLP applicators are used for the application of the in-mold painting. Acetone is used for purge and cleanup activities. At the time of my inspection, RIM 45 was not in operation. DCPD is not permitted to be used in this RIM. The facility provided emissions and usage records for Jun 2021 - May 2023. According to Wade, this unit is used approximately once a month, and he explained that when this unit is in use, the filters are checked for condition and replaced if needed.

The combined VOC and acetone emissions are limited to 32.4 tpy calculated based on 12-month rolling time period as determined at the end of each calendar month. The submitted records show that the highest 12-month rolling VOC and acetone emissions were 1.54 tpy in June 2021.

The acetone emissions from purge and cleanup process are limited to 2.4 tpy calculated based on 12-month rolling time period as determined at the end of each calendar month. The submitted records show that the highest acetone emissions from the purge and clean-up process were 0.12 tpy in September 2022.

The VOC content of the in-mold paint is limited to 5.1 pound/gallon (minus water), as applied, on an instantaneous basis. The records show that the VOC content of the coatings, as applied, were around 4.67 lb/gallon (minus water, as applied).

Wade informed us that they are not using DCPD in the RIM 45 process. They are collecting the waste materials and spent filters and disposing of them properly. We observed that VOC and HAP containing materials, including coatings, reducers, mold release agents, solvents and thinners are collected and stored in closed containers.



We observed that the exhaust filters in RIM 45 were properly placed and not excessively dirty. The facility is using HVLP equivalent applicators for the coating, and they are using the manufacturers' data sheet and analysis for calculating VOC content of the coatings.

The facility keeps a listing of the chemical composition of all the chemicals used in RIM 45. The facility is keeping records of the gallons of VOC containing materials, VOC content, and aggregate monthly and annual VOC emissions. A record of the dates of Method 24 testing for VOC content of the coatings are kept.

The facility is keeping records of the filter replacements and conditions of the filters. The records indicate that the booth exhaust filters were replaced as often as required in Appendix 3.2. The booth filters were in good condition and in place during my inspection. The records regarding monitoring of the filter conditions as specified in Appendix 4 were provided.

According to Wade, they are using acetone in the purge/cleanup part of the process.

This process is subject to the Miscellaneous Plastic Parts Coating MACT (40 CFR 63, Subpart PPPP). This emission unit is subject to the MACT PPPP emission standards for an existing source.

#### ***FG-PLT1-RIM-IMP:***

This flexible group includes the Plant 1, Reaction Injection Molding processes with mold release and In-Mold Painting (Clamp No. 2, 12, 24, 26, 28, 29, 50, 51 and 52) with seven paint and mold release mix rooms and a storage room. As of the date of the inspection, Clamps No. 2, 12, and 50 have been dismantled, and Clamps No. 24, and 29 are no longer in operation.

A few of the clamps were in operation at the time of inspection. We observed that the clamps were equipped with booth exhaust filters. They were not excessively dirty and were not out of place. Clamps No. 26, 28, 51, and 52 were operating at the time of inspection, and we were able to observe the in-mold painting process.

#### **Volatile Organic Compounds:**

The emission rate is limited to 42.25 lb/hr and 69.06 tpy based on a 12-month rolling time period determined at the end of each calendar month. From the submitted records from June 2021 - May 2023, the highest hourly VOC emission rate was 6.29 lb/hr in August 2021, and the highest 12-month rolling annual emissions were 11.37 tpy in August 2021. The facility is in compliance with the permitted limits. The records show that the VOC contents of the coatings (lb VOC/gal coating-water) are in compliance with Rule 632(20), Table 66 limits. The VOC content limits were between 5.0 to 5.75 lb/gal. Calculated VOC content of coatings as applied were about 4.44 lb/gal.

**Testing/Sampling:** See discussion below (following FGROTARY).

#### **Monitoring & Recordkeeping:**

Exhaust filters were installed in the RIM booths. The facility is keeping adequate records of material usage, chemical composition, and VOC calculations. The facility is keeping track of the number of hours of operation on a monthly basis and is calculating average hourly VOC emission rate based on the total monthly hours of operation. The facility is calculating VOC emission rates on a monthly and yearly basis.

Booth exhaust filters were replaced as often as required in Appendix 3.2. The RIM exhaust filters were in good condition and in place during the inspection. The records regarding monitoring of the filter conditions as specified in Appendix 4 were provided.

#### ***FG-PLT1-SCL1&2:***

Plant No. 1: Post-Applied Paint. Plastic parts coating operations currently consists of two coating lines (Lines 1 and 2), 1 bake curing oven and parts wiping prior to coating. These booths have two stage exhaust filters for particulate control. The flexible group also consists of post mold paint storage and mixing room.

Volatile Organic Compounds (VOC) and Acetone (from paints):

The total combined VOC and Acetone emission rate from this flexible group is limited to 31.7 tons based on a 12-month rolling time period as determined at the end of each calendar month. The records show that the highest 12-month rolling combined VOC and Acetone emissions from the coating process were 3.87 tpy in June 2021.

VOC and Acetone (Cleanup & Purge only):

The total combined VOC and Acetone emission rate from the cleanup and purge solvent usage generated from this flexible group is limited to 8.3 tpy based on a 12-month rolling time period as determined at the end of each calendar month. The records show the highest 12-month rolling combined VOC and Acetone emissions from cleanup and purge were 0.23 tpy in June 2021. The records show that the recovery rate is about 90% of the purge solvents. (*See the discussion above during pre-inspection meeting.*)

The records show that VOC content of the coatings is below the limit specified in Rule 632, Table 66 (Base, Red/black/other, high bake) based on submitted data from June 2021 - May 2023. The R632 VOC content limit is 5.45 lb/gal and the VOC content of the coating as applied was 4.25 lb/gal.

Testing/Sampling: See discussion below (following FGROTARY).

Monitoring & Recordkeeping:

Facility is keeping adequate records of coating identification, gallons of coating materials used, monthly & 12-month rolling VOC and Acetone emission rates for all coating lines combined, hours of operation, and VOC emission limit calculations pursuant to Rule 632. A record of the dates of Method 24 testing for VOC content of the coatings are kept. The facility uses mostly solvent based coatings, but they calculate the "with and without water" VOC calculations, when applicable.

The facility is keeping adequate records for the purge and clean up solvents, and maintains a list of material safety data sheets for the materials used in the coating process. The facility has not analyzed the VOC content of purge and clean-up solvent materials. This information is provided to the facility by the supplier.

The facility is required to keep records of the condition of the exhaust filters in the booths on a daily basis using an approved format in Appendix 4. The facility is keeping electronic records for each booth regarding the condition (stage 1 and Stage 2 filter replacements, etc.). Electronic records were provided. Stage 2 exhaust filters were replaced as often as required in Appendix 3.1.

During the inspection, I observed covered drums of solvent and used wipe-rags as waste kept at the facility.

***FG-RIMPROCESS:***

Located in Plant 2 are three reaction injection molding (RIM) presses - 100 ton (clamp 5x7, RIM42), 120 ton (clamp 11x6, RIM43), and 300 tons (Clamp 10x12, RIM44) - which process dicyclopentadiene (DCPD) and polyurethane containing materials. When DCPD-containing materials are processed, only small amounts of mold release agents are used and no In-Mold-Paint (IMP) is used. When polyurethane-containing materials are processed, mold release agents are used, and In-Mold Paints may also be used. When DCPD containing materials are processed, the

VOC emissions are controlled by carbon adsorption systems which include two banks of particulate filters (in series) followed by two banks of carbon filters (in series). Electrostatic applicators are used for the application of the in-mold coatings. Acetone and/or VOC containing solvents are used for purge and cleanup (EU-CLEANUP). No acetone/VOC purge and cleanup activities take place within the three press enclosures. Carbon adsorber No.2 (CA No.2) controls exhaust from EU-PLT2-RIM42 and EU-PLT2-RIM43. Carbon adsorber No.3 (CA No.3) controls exhaust from EU-PLT2-RIM44.

During the inspection, RIM 42, RIM 43, and Rim 44 were not in operation but had been operating earlier that day, and according to Wade, DCPD was potentially going to be used in RIM 44 during the day of the inspection. The differential pressure reading for CA No.2 at that time was 0.45 " WC. The CA No. 3 was raised from the ground and was not easily accessible for inspection. The CA system No. 2 and CA No.3 are equipped with pressure drop measuring gauges. Wade told us that they perform VOC measurements using a portable analyzer every time they run DCPD.

The records show that the DCPD usage is less than 1770 lb/hr (the highest usage reported was 127.05 lb/hr in December 2022) from June 2021 - May 2023. I observed that the exhaust filters were installed and maintained properly.

#### Volatile Organic Compounds (VOC)

The VOC emissions from each RIM process (EU-PLT2-RIM 42 and EU-PLT2-RIM 43) are limited to 15 tpy based upon a 12-month rolling period as determined at the end of each calendar month. The highest 12-month rolling VOC emission from RIM 42 and RIM 43 from June 2021 - May 2023 were 4.39 tpy in December 2021 for RIM 42 and 1.55 tpy in May 2023 for RIM 43. The VOC emissions from RIM 44 are limited to 20 tpy based on a 12-month rolling period as determined at the end of each calendar month. The highest 12-month rolling VOC emissions from RIM 44 were 0.12 tpy in May 2023.

The VOC content of the coating is limited to 4.80 lb/gal (minus water), as applied, in RIM 42, RIM 43, and RIM 44. The records show that the VOC content of coatings, as applied, were between 3.53 lb/gal and 4.41 lb/gal with a maximum VOC content of 4.77 lb/gal. The facility is in compliance with this limit.

The highest combined 12-month rolling VOC emissions from FG-RIMPROCESS including purge and cleanup solvent were 7.32 tpy in March 2022, which is in compliance with the VOC limit of 37.3 tpy based on a 12-month rolling time period as determined at the end of each calendar month.

The highest 12-month rolling VOC/Acetone emissions from EU-CLEANUP were 0.61 tpy in March 2022 and June 2022, which is in compliance with the limit of 7.0 tpy based on a 12-month rolling time period as determined at the end of each calendar month.

#### Design & Equipment Parameters:

During the inspection I observed that the two carbon systems for RIM42, RIM 43, and RIM44 are installed. The CA systems were observed as being equipped with pressure differential monitors, and the RIM clamps were observed as exhaust filters that were properly equipped and maintained.

Testing/Sampling: See discussion below (following FGROTARY)

#### Monitoring & Recordkeeping:

Romeo Rim keeps a current listing of chemicals used as required by the ROP. The facility is keeping records for the chemical identification, VOC content, usage, mixing ratio, VOC emissions calculations on a monthly basis, for the coating, cleanup and purge solvents.

The facility is calculating and keeping records of the DCPD containing materials processed in the RIMs, on an hourly basis, and records the number of hours per month when DCPD is used in FG-RIMPROCESS. The records show that the facility records DCPD usage for the whole month as the usage for the last day of the month.

The facility is keeping all records of required data and completing all required calculations for the RIM process as required in the ROP.

Wade explained that the facility is monitoring each carbon adsorption system as outlined in Appendix 5.1-6. According to Wade, the facility has not experienced any carbon breakthrough in either of their carbon systems during the last two years. Therefore, the filters were not replaced.

The facility is monitoring and keeping pressure drop data and other parameters for CA No. 2 system and for CA No. 3 system. The carbon filters did not show breakthroughs, so they were not replaced in 2021-2023.

The RIM Booth exhaust filters appear to be replaced as often as required in Appendix 3.2. The filters appeared to be in good condition and in place. The facility is keeping records of the condition of the RIM booth exhaust filters on a daily basis as outlined in Appendix 4.

The facility is keeping a list of coatings and other materials (reducers, thinners, catalysts) used along with the dates of Method 24 analysis conducted.

### ***FG-SHUTTLECLAMP***

The operations started on October 13, 2011. This flexible group includes Reaction Injection Molding and In-Mold paint operations associated with the shuttle clamp process. The included emission units are EUMOLDRELEASE, EUCLAMPBOOTH1, EUCLAMPBOOTH2, EURESIN, EUPAINTKITCHEN, EUFINISHING, EUPARTSWIPE, and EULINECLEANING. The High Gloss In-Mold Paint Long Fiber Injection Process (HGIMP LFI process) is a reaction injection molding (RIM) process similar to other RIM processes at the facility; however, in this process long glass fibers are injected into the molds with resin in order to add strength to the plastic. This process makes coated plastic parts for agricultural or transportation equipment. Wade explained that they collect and reclaim acetone from this process in an 18 gallon still. The acetone reclamation process is exempt from permit to install requirements pursuant to R336.1285(2)(u).

Special Condition (SC) I.1 limits the VOC emission rates to 40 TPY based on a 12-month rolling time period as determined at the end of each calendar month. The submitted records show that the highest 12-month rolling VOC emissions from June 2021 - May 2023 were 12.73 tpy in September 2021.

SC II.1 limits the instantaneous VOC content of the coating, as applied, to 4.5 lb/gal (minus water). The allowable VOC content less exempt solvents is 4.50 lb/gal. The records from June 2021 - May 2023 show that the highest actual VOC less exempt solvents, as applied, is about 4.32 lb/gal.

SC II.2 limits the Barrier Coat usage to 1,111 lb/day and LFI Resin usage to 2933 lb/day. The records show that the facility is in compliance with these material usage limits (eg.: Highest usage occurred in July 2021 for LFI Resin = 820.72lb/day; May 2023 for Barrier Coat = 369.26 pounds/day).

SC III.1 - During the inspection I observed that all bay doors were closed.

SC III.2 & 5 - The facility collects and stores all waste materials and wiping clothes in closed containers.

SC III.3 - Wade explained that the facility disposes of its spent exhaust filters properly.

SC III.4 - Wade explained that the paint booths are kept closed during operation, minimizing the fugitive emissions. During the inspection I observed that the coating drums and other solvent containers were closed, minimizing the fugitive emissions.

SC IV.1 & 2 - Wade informed us that the booths are equipped with exhaust filters and facility is using automatic or equivalent HVLP applicators. We observed up close that the filters are in place and in good condition.

#### Section V. Testing/Sampling

SC V.1- The facility is using US EPA Method 24 data provided by the supplier. (See discussion below following FGROTARY).

SC V.2- The facility performed USEPA Method 24 on the LFI resin and Barrier Coat separately. AQD received the test results on January 18, 2012.

#### Section VI-Monitoring/Recordkeeping

SC VI.1- The facility performs all the required calculations in acceptable format and appears to complete the calculations within the specified time.

SC VI.2- The facility keeps a current listing from the manufacturer of the chemical composition of each material.

SC VI.3 - The facility is keeping records, on a monthly basis, of gallons of each material used, VOC content (minus water and with water), and VOC emissions on a 12-month rolling time period as determined at the end of each calendar month.

SC VI.4 - Permittee keeps records of Barrier Coat and LFI Resin used on a daily basis and on a monthly basis.

SC VI.5. - The records indicates that the booth exhaust filters were replaced as often as required in Appendix 3.2.

SC VI.6 - The facility is keeping records of the conditions of the exhaust filters.

SC VI.7 - The facility is keeping a list of coatings and other materials (reducers, thinners, catalysts) used along the with dates of Method 24 analysis conducted.

SC IX - This process is subject to Miscellaneous Plastic Parts Coating MACT (40 CFR 63, Subpart PPPP). This emission unit is subject to the MACT PPPP emission standards for an existing source.

#### **FGROTARY**

The rotary carrier in-mold paint long fiber technology reaction injection molding process includes the following emission units: EUROTPAINTKITCHEN, EUROTFINISHING, EUROTPARTSWIPE, EUROTLINECLEANING, EUROTARYPAINT, EUROTARYBC, EUROTARYLFI1, and EUROTARYLFI2. This process started operating in March 2017. Particulate emissions from EUROTARYPAINT are controlled by high efficiency dry fabric filters. Other booths are also equipped with filters but are not exhausted to the ambient air. All booths are equipped with differential pressure monitors to aid in deciding when the filters need to be changed.

SC I.1 limits the VOC emission rate for all equipment combined in FG-ROTARY to 80 tpy based on a 12-month rolling time period as determined at the end of each calendar month. The submitted

records show that the highest 12-month rolling VOC emissions were 5.6 tpy which occurred in March 2022.

SC I.2 limits the 2,4-Pentanedione emission rates to 42.3 lb/day based on a calendar day. The submitted records show that the emissions range from 0.01 pounds to 1.1 pounds per day from June 2022 to May 2023.

SC II.1 limits the instantaneous VOC content of the coating, as applied, to 4.2 lb/gal (minus water). The records show that the actual VOC (less exempt solvents) ranged from 1.9 to 4.2 lb/gal from June 2022 through May 2023.

SC III.1-4: Wade explained that the facility collects and stores all waste materials in closed containers, and all the VOC containing materials, wipe rags and spent filters are handled in compliance with the requirements. During the inspection I observed that the coating drums and other solvent containers were closed, minimizing the fugitive emissions.

SC IV.1 & 2- Wade informed us that the booths are equipped with exhaust filters and each booth is using robotic HVLP applicators.

Section V-Testing/Sampling: See discussion below

#### Section VI-Monitoring/Recordkeeping

SC VI.1 - The facility completes all the required calculations in an acceptable format.

SC VI.2 - The facility is keeping a current listing from the manufacturer of the chemical composition of each material.

SC VI.3 - The facility is keeping records, on a monthly basis, of gallons of each material used, VOC content (minus water and with water), and VOC emissions on a 12-month rolling time period as determined at the end of each calendar month.

SC VI.4 - The facility keeps records of daily emissions of 2,4-pentanedione. The submitted records show gallons of coatings with 2,4-pentanedione used, and the content of this material in the coatings used.

SC IX - This process is subject to Miscellaneous Plastic Parts Coating MACT (40 CFR 63, Subpart PPPP). This emission unit is subject to the MACT PPPP emission standards for an existing source.

#### ***Testing/Recordkeeping for EU-PLT2-LINE1, EU-PLT2-RIM45, FG-PLT1-RIM-IMP, FG-PLT1-SCL1&2, FG-RIMPROCESS, FG-SHUTTLECLAMP, and FGROTARY***

The facility is required to conduct random testing of non-water borne coating, as applied, for VOC content, solids content, and density, using federal Reference Test Method 24 or EPA approved method, on a yearly basis with all coatings tested within a five-year period. The facility's coating supplier conducts random testing of non-water borne (solvent) coatings, as applied, for the VOC content, solid, and density. The facility is allowed to use the supplier's analytical results to show compliance with testing/sampling requirements.

Romeo Rim submitted Method 24 analysis results and safety data sheets, technical data sheets, and environmental data sheets for some of the coatings, and they continue to record the dates when Method 24 is conducted for each coating.

#### ***FG-RULE287(c)***

This flexible group includes EUSPACOATING and EUSUNSHADES however the facility has dismantled EUSUNSHADES. The staining process (EUSPACOATING) which was previously done in Plant 1 Line 6 has been moved to a stand-alone self-containing booth near the location of the former LFI 3, 4, & 5 units. The staining is performed on coated rough looking plastic parts which are used as spa liners. The air inside the booth is recirculated. The records show that the facility used less than 35 gallons of stain per month from June 2021 - May 2023, with August 2021 having the highest recorded staining usage of 33.41 gallons of stain per month, which is in compliance with the limit of 200 gallons of stain per month.

### ***FG-MACT-SUBPART\_PPPP***

Facility's coating operations are subject to 40 CFR 63, Subpart PPPP-National Emission Standards for Surface Coating for Plastic Parts and Products Maximum Achievable Control Technology (MACT). This flexible group qualifies as an existing affected source for the purpose of the Subpart PPPP MACT. This NESHAP was promulgated on April 19, 2004. For existing sources the compliance date is April 19, 2007. The compliance period is 12 months from May 1, 2007 (since the promulgation date was not on the first of the month).

FG-MACT-SUBPART\_PPPP includes requirements for both new and existing sources. The HAP emission limits for existing and new sources-General Use coating are the same (0.16 lb per lb of coating solids based on a 12-month rolling time period as determined at the end of each calendar month).

The facility provided emission calculations (lb HAP/lb coating solids) for June 2021 - May 2023. The highest 12-month rolling Organic HAP emissions were 0.02 lb per lb of coating solids which occurred at the end of each month from June 2021 - October 2021.

### ***FG-COLDCLEANERS:***

This flexible group includes two cold cleaners, however, Wade told us that these cold cleaners have been previously removed from the facility.

A USB drive containing usage and monitoring records and emissions calculations are attached to the report. Records can also be found at the following link address: S:\Air Quality Division\STAFF\Owen Pierce\FY 23\B5854 Romeo Rim\6-27-23 Records.

### **Permit to Install (PTI) No. 158-22**

PTI 158-22 was approved on December 2, 2022 for the installation of two new stand-alone clamps [BBG-3 (IMP-53); BBG-4 (IMP-54)]. The new clamps have been approved to operate within the existing FG-PLT1-RIM-IMP flexible group and they have their own separate VOC limits that are a subset of the FG-PLT1-RIM-IMP VOC limit. According to Wade, BBG-3 has been partially installed and installation for BBG-4 won't begin until 2024.

This PTI has updated FG-PLT1-RIM-IMP and FG-MACT-SUBPART\_PPPP to include clamps No. 53 and 54, and clamps No. 2, 12, 24, 29, and 50 have been removed as have either have been dismantled or are no longer in operation are slated to be dismantled.

No records for clamps No. 53 and 54 were submitted to us since they have not been fully installed yet. Records for clamps No. 26, 28, 51, and 52 were included in FG-PLT1-RIM-IMP and FG-MACT-SUBPART\_PPPP with the other ROP records as explained in the above paragraphs.

### **Conclusion**

Based on the observations made during the inspection, and an analysis of the requested records, the facility is in compliance with the conditions and requirements of ROP No. MI-ROP-B5854-2020 and PTI No. 158-22.

NAME Owen Pierce

DATE 8/30/2023

SUPERVISOR K Kelly