Oven Solvent Loading
Test Report

General Motors, LLC
Detroit-Hamtramck Assembly
2500 East General Motors Boulevard
Detroit, MI 48211

November 17, 2015

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

RECEIVED
NOV 20 2015
AIR QUALITY DIV.

RENEWABLE OPERATING PERMIT REPORT CERTIFICATION

Authorized by 1994 P.A. 451, as amended. Failure to provide this information may result in civil and/or criminal penalties.

Reports submitted pursuant to R 336.1213 (Rule 213), subrules (3)(c) and/or (4)(c), of Michigan's Renewable Operating Permit (ROP) program must be certified by a responsible official. Additional information regarding the reports and documentation listed below must be kept on file for at least 5 years, as specified in Rule 213(3)(b)(ii), and be made available to the Department of Environmental Quality, Air Quality Division upon request.

Source Name: General Motors, LLC - Detroit-Hamtramck Assembly County: Wayne

Source Address: 2500 EAST GENERAL MOTORS BLVD City: Detroit, MI 48211-2002

AQD Source ID (SRN): M4199 ROP No.: MI-ROP-M4199-2010 ROP Section No.: 1

Please check the appropriate box(es):

☐ **Annual Compliance Certification (Pursuant to Rule 213(4)(c))**

Reporting period (provide inclusive dates): From _____ To _____

☐ 1. During the entire reporting period, this source was in compliance with **ALL** terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference. The method(s) used to determine compliance is/are the method(s) specified in the ROP.

☐ 2. During the entire reporting period this source was in compliance with all terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference, **EXCEPT** for the deviations identified on the enclosed deviation report(s). The method used to determine compliance for each term and condition is the method specified in the ROP, unless otherwise indicated and described on the enclosed deviation report(s).

☐ **Semi-Annual (or More Frequent) Report Certification (Pursuant to Rule 213(3)(c))**

Reporting period (provide inclusive dates): From _____ To _____

☐ 1. During the entire reporting period, **ALL** monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred.

☐ 2. During the entire reporting period, all monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred, **EXCEPT** for the deviations identified on the enclosed deviation report(s).

☒ **Other Report Certification**

Reporting period (provide inclusive dates): From Nov. 17, 2015 To Nov. 17, 2015

Additional monitoring reports or other applicable documents required by the ROP are attached as described:

GM Detroit-Hamtramck Assembly is submitting the test report for the oven solvent loading testing of the Primer Surfacer (EUPRIMERSURFACER V.2.b) and Topcoat (EUTOPCOATSYSTEM V.2.b) operations pursuant to approved test methods.

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this report and the supporting enclosures are true, accurate and complete

Gary L. West	Plant Manager	313-972-6020
Name of Responsible Official (print or type)	Title	Phone Number
Gary L. West		11/17/2015
Signature of Responsible Official		Date

* Photocopy this form as needed.

EQP 5736 (Rev 11-04)

1. Introduction

General Motors Detroit Hamtramck Assembly (GM) retained Axalta to conduct Oven Solvent Loading for the GM Detroit Hamtramck facility located at 2500 E. General Motors Blvd., Detroit, MI 48211, MI-ROP-M4199-2010. Oven Solvent Loading Testing of the Primer Surfacer and Topcoat (base solid, base metallic, clearcoat) operations. Testing included: Oven exhaust control device VOC loading rates (Oven Solvent Loading).

AQD has published a guidance document entitled "Format for Submittal of Source Emission Test Plans and Reports" (December 2013). The following is a summary of the emissions test plan in the format suggested by the aforementioned document.

1.a Identification, Location, and Dates of Test

Oven Solvent Loading Testing of the Primer Surfacer and Topcoat was conducted September 28, 2015. Testing was conducted at the Axalta Coating Systesms facility in Mount Clemens, MI.

1.b Purpose of Test

As a result of changing paint suppliers, testing was conducted for EUPRIMERSURFACER (TESTING/SAMPLING V.2.b) and EUTOPCOATSYSTEM (TESTING/SAMPLING V.2.b) operations as prescribed by Permit Number MI-ROP-M4199-2010 and the test plan as approved by the Air Quality Division (letter dated September 10, 2015).

1.c Source Description

The GM facility is an automotive assembly center. The facility utilizes numerous raw materials in the process of automotive assembly, varying from imported parts and products to pre-assembled automotive supplies. The materials utilized that are influential for the proposed emissions test program are paints that are cured in curing ovens. The facility is restricted in the number of finished products produced as being 78.5 fully assembled vehicles per hour and not more than 337,500 assemblies per year.

1.d Test Program Contacts

The contact for the source and test report is:

Ms. Meghan Kennedy
Environmental Engineer
General Motors, LLC
Detroit-Hamtramck Assembly
2500 E. GM Blvd.
Detroit, MI 48211
(248) 409-8974

Ms. Jennifer Tegen, Staff Environmental Engineer
GECS Facility Air Compliance & Permit
General Motors, LLC
Warren Tech Ctr. Engineering Center
30200 Mound Road - Bldg 1- 11
Mail Code: 480-111-1N
Warren, MI 48092-2025
(810) 706-1319

2. Summary of Results

2.a Operating Data

The operating parameters of the thermal oxidizers are as follows:

Temp – minimum 1300 degrees Fahrenheit
Minimum of 0.5 second gas retention time
90% destruction efficiency.

The attached report provided as Appendix A provides a summary of process operating parameters.

2.b Applicable Permit

The applicable permit number is MI-ROP-M4199-2010. The emission unit ID is EUPRIMERSURFACER and EUTOPCOATSYSTEM.

2.c Results

The attached report provided as Appendix A provides a summary of results.

3. Source Description

3.a Process Description

EUTOPCOATSYSTEM - A topcoat spray booth followed by a curing oven. There is a heated flash-off area located between the basecoat portion of the booth and the clearcoat portion of the booth. The waterborne basecoat is applied automatically with air atomized or electrostatic spray guns. The solventborne clearcoat is applied automatically with air atomized or electrostatic spray guns. The topcoat booth is equipped with a downdraft water wash system to control particulate emissions from paint overspray. VOC emissions from the curing ovens are controlled by a thermal oxidizer.

EUPRIMERSURFACER - A guidecoat (primer surfacer) spray booth followed by a curing oven. The solventborne primersurfacer is applied automatically with air atomized or electrostatic spray guns. The primer surfacer booth is equipped with a downdraft water

wash system to control particulate emissions from paint overspray. VOC emissions from the curing ovens are controlled by a thermal oxidizer.

Oven solvent loading test results are used to calculate paint shop VOC emissions.

3.b Type of Raw and Finished Materials

The following materials were used in the testing program:

- 224E Medium Gray solventborne primer surfacer
- 8555 Black waterborne basecoat
- 636R Switchblade Silver Metallic waterborne basecoat
- 8032 2K Clearcoat Part A, 2K Clearcoat Part B

3.c Capacity of the Process

The facility is restricted in the number of finished products produced as being 78.5 fully assembled vehicles per hour and not more than 337,500 assemblies per year.

3.d Process Instrumentation

Process instrumentation is not associated with this testing.

4. Sampling and Analytical Procedures

Oven Solvent Loading

Primer Surfacer (Gray primer – 765-224E), Filmbuild: 0.8 - 1.4 mils

W0 = weight of bare panel
Apply primer surfacer
W1 = Weight of panel + primer surfacer (immediately after spraying as practical)
Flash for 5 minutes at 85°F (ambient)
W2 = Weight of primed panel after flash
Bake for 25'@ 265°F
Let panel cool
W3 = Weight of cooled, cured primed panel

Waterborne Basecoat Body System (Switchblade Silver Metallic – 561-636R, filmbuild: 0.7 - 0.9 mils and Black – 562-8555, filmbuild: 0.5 - 0.7 mils)

W0 = weight of bare panel
Apply basecoat
W1 = Weight of panel + basecoat (immediately after spraying as practical)
Flash for 1 minute at 88 °F (1st pass to 2nd pass of BC) + 20'' at 88 °F
W2 = Weight of basecoated panel after flash

Dehydrate for 6'45" at 160°F
W3 = Weight of basecoated panel after heated flash
Flash for 2' @ 88 °F + 1' @ 88F (from 1st CC pass to 2nd) + 4'25'' @ 88°F (CC flash)
W4 = Weight of basecoated panel after flash
Determine the amount of water in the film by spraying extra panels and analyze using Karl Fisher or GC
Bake for 25 minutes at 250°F
Let panel cool
W5 = Weight of cooled, cured basecoated panel

Clearcoat Body System (RK-8032, filmbuild: 1.8-2.2 mils)

W0 = Weight of bare panel
W1 = Weight of panel + clearcoat (immediately after spraying as practical)
Flash for 2' @ 88 °F + 1' @ 88F (from 1st CC pass to 2nd) + 4'25''@ 88°F (CC flash)
W2 = Weight of clearcoated panel after flash
Bake for 25 minutes at 250F
Let panel cool
W3 = Weight of cooled, cured clearcoated panel

5. Test Results

5.a-b Test Results Summary

A summary is presented in the attached reports provided as Appendix A. Results from this test program will be used to calculate associated emissions from the respective sources.

5.c Sampling Procedure Variation

Not applicable for this testing.

5.d Process or Control Device Upsets

Not applicable for this testing.

5.e Control Device Maintenance

Not applicable for this testing.

5.f Re-test

This was not a re-test.

5.g Quality Assurance Audit Samples

Not applicable for this testing.

5.h Calibration Sheets

Certification of scale accuracy documentation is provided as Appendix B.

5.i Sample calculations

Not applicable for this testing.

5.j Field Data Sheets

Included in attached reports provided as Appendix A.

5.k Laboratory Data

Included in attached reports provided as Appendix A.