

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

B585458829

<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> 06/30/2021
<b>STAFF:</b> Sebastian Kallumkal	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> Scheduled annual inspection.		
<b>RESOLVED COMPLAINTS:</b>		

On Friday, May 14, 2021, Wade Spurlin, Romeo RIM, Inc. delivered the electronic records required per MI-ROP-B5854-2020. Due to the Covid 19 pandemic, the records are requested and reviewed prior to inspection to limit the time spend at the facility.

In the cover letter, he indicated that the paint (T10540001XAR) that was used about 10 times in ROTARY work center had an instantaneous VOC content above the permitted level of 4.2 lb/gal. In each application, the coating was used in a limited amount. This coating is generally used at the SHUTTLECLAMP work center where the instantaneous VOC limit for coating is 4.5 lb/gal. To resolve this issue, the work pieces would be moved to another work center with appropriate instantaneous permit limit and request the supplier to reformulate the coating to reduce its VOC content. These deviations would be identified in the ROP Semi-Annual Report for this period.

The letter also indicated that they also discovered that the Material Tab used to calculate emissions had not been properly updated with a Method 24 result for T02110001AXX back in March 2020. The Method 24 value was shared with the supplier and believed to be erroneous in that this value exceeds their internal maximums set for this coating. This supplier provides Certificate of Analysis (COA) for each shipment of paint, and it includes VOC content. While the Romeo RIM Quality Department received the Certificates of Analysis (COA) from the suppliers, they did not use the VOC content information for compliance. The supplier will send the COAs for March 2020. If the COAs shows that the coatings exceeded the instantaneous limit, the ROP compliance certifications will be amended. (See *below for explanation*)

On May 19, 2021, Wade emailed the COA for T02110001AXX for March 2020 and December 2020. The COAs indicated that the VOC content are in compliance.

*I discussed the second issue with Wade on May 24. In summary, one of their supplier representatives collected a coating sample from the facility and conducted a Method 24 analysis. The results showed VOC content above the limit, but this result, which came back a month later, was not entered into the data sheet. While preparing the records for the inspection, Wade noticed the results and contacted the supplier. They produced the original COA for the coatings which showed compliance with the limit. They believe the Method 24 analysis was erroneous due to improper sample collection. Wade agreed to look more closely into COAs and enter the data timely to resolve these kinds of issues happen again.*

On May 20, 2021, Wade emailed corrected calculations for Plant 1 RIM- Jan-Dec 2020 and Jan-March 2021 and Plant 1 Rotary- Jan-Dec.2020 and Jan-March 2021. The calculations he originally submitted needed changes to correct the density and VOC data.

During the records review for the filter changes I observed that the filters were not changed in accordance with the frequency specified in Appendix 3 based on the number of operating hours indicated in the emission calculations spreadsheet for each booth or clamp. When

notified this discrepancy, Wade explained that “the operating hours for the emission unit is the total time the unit is producing parts, including mold prep, painting, mold articulation, resin injection, curing and part removal. As for the operating hours as they relate to paint filters and the time that the filters are being exposed to loading from painting - each part takes approx. one minute to paint in the overall production cycle. This time frame is essentially the effective-paint operating time, and as such, an hour of clamp operation would include only about 8 to 10 minutes of painting and therefore filter loading. Paint filters are changed at approximately 1,400 parts produced or more frequently if the operator feels that changing the filter will improve part quality.

The Post-Mold Booths paint at a different rate (the parts are loaded on rolling-racks and painted as a group). Nonetheless, the actual painting time is also less than the overall operating time, since the parts are prepped for painting, as well as transferred to and from the batch oven by a single operator. The effective-painting time per hour of operating time is estimated to be approximately 30 minutes. As such the filters would be changed at 48 hours of total operating time for Stage 1 and 96 hours for Stage 2. The Stage 1 filters in the Post-Mold Booths at Plant 1 are changed much more frequently, as the operator feels that better parts are produced with more frequent changes. Accordingly, the Stage 2 filters are also changed on a more frequent schedule. In 2020, using the 2,612 total operating hours, the Stage 2 filters would need to be changed at a minimum of 27 times to achieve the required change rate. In fact, the filters were changed 46 times”. This explanation satisfies the discrepancy found in the number of filter changes and the operating hours recorded.

*On Wednesday, June 30th, 2021, at about 11:30 AM, I, Michigan Department of Environment, Great Lakes and Energy-Air Quality Division (MEGLE-AQD) staff Sebastian Kallumkal, conducted an annual inspection at Romeo RIM, Inc. located at 74000 Van Dyke Avenue, Romeo, Michigan. The inspection was announced and scheduled per the EGLE-AQD Covid 19 pandemic protocols. 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 (MEGLE-AQD) Administrative Rules; and the Renewable Operating Permit (ROP) No.: MI-ROP-B5854-2020.*

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.

*The facility has two plants. In Plant No. 1, there are currently 9 stand-alone clamps, FG-PLT1-RIM-IMP [CINCI 1 (IMP-2); CINCI 2 (IMP-50); LFI-3 (IMP-12); LFI-5 (IMP-24); LFI-1 (IMP-26); LFI-2 (IMP-28); LFI-4 (IMP-29)]; 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); and the 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 (Line 1 and Line 2). All the sunshade/moon roof manufacturing and assembly processes have been dismantled except for on clamp kept for warranty work. The shuttle clamp is installed in a building connected to the Plant 1. The Plant 2 has one paint spray booth (EU-PLT2-LINE1) and 4 RIM booths (RIM42, RIM43, RIM44, RIM45).*

***Facility's coating operations are also subject to 40 CFR 63, Subpart PPPP-National Emission Standards for Hazardous Air Pollutants (NESHAP) for Surface Coating of Plastic Parts and Products.***

**At the facility I met Mr. Wade Spurlin, Council & Environmental Manager. I introduced myself, provided credentials, and stated the purpose of the inspection.**

**During the pre-inspection meeting, we discussed the facility's operations such as which clamps are operational and operating, waste reclamation, MACT compliance calculations, etc. The operational conditions of the clamps are listed in the table below. The facility has installed IMP51 and IMP52 (both manufactured by BBG) per PTI NO. 196-19 around January 2021. These clamps are operating currently. MI-ROP-B5854-2020, FG-PLT1-RIM-IMP, SC VII.4 requires the facility to notify, MEGLE-AQD District Supervisor within 30 days of the installation, in writing, of the completion of the activity. The facility has not notified the department yet. Wade informed me that he would send the notification to AQD in the following week and include this as a deviation in the upcoming ROP Semi-annual Compliance Certification. On July 16, 2021, AQD received Notification of Completion of Installation for EU-PLT1-IMP51 and EU-PLT1-IMP52. The in-mold painting in these clamps are performed robotically.**

**The facility also planning to install 3 more BBG IMP clamps. This installation may trigger NNSR (LAER) review because the Macomb County is non-attainment for ozone. They plan is to move some of the processes out of the current location (Romeo, Macomb County) to the nearby Lapeer County. I suggested that he talked to a AQD Permit Section Engineer regarding NNSR/LAER applicability. I emailed him the contact information for Paul Schleusener, AQD Permit Engineer (SCHLEUSENERP@michigan.gov; Phone: 517-648-8377).**

**Wade explained that the facility uses regularly about 20 coatings. They are keeping a spreadsheet which identifies the coatings, the dates EPA Method 24 analyses for VOC content of the coatings conducted, dates 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. 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 (5 clamps) fiber glass strands are added for strength.**

**For the paints, a thinner is not always added. Only added to post applied paint (EU-PLT1-SCL1&2; EU-PLT2-LINE1). In 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 calculated based on the information input into the system based on the serial number.**

**The paint guns used at the facility are compliant applicators, efficient as HVLP guns. They are not 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. 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 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 the 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 3 years ago. This process is exempt from permit to install pursuant to R285(2)(u).

R 336.1285 Permit to install exemptions; miscellaneous.

(1) This rule does not apply if prohibited by R 336.1278 and unless the requirements of R 336.1278a have been met.

(2) The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following:

(u) Solvent distillation and antifreeze reclamation equipment that has a rated batch capacity of not more than 55 gallons.

They haven't done a study on the %solvent recovery for this process also. 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 %recovery with amount of solvent used versus amount recovered.

We also discussed the HAP calculations for the MACT compliance. I advised him to review the Part 63 MACT PPPP in detail and evaluate whether all HAPs containing coatings and solvents and HAP emitting processes are included the MACT compliance calculations. The facility is using "compliant coating" and "without Add-On Control" options to comply with the MACT limits. I advised him to discuss with suppliers about the coatings they use and determine the mass fraction of organic HAP, the mass fraction and the density of each material used in accordance with 40 CFR 63.4541 (compliance coating option), and/or 40 CFR 63.4551 (without Add-on Control option).

## **INSPECTION:**

After the pre-inspection meeting, he accompanied me for an inspection of the facility. Initially, we inspected the two new clamps (IMP51 and IMP52). They were both operating. In Plant 1, we also inspected other RIM clamps, post-mold paint booths, Shuttle Clamps, and ROTARY clamps, etc. I 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 are 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>
EU-PLT2-LINE1	Plant 2, Paint Line 1	Volvo Paint; Good & In-Place	Operational  (* ) Not operating at the time of inspection
EU-PLT2-RIM45	Plant 2- RIM 45 (11x14)	Good & in-Place (Filters on both sides; 1/month will be checked before use)	Not Operating. Operate only
EU-PLT1-IMP2	Plant 1 - Clamp No.2 (Cinci-1)	Good & in-Place	Operational  (* ) Not operating
<i>EU-PLT1-IMP5</i>	<i>Plant 1 - Clamp No. 5 (Ford 90)</i>	<i>NA</i>	<i>Dismantled</i>
EUPLT1-IMP51	Plant 1 – BBG Clamp No. 51 (LRM-1) -New	Good & in-place. Located top.	Operating
EUPLT1-IMP52	Plant 1 – BBG Clamp No. 52 (LRM-2) –New	Good & in-place. Located top.	Operating
EU-PLT1-IMP12	Plant 1 - Clamp No. 12 (LFI-3)	Good & in-Place	Operating
<i>EU-PLT1-IMP24</i>	<i>Plant 1 - Clamp No. 24 (LFI-5)</i>	<i>NA</i>	<i>Not operational</i>
EU-PLT1-IMP26	Plant 1 - Clamp No. 26 (LFI-1)	Good & in-Place	Operational.  (* ) Not operating
<i>EU-PLT1-IMP28</i>	<i>Plant 1 - Clamp No. 28 (LFI-2)</i>	<i>Missing filters</i>	<i>Not operational</i>

<b>Emission Unit ID</b>	<b>Emission Unit Description</b>	<b>Filter Conditions</b>	<b>Comments</b>
			<i>Under repair</i>
EU-PLT1-IMP29	Plant 1 - Clamp No. 29 (LFI-4)	One filter missing	Mold operating; but no in-mold painting
EU-PLT1-IMP50	Plant 1 - Clamp No. 50 (Cinci-2)	NA	Not operational
EU-PLT1-LINE1	Plant 1, Paint Line 1- Includes spray booth #1	NA	Not operational  Under Maintenance
EU-PLT1-LINE2	Plant 1, Paint Line 2- Includes spray booth #2	Good & in-Place Stage 1 replaced daily	Operational; Painted earlier in the day
EU-PLT2-RIM42	Plant 2-RIM 42 (5x7)	Good & in-Place (Filters both sides)	Operating. Not using DCPD.
EU-PLT2-RIM43	Plant 2- RIM 43 (11x6)	Good & in-Place (Filters on both sides) VOC=2.8 pp, (8 min Carbon adsorber avg); 5.1 ppm (peak) Press. Diff.= 1"WC	Operating. Using DCPD. running. Time= 2:40 PM
EU-PLT2-RIM44	Plant 2- RIM 44 (10x12)	Good & in-Place (Filters on both sides) Could not verify VOC and Diff. Pr.)	Operating. Using DCPD. VOC Vented to carbon adsorber system
EUCLAMPBOOTH1	Paint/catalyst mixture and barrier coat will be applied to a mold inside this booth. .	Filters conditions verified. Couldn't see while operating.	not Operating

<b>Emission Unit ID</b>	<b>Emission Unit Description</b>	<b>Filter Conditions</b>	<b>Comments</b>
EUCLAMPBOOTH2	Paint/catalyst mixture and barrier coat will be applied to a mold inside this booth. .	Filters conditions not verified. Couldn't see while operating.	Operating
EUSPACOATING	Manually applied (sprayed) coating to spas (molded parts).	Stain applied manually (wiping)	Molded parts from LFI-3. LFI-4 & LFI-5
EUROTARYPAINT	Mold release is applied to the mold. High efficiency dry fabric filters will be used to control particulate from overspray.	Did not observe the filters (runs 7 clamps)	Operational (* ) Not Operating
EUROTARYBC	Barrier coat will be applied to a mold inside this booth.	NA	Operational (* ) Not Operating
EUROTARYLFI1	Two part polyurethane mixture with embedded glass fibers is injected into the mold (reaction injection molding).	NA	Operational (* ) Not Operating
EUROTARYLFI2	Two part polyurethane mixture with embedded glass fibers is injected into the mold (reaction injection molding).	NA	Operational (* ) Not Operating
FGCOLDCLEANERS	Two cold cleaners/parts washers	Removed	No longer at the facility.

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

Next, I inspected the shuttle clamp process. This process is also called "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 to 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, mold is opened, and moved back to the booth where the part is removed, undergo finishing operations such as sanding, trimming, drilling, etc. Both clamps were in operation at the time of inspection. I was not able to observe the filters from outside. He informed that the North prep area dust collector is vented into the general in plant area.

We also inspected the newly installed Rotary carrier in-mold paint long fiber technology reaction injection molding process (Rotary Carrier System). The process has 7 carriers. Each carrier goes through mold release application (EUROTARYPAINT), barrier coat application (EUROTARYBC) and reaction injection molding (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 idle at the time of my inspection. It was running earlier in the day. They change the filters after about 1400 minutes of operation. Differential pressure monitors are also installed for the booths. They are not using this monitor to change the filters. At the time of inspection, the differential pressure was 0.01" WC. The monitor is marked to change the filters when pressure differential is above 0.3" WC.

Next, we inspected Plant 2. The RIM 42 (Clamp 5x7) was operated during the inspection. DCPD was not used on that day. RIM 43 (clamp 11x6), was operated and DCPD was being used. We inspected carbon adsorption unit CA No. 2 which controls the exhausts from RIM 42 and 43. I observed that the exhaust from RIM 43 was vented through Carbon Adsorption system (CA No.2). The DCPC Fan Switch and vent switch were turned to DCPD. When the exhaust is vented to the carbon adsorption system, the filter vents are not used. They monitor the VOC readings every day they run DCPD.

RIM 44 (10 x12) was operating at time of the inspection and DCPD was being used. 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 in 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. It is only operated once a month, but the filters are checked before operating this RIM. DCPD is not used in this booth.

I 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. I requested Wade 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.

Next, we also inspected EU-PLT2-LINE1. Only Volvo parts are coated in this booth. The booth was not being used at the time of the inspection. It was not operating at the time of the inspection but was operating earlier. Wade told me that the filters in both stages are changed on a weekly basis.

I requested Wade if the VOC emissions through the carbon filter could be monitored using the PID. Derek Childers, Plant 2 Manger calibrated the PID and measured the VOC emissions in CA No.2. At the beginning of the measurement, RIM 43 was not running DPCD. Derek told me that after two minutes, they ran DCPD part. He took the reading for 8 minutes. The average was 2.7 ppm (Peak = 5.1 ppm; Pressure Diff.= 1" WC) Wade told me that VOC emissions are monitored using the portable analyzer as required.

After the inspection facility is completed, I drove around the facility with both front windows down: North on Van Dyke Road, East on Ebling Road, South on McKay Road, West on 34 Mile Road, and North on Van Dyke Road to the facility. I did not observe any objectionable odor during this travel. Previously a person working in the EGLE Warren Office reported smelling odor while driving on Van Dyke Road.

All records are kept electronically. 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 was using acetone for purge and had 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 type 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. Reviewed records from Jan-Dec. 2020 and Jan-Mar 2021. These records show that the hourly VOC emission rates were below 6.0 lb/hr (permit limit) and were in compliance. The highest hourly emission rate was 1.54 lb which occurred in March 2021.

The total annual VOC emission rate was 0.70 tons per year (tpy), as of March 2021, which is in compliance with 18.7 TPY (permit limit).

The records show that the VOC content of the coating was in compliance with the ROP limit 3.9 lb VOC/gal of coating–water. The facility only coats same type 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 3.51 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 average hourly acetone emissions from the line purging process were 0.29 lb/hr and are below the permit limit of 0.6 lb/hr during Jan-Dec. 2020 and Jan-Mar 2021. Highest Acetone lb/hr = 0.35 lb/hr in March 2021. Records show that they collect about 90% of the purge acetone.

The records show that the 12-month rolling time period acetone emissions from Line Purging Process during Jan 2020 through March 2021 were 0.23 tpy which is in compliance with the permit limit (1.7 tpy).

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

### **Monitoring & Recordkeeping:**

The exhaust filters are installed in the booth properly. 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. He informed me that the facility is keeping a current listing of the chemical composition of each coating used. 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-rage 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 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 Jan 2020 through Mar 2021. This unit is only used once a month. Every time, it is used, 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 VOC and acetone emissions are 2.35 tpy as of December 2020 and 2.08 tpy as of March 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 acetone emissions from the purge and clean-up process were 0.14 tpy as of December 2020 and 0.13 tpy as of March 2021.

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 4.66 lb/gallon (minus water, as applied).

Mr. Spurlin informed me that they are not using DCPD in the RIM 45 process. They are collecting the waste materials and spent filters and disposing these properly. I observed that VOC and HAP containing materials, including coatings, reducers, mold release agents, solvents and thinners are collected and stored in closed containers.

I observed that the exhaust filters in the RIM 45 is properly placed and not excessively dirty. Facility is using HVLP equivalent applicators for the coating. They are using manufacturers' data sheet and analysis for calculating VOC content of the coatings.

Facility is keeping a listing of the chemical composition of the chemicals used in RIM 45. Facility is keeping records of 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 indicates 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 was provided.

They are using acetone in the purge/cleanup in the process. The stack dimensions were not verified.

This process is subject to Miscellaneous Plastic Parts Coating MACT (40 CFR 63, Subpart PPPP). This emission unit is subject to emission standards for new sources.

#### **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.

Few of the clamps were used at the time of inspection. I observed that the clamps are equipped with booth exhaust filters. They were not excessively dirty and were not out of place. IMP 29 was operating at the time of inspection, but they were not doing in-mold painting. I pointed to him that one of the filters was missing. He told me that just happened and they will replace it as soon as the part they are making is completed.

#### **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 (Jan-

Dec.2021, the highest hourly emission rate (lb/hr) was 9.14 (October 2020) and annual emissions were 10.95 tons. The facility is in compliance with these 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 4.66 lb/gal.

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

**Monitoring & Recordkeeping:**

Exhaust filters were installed in the RIM booths. Facility is keeping adequate records of material usage, chemical composition and VOC calculations. Facility is keeping 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 my inspection. The records regarding monitoring of the filter conditions as specified in Appendix 4 was 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 annual combined VOC and Acetone emissions from coating process were 4.61 tons as of December 2020 and 4.03 as of March 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 tons per year based on a 12-month rolling time period as determined at the end of each calendar month. The records show the calculated annual combined VOC and Acetone emissions from cleanup and purge were 0.22 TPY as of March 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 January 2020. The R632 VOC content limit is 5.45 lb/gal and the VOC content of the coating as applied was 4.91 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.

The facility uses mostly solvent based coatings. But they calculate with and without water VOC calculations, when applicable.

The facility is keeping adequate records for the purge and clean up solvents. The facility is maintaining a list of material safety data sheets for the materials used in coating. Facility has not analyzed the VOC content of the materials. The 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. Facility is keeping electronic records for each 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 3.2. —

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

### **FG-RIMPROCESS:**

Located in Plant 2-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 filter banks (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, the RIM 42 and RIM 43 were in operation, and DCPD was used in RIM43. So, the exhaust was vented to CA No. 2. Derek Childers tested the VOC emissions after the control. The differential pressure reading at that time was 0.1 "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. Mr. Spurlin told me that they perform VOC measurement using the portable analyzer every time they run DCPD and measured earlier.

The records show that the DCPD usage is less than 1770 lb/hr (the highest usage was 164.11 lb/hr) in April 2020. I observed that the exhaust filters installed and maintained properly.

### **Volatile Organic Compounds (VOC)**

The VOC emissions from each RIM process EU-PLT2-RIM42 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. VOC emission from RIM 42 and RIM 43 were 1.99 TPY and 1.88 TPY respectively as of MARCH 2021. VOC emissions from RIM 44 were 0.12 TPY as of March 2021 which is in compliance with the limit of 20 TPY.

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, was around 4.29 lb/gal and the facility was in compliance with this limit.

The combined VOC emissions from FG-RIMPROCESS including purge and cleanup solvent were 5.34 tpy, as of March 2021, 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.

VOC/Acetone emissions from EU-CLEANUP were 0.34 TPY as of March 2021, which is in compliance with the limit of 7.0 tpy based on 12-month rolling time period as determined at the end of each calendar month.

#### Process and Operational Restrictions:

The Two carbon systems for RIM42, RIM 43 and RIM44 are installed. The CA systems are equipped with pressure differential monitors. The RIM clamps are properly equipped with exhaust filters.

Testing/Sampling: See discussion below (following FGROTARY)\_

#### Monitoring & Recordkeeping:

Facility is keeping a current listing of chemicals used as required by the ROP. 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 number of monthly hours when DCPD is used in FG-RIMPROCESS. The records show that the facility is keeping 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.

Mr. Spurlin informed me that the facility is monitoring each carbon adsorption system as outlined in Appendix 5B. 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 2020.

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. This process is exempt from permit to install requirements pursuant to R336.1285(2)(u).

Condition 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 VOC emissions were 11.44 TPY as of March 2021.

Condition 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 show that the highest actual VOC less exempt solvents, as applied, is about 4.37 lb/gal.

Condition 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 January 2020 - LFI Resin = 884.4 lb/day; Barrier Coat = 320.8 pounds/day).

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

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

Condition III.3- Mr. Spurlin told me that they are disposing the spent exhaust filters properly.

Condition III.4-The paint booths are kept closed during operation minimizing the fugitive emissions. The coating drums and other solvent containers were kept closed.

Condition IV.1 & 2- Mr. Spurlin informed me that the booths are equipped with exhaust filters and facility is using automatic or equivalent HVLP applicators. I observed that the filters are in good condition and in place.

#### Section V. Testing/Sampling

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

Condition V.2- 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

Condition VI.1- Facility performs all the required calculations in acceptable format and appears to complete the calculations within the specified time.

Condition VI.2- Facility is keeping a current listing from the manufacturer of the chemical composition of each material.

Condition VI.3 – The facility is keeping records, on a monthly basis, of gallons of each material used, VOC content (minus water and with water), VOC mass emission calculations (monthly and annually).

Condition 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- 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 with the dates of Method 24 analysis conducted.

SC VIII-1 & 2-The stack heights were not verified but appear to be in compliance with the permit requirements.

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

## **FGROTARY**

Rotary carrier in-mold paint long fiber technology reaction injection molding process includes EUROPAINTKITCHEN, EUROTFINISHING, EUROPARTSWIPE, EUROTLINECLEANING, EUROTARYPAINT, EUROTARYBC, EUROTARYLF1, and EUROTARYLF2. This process started operating in March 2017. Particulate emissions from EUROTARYPAINT are controlled by high efficiency dry fabric filters. Other booths also equipped with filters but are not exhausted to the ambient air. All booths are also equipped with differential pressure monitors to decide when the filters need to be changed.

SC I.1 limits the VOC emission rates 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 VOC emissions were 3.2 TPY as of December 2020.

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 0.6 pounds per day as of January 2020 to March 2021.

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 3.6 to 4.2 lb/gal during January 2020 through March 2021.

SC II.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. The coating drums and other solvent containers were kept closed.

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

**Section V-Testing/Sampling:** Condition V.1- See discussion below.

## **Section VI-Monitoring/Recordkeeping**

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

SC VI-2- 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), VOC mass emission calculations (monthly and annually).

SC VI-4 – The facility keeps records of daily emissions of 2,4-pentanedione. The submitted records do not show gallons of coatings, with 2,4-pentanedione used or reclaimed, and the content of this material in coatings. This is a deviation of these requirements.



SC VII-1 & 2 – The stack heights were not verified but appear to be in compliance with the permit requirements.

SC VII.3- Wade informed me that the exhaust gases from EUROTARYBC, EUROTARYLFI1, EUROTARYLFI2, and EUROTFINISHING are not discharged to the ambient air at any time.

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

**EU-PLT2-LINE1, EU-PLT2-RIM45, FG-PLT1-RIM-IMP, FG-PLT1-SCL1&2, FG-RIMPROCESS, FG-SHUTTLECLAMP, FGROTARY**

**Testing/Recordkeeping:** 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. Facility's coating supplier is conducting random testing of non-water borne (solvent) coatings, as applied, for the VOC content, solid and density. Facility is allowed to use the supplier's analytical results to show compliance with testing/sampling requirements.

Facility submitted Method 24 analysis results and safety data sheets, technical data sheets and environmental data sheets for some of the coatings. Facility is recording the dates when Method 24 was conducted for each coating.

**FG-RULE287(c)**

This flexible group includes EUSPACOATING and EUSUNSHADES. Facility has dismantled EUSUNSHADES. The staining process (EUSPACOATING) which was done in Plant 1 Line 6 has been moved to a stand-alone self-containing booth near the 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 20 gallons of stain per month during January 2020 through March 2021.

**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. This NESHAP was promulgated on April 19, 2004. The compliance date was 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 January 2020, through March 2021. The calculations show that the facility meets emission limits for its affected source.

**FG-COLDCLEANERS:**

This flexible group includes two cold cleaners: Wade told me that these cold cleaners are removed from the facility.

USB drive containing usage and monitoring records and emissions calculations are attached to the report. Hard copies summary of emissions and filter monitoring are attached for review.

**Conclusion:** The facility has a filler/resin mixing process (wollastonite) vented inside. Facility is required to demonstrate R336.1201 compliance for this process. Facility intends to show that this process is exempt from R201 pursuant to Rule 290. A violation notice would not be sent at this time.

NAME Subantonykallamkal DATE 09/02/2021 SUPERVISOR Joyce JK