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1. Introduction

General Motors Orion Assembly (GM) retained EFTEC to conduct Oven Solvent Loading for the GM Orion facility located at 4555 Giddings Road., Lake Orion, MI 48359, MI-ROP-B7227-2015b. Testing was conducted on November 28, 2017 and included oven solvent load test values used to calculate VOC emissions from the sealer application process. Testing was conducted at the EFTEC North America laboratory at 20219 Northline Road Taylor, MI 48180.

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 was conducted on November 28, 2017 and included oven solvent load test values used to calculate VOC emissions from the sealer application process. Testing was conducted at the EFTEC North America laboratory at 20219 Northline Road Taylor, MI 48180.

1.b Purpose of Test

The test was conducted to demonstrate compliance with requirements of the facility's Renewable Operating Permit, MI-ROP-B7227-2015b FG-FACILITY. The emission unit covers all emission units and flexible groups associated with automotive assembly and painting operations including the capture efficiency across the curing oven portion of EU-SEALERADH. Oven solvent loading test results are used to calculate paint shop VOC emissions from applied sealers in the curing ovens.

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 sealers applied in the paint shop that are cured in curing ovens.

1.d Test Program Contacts

The contact for the source and test report is:

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2. Summary of Results

2.a Operating Data

The operating parameters of the thermal oxidizer are as follows:

Temp – minimum 1400 degrees Fahrenheit.
Minimum of 0.5 second gas retention time.

Reference Section 5 Sampling and Analysis Procedure and the attached for process operating parameters.

2.b Applicable Permit

The applicable permit number is Renewable Operating Permit, Permit No. MI-ROP-B7227-2015b and emission units FG-FACILITY and EU-SEALERADH.

2.c Results

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

3. Source Description

3.a Process Description

FG-FACILITY – This flexible group covers equipment used for automotive assembly and painting operations for the Orion Assembly Plant. The emission unit covers all emission units and flexible groups associated with automotive assembly and painting operations including the capture efficiency across the curing oven portion of EU-SEALERADH. EU-SEALERADH is described as various sealer, adhesives and fillers applied in the body shop, the paint shop and the general assembly areas.

Oven solvent loading test results are used to calculate paint shop VOC emissions from applied sealers in the curing ovens.

3.b Type of Raw and Finished Materials

The following materials were used in the testing program:

- EFTEC PS2540: Multi-purpose sealer

3.c Capacity of the Process

The rated volatile organic compound (VOC) destruction efficiency is 95%.

3.d Process Instrumentation

Process instrumentation is not associated with this testing.

4. Sampling and Analytical Procedures

Oven Solvent Loading

Sealer (EFTEC PS2540)

W0 = weight of bare panel

Apply sealer bead 20 mm wide X 1.5 mm thick X 250 mm long

W1 = Weight of panel + sealer

Flash for 26 minutes at ambient temperature

W2 = Weight of sealed panel after ambient flash

Bake for 33 minutes at 300°F

Let panel cool

W3 = Weight of cooled, cured sealed 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

No sampling procedure variations occurred during 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

Not applicable for this testing. 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.