#### 1.0 INTRODUCTION

#### 1.1 SUMMARY OF TEST PROGRAM

General Motors LLC – Flint Assembly (Facility ID: B1606) contracted Montrose Air Quality Services, LLC (Montrose) to perform a compliance test program on the EU-ELPO: Oven Zone 4 (ELPO2), EU-SEALERS & ADHESIVES: Oven (SEALER), EU-THREEWET: Oven 1 (TOPCOAT 1), EU-THREEWET: Oven 2 (TOPCOAT 2) and EU-THREEWET: Clearcoat automatic spray booths (2) and flash-off areas (4) (SPRAYBOOTH) at the General Motors LLC – Flint Assembly facility located in Flint, Michigan. Testing was performed on May 18-21, 2021, for the purpose of satisfying the emission testing requirements pursuant to Michigan Department of Environment, Great Lakes, and Energy (EGLE) Renewable Operating Permit (ROP) No. MI-ROP-B1606-2020.

The specific objectives were to:

- Verify the volatile organic compound (VOC) (total gaseous organic (TGO))
  destruction efficiencies (DEs) of the regenerative thermal oxidizers (RTOs)
  serving ELPO 2 and SPRAYBOOTH
- Verify the VOC (total gaseous nonmethane organic (TGNMO)) DE of the RTOs serving SEALER, TOPCOAT 1, and TOPCOAT 2
- Conduct the test program with a focus on safety

Montrose performed the tests to measure the emission parameters listed in Table 1-1.

TABLE 1-1 SUMMARY OF TEST PROGRAM

Test Date(s)	Unit ID/ Source Name	Activity/ Parameters	Test Methods	No. of Runs	Duration (Minutes)
5/18/2021	ELPO 2 RTO 2 Inlet/Exhaust	Velocity/Volumetric Flow Rate	EPA 1, 2	3	4-9
5/18/2021	ELPO 2 RTO 2 Inlet	Moisture	EPA 4 (WB/DB)	3	1
5/18/2021	ELPO 2 RTO 2 Exhaust	Moisture	EPA 4	3	30
5/18/2021	ELPO 2 RTO 2 Inlet/Exhaust	TGO	EPA 25A	3	60
5/19/2021	SEALER RTO Inlet/Exhaust	Velocity/Volumetric Flow Rate	EPA 1, 2	3	4-9
5/19/2021	SEALER RTO Inlet	Moisture	EPA 4 (WB/DB)	3	1

TABLE 1-1 SUMMARY OF TEST PROGRAM (CONTINUED)

	H=14 ID/	A -41: -14: -1	Ta-1		Duret's
Test Date(s)	Unit ID/ Source Name	Activity/ Parameters	Test Methods	No. of Runs	Duration (Minutes)
5/19/2021	SEALER RTO Exhaust	Moisture	EPA 4	3	30
5/19/2021	SEALER RTO Inlet/Exhaust	TGO, CH4	EPA 25A	3	60
5/19/2021	TOPCOAT 1 RTO 1 Inlet/Exhaust	Velocity/Volumetric Flow Rate	EPA 1, 2	3	4-8
5/19/2021	TOPCOAT 1 RTO 1 Inlet	Moisture	EPA 4 (WB/DB)	3	1
5/19/2021	TOPCOAT 1 RTO 1 Exhaust	Moisture	EPA 4	3	30
5/19/2021	TOPCOAT 1 RTO 1 Inlet/Exhaust	TGO, CH4	EPA 25A	3	60
5/20/2021	TOPCOAT 2 RTO 2 Inlet/Exhaust	Velocity/Volumetric Flow Rate	EPA 1, 2	3	4-6
5/20/2021	TOPCOAT 2 RTO 2 Inlet	Moisture	EPA 4 (WB/DB)	3	1
5/20/2021	TOPCOAT 2 RTO 2 Exhaust	Moisture	EPA 4	3	30
5/20/2021	TOPCOAT 2 RTO 2 Inlet/Exhaust	TGO, CH4	EPA 25A	3	60
5/21/2021	SPRAYBOOTH RTO Inlet/Exhaust	Velocity/Volumetric Flow Rate	EPA 1, 2	3	5-10
5/21/2021	SPRAYBOOTH RTO Inlet	Moisture	EPA 4 (WB/DB)	3	1
5/21/2021	SPRAYBOOTH RTO Exhaust	Moisture	EPA 4	3	30

TABLE 1-1 SUMMARY OF TEST PROGRAM (CONTINUED)

Test Date(s)	Unit ID/ Source Name	Activity/ Parameters	Test Methods	No. of Runs	Duration (Minutes)
5/21/2021	SPRAYBOOTH RTO Inlet/Exhaust	TGO	EPA 25A	3	60

To simplify this report, a list of Units and Abbreviations is included in Appendix C.1. Throughout this report, chemical nomenclature, acronyms, and reporting units are not defined. Please refer to the list for specific details.

This report presents the test results and supporting data, descriptions of the testing procedures, descriptions of the facility and sampling locations, and a summary of the quality assurance procedures used by Montrose. The average emission test results are summarized and compared to their respective permit limits in Tables 1-2 through 1-6. Detailed results for individual test runs can be found in Section 4.0. All supporting data can be found in the appendices.

The testing was conducted by the Montrose personnel listed in Table 1-7 on May 18 through May 21, 2021. The tests were conducted according to the test plan (protocol) dated March 15, 2021 and approved on May 3, 2021 by EGLE.

# TABLE 1-2 SUMMARY OF AVERAGE COMPLIANCE RESULTS -ELPO2 RTO 2 MAY 18, 2021

Parameter/Units A	Average Results	Allowable Limits
VOC (TGO) Destruction Efficiency (DE)	96.2	

# TABLE 1-3 SUMMARY OF AVERAGE COMPLIANCE RESULTS SEALER RTO MAY 19, 2021

Parameter/Units	Average Results	Allowable Limits
VOC (TGNMO) Destruction	Efficiency (DE)	

# TABLE 1-4 SUMMARY OF AVERAGE COMPLIANCE RESULTS TOPCOAT 1 RTO 1 MAY 19, 2021

Parameter/Units	Average Results	Allowable Limits
VOC (TGNMO) Destruction Effice	ciency (DE) 97.0	

# TABLE 1-5 SUMMARY OF AVERAGE COMPLIANCE RESULTS -TOPCOAT 2 RTO 2 MAY 20, 2021

Parameter/Units	Average Results	Allowable Limits
VOC (TGNMO) Destruction Efficient	ency (DE) 97.3	

# TABLE 1-6 SUMMARY OF AVERAGE COMPLIANCE RESULTS -SPRAYBOOTH RTO MAY 21, 2021

Parameter/Units	Average Results	Allowable Limits
VOC (TGO) Destruction Efficiency (DE)	95.4	

#### 1.2 **KEY PERSONNEL**

A list of project participants is included below:

**Facility Information** 

Source Location: General Motors LLC - Flint Assembly Plant

3100 Van Slyke Road

Flint, MI 48507

Project Contact: Scott Applegate

Julie Lenz **Environmental Engineer** 

Role: Sr. Environmental Engineer

General Motors LLC 586-424-7228

Company General Motors LLC Telephone: 248-494-6643

Email: scott.applegate@gm.com julie.lenz@gm.com

Agency Information

Regulatory Agency: EGLE

Agency Contact: Karen Kajiya-Mills

Telephone: 517-256-0880

Email: kajiya-millsk@michigan.gov

**Testing Company Information** 

Testing Firm: Montrose Air Quality Services, LLC

Contact: Matthew Young

Title: District Manager Telephone: 248-548-8070

Email: myoung@montrose-env.com

Test personnel and observers are summarized in Table 1-7.

# **TABLE 1-7 TEST PERSONNEL AND OBSERVERS**

Name	Affiliation	Role/Responsibility
Matthew Young	Montrose	District Manager, QI
Michael Nummer	Montrose	Field Technician
Scott Dater	Montrose	Field Technician
Scott Applegate	General Motors LLC	Observer/Client Liaison/Test Coordinator

# 2.0 PLANT AND SAMPLING LOCATION DESCRIPTIONS

## 2.1 PROCESS DESCRIPTION, OPERATION, AND CONTROL EQUIPMENT

General Motors LLC - Flint Assembly currently produces Full-Size Pickup Trucks. The facility's coating operations includes the ELPO 1, ELPO 2, SEALER, TOPCOAT 1, TOPCOAT 2 and SPRAYBOOTH. Emissions from ELPO 2, SEALER, TOPCOAT 1, TOPCOAT 2 and SPRAYBOOTH are each controlled by RTOs. ELPO 1 RTO was tested on July 7, 2021 and the results will be reported in a separate report.

#### 2.2 FLUE GAS SAMPLING LOCATIONS

Information regarding the sampling locations is presented in Table 2-1.

TABLE 2-1
SAMPLING LOCATIONS

Sampling Location	Stack Inside Dimensions (in.)	Distance from Ne Downstream EPA "B" (in./dia.)	arest Disturbance Upstream EPA "A" (in./dia.)	Number of Traverse Points
ELPO 2 RTO 2 Inlet	27.5	77 / 2.8	56 / 2.0	Flow: 16 (8/port); Moisture: 1; Gaseous: 1
ELPO 2 RTO 2 Exhaust	34.0	180 / 5.3	56 / 1.6	Flow: 16 (8/port); Moisture: 1; Gaseous: 1
SEALER RTO Inlet	25.5	99 / 3.9	52 / 2.0	Flow: 16 (8/port); Moisture: 1; Gaseous: 1
SEALER RTO Exhaust	31.5	180 / 5.7	240 / 7.6	Flow: 16 (8/port); Moisture: 1; Gaseous: 1
TOPCOAT 1 RTO 1 Inlet	25.8	95 / 3.7	55 / 2.1	Flow: 16 (8/port); Moisture: 1; Gaseous: 1
TOPCOAT 1 RTO 1 Exhaust	30.0	180 / 6.0	240 / 8.0	Flow: 16 (8/port); Moisture: 1; Gaseous: 1
TOPCOAT 2 RTO 2 Inlet	25.5	96 / 3.8	55 / 2.2	Flow: 16 (8/port); Moisture: 1; Gaseous: 1

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TABLE 2-1 SAMPLING LOCATIONS (CONTINUED)

	Stack Inside	Distance from Ne	arest Disturbance	
Sampling Location	Dimensions (in.)	Downstream EPA "B" (in./dia.)	Upstream EPA "A" (in./dia.)	Number of Traverse Points
TOPCOAT 2 RTO 2 Exhaust	30.0	180 / 6.0	240 / 8.0	Flow: 16 (8/port); Moisture: 1; Gaseous: 1
SPRAY BOOTH RTO Inlet	66.0	370 / 5.6	310 / 4.7	Flow: 16 (8/port); Moisture: 1; Gaseous: 1
SPRAY BOOTH RTO Exhaust	67.0	540 / 8.1	660 / 9.9	Flow: 16 (8/port); Moisture: 1; Gaseous: 1

Sample locations were verified in the field to conform to EPA Method 1. Acceptable cyclonic flow conditions were confirmed prior to testing using EPA Method 1, Section 11.4. See Appendix A for more information.

#### 2.3 OPERATING CONDITIONS AND PROCESS DATA

Emission tests were performed while ELPO 2, SEALER, TOPCOAT 1, TOPCOAT 2, and SPRAYBOOTH, and their RTOs were operating normally.

Plant personnel were responsible for establishing the test conditions and collecting all applicable unit-operating data. The process data that was provided is presented in Appendix B.

### 3.0 SAMPLING AND ANALYTICAL PROCEDURES

#### 3.1 TEST METHODS

The test methods for this test program were presented previously in Table 1-1. Additional information regarding specific applications or modifications to standard procedures is presented below.

### 3.1.1 EPA Method 1, Sample and Velocity Traverses for Stationary Sources

EPA Method 1 is used to assure that representative measurements of volumetric flow rate are obtained by dividing the cross-section of the stack or duct into equal areas, and then locating a traverse point within each of the equal areas. Acceptable sample locations must be located at least two stack or duct equivalent diameters downstream from a flow disturbance and one-half equivalent diameter upstream from a flow disturbance.

# 3.1.2 EPA Method 2, Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)

EPA Method 2 is used to measure the gas velocity using an S-type pitot tube connected to a pressure measurement device, and to measure the gas temperature using a calibrated thermocouple connected to a thermocouple indicator. Typically, Type S (Stausscheibe) pitot tubes conforming to the geometric specifications in the test method are used, along with an inclined manometer. The measurements are made at traverse points specified by EPA Method 1.

The sampling system is detailed in Figure 3-1.

FIGURE 3-1 EPA METHOD 2 SAMPLING TRAIN

# 3.1.3 EPA Method 4, Determination of Moisture Content in Stack Gas

EPA Method 4 is a manual, non-isokinetic method used to measure the moisture content of gas streams. Gas is sampled at a constant sampling rate through a probe and impinger train. Moisture is removed using a series of pre-weighed impingers containing methodology-specific liquids and silica gel immersed in an ice water bath. The impingers are weighed after each run to determine the percent moisture.

The sampling system is detailed in Figure 3-2.

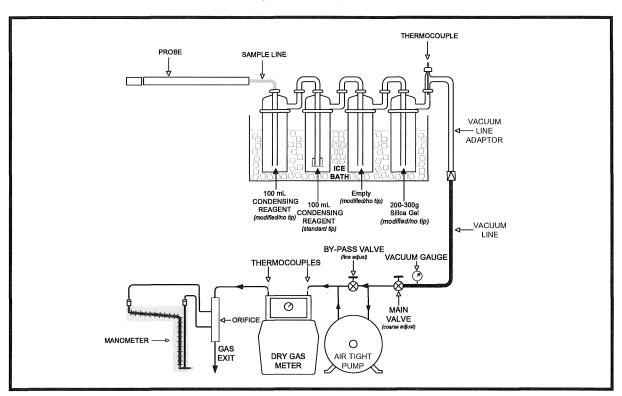


FIGURE 3-2
EPA METHOD 4 (DETACHED) SAMPLING TRAIN

# 3.1.4 EPA Method 25A, Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer

EPA Method 25A is an instrumental test method used to measure the concentration of THC in stack gas. A gas sample is extracted from the source through a heated sample line and glass fiber filter to a flame ionization analyzer (FIA) equipped with a nonmethane cutter. Results are reported as volume concentration equivalents of the calibration gas or as carbon equivalents.

The sampling system is detailed in Figure 3-3.

DATA DAS OUTPUT Exhaust VOC ANALYZER Sample / Calibration Gas WITH PUMP SIGNAL SAMPLE PROBE HEATED **FILTER** "BIAS"
ROTAMETER
WITH FLOW
CONTROL
VALVE CALIBRATION GAS LINE HEATED SAMPLE LINE EPA Protocol MASS FLOW CONTROLLER / Calibration Gases CALIBRATION GAS MANIFOLD

FIGURE 3-3
EPA METHOD 25A SAMPLING TRAIN

#### 3.2 PROCESS TEST METHODS

The test plan did not require that process samples be collected during this test program; therefore, no process sample data are presented in this test report.

General Motors LLC - Flint Assembly 2021 Compliance Emissions Test Report

#### 4.0 TEST DISCUSSION AND RESULTS

#### 4.1 FIELD TEST DEVIATIONS AND EXCEPTIONS

During Run 3 at the TOPCOAT 2 RTO 2 Inlet Duct the Method 25A for Methane (CH<sub>4</sub>) failed the post test drift check. As a result, the CH<sub>4</sub> concentration was assigned a value of zero at both the inlet and exhaust locations in determining emissions and RTO DE (Tables 4-7 and 4-8).

The Test Plan and EGLE approval letter for this test event called for EPA Method 3 and EPA Method 4 to be performed at all sampling locations. Instead, a dry molecular weight of 29.0 lb/lb-mole as per EPA Method 2, Section 8.6, was utilized at all sampling locations in lieu of EPA Method 3 and the wet-bulb/dry-bulb approximation technique as per EPA Method 4, Section 2.2.1, was utilized in estimating gas stream moisture content at all the inlet sampling locations in lieu of EPA Method 4.

#### 4.2 PRESENTATION OF RESULTS

The average results are displayed in Tables 1-2 through 1-6. The results of individual test runs performed are presented in Tables 4-1 through 4-10. Emissions are reported in units consistent with those in the applicable regulations or requirements. Additional information is included in the appendices as presented in the Table of Contents.

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TABLE 4-1 VOC EMISSIONS RESULTS -ELPO 2 RTO 2 INLET DUCT

Run Number	1	2	3	Average
Date	5/18/2021	5/18/2021	5/18/2021	
Time	9:32-10:32	11:13-12:13	12:32-13:32	
Flue Gas Parameters				
flue gas temperature, °F	355.5	356	357.25	356.25
approximate moisture content, % volume*	3.89	2.9	3.2	3.33
volumetric flow rate, scfm	11,750	11,558	11,641	11,650
VOC (TGO), as propane				
ppmvw	137.0	142.3	144.6	141.3
lb/hr	11.06	11.29	11.56	11.30

<sup>\*</sup> See Section 4.1 for details.

TABLE 4-2 VOC EMISSIONS AND RE RESULTS -ELPO 2 RTO EXHAUST STACK

Run Number	1	2	3	Average
Date	5/18/2021	5/18/2021	5/18/2021	
Time	9:32-10:32	11:13-12:13	12:32-13:32	
Process Data*				
RTO temperature, °F	1511.3	1513.4	1517.4	1514.0
Flue Gas Parameters				
flue gas temperature, °F	420.6	419.6	419.2	419.8
moisture content, % volume	6.98	4.48	4.68	5.38
volumetric flow rate, scfm	11,845	12,733	12,694	12,424
VOC (TGO), as propane				
ppmvw	4.71	5.19	5.32	5.07
lb/hr	0.38	0.45	0.46	0.43
VOC Destruction Efficiency (DI	Ξ)			
%	96.54	95.98	95.99	96.17

<sup>\*</sup> Process Data was provided by General Motors-Flint Assembly personnel.

TABLE 4-3 VOC EMISSIONS RESULTS -SEALER RTO INLET DUCT

Run Number	1	2	3	Average
Date	5/19/2021	5/19/2021	5/19/2021	
Time	8:26-9:26	10:34-11:34	11:55-14:00	
Flue Gas Parameters				
flue gas temperature, °F	310.19	311.31	310.31	310.60
approximate moisture content, % volume*	3.42	3.00	2.81	3.08
volumetric flow rate, scfm	10,264	10,213	10,273	10,250
TGO, as propane				
ppmvw	86.54	90.13	57.90	78.19
Methane, as propane				
ppmvw	0.68	0.66	0.44	0.59
VOC (TGNMO), as propane				
ppmvw	85.86	89.47	57.47	77.60
İb/hr	6.05	6.27	4.05	5.46

<sup>\*</sup> See Section 4.1 for details.

TABLE 4-4
VOC EMISSIONS AND DE RESULTS SEALER RTO EXHAUST STACK

Run Number	1	2	3	Average
Date	5/19/2021	5/19/2021	5/19/2021	
Time	8:26-9:26	10:34-11:34	11:55-14:00	
Process Data* RTO temperature, °F	1540.4	1540.3	1540.3	1540.3
Flue Gas Parameters				
flue gas temperature, °F	384.9	380.8	385.7	383.8
moisture content, % volume	5.36	4.08	3.59	4.34
volumetric flow rate, scfm	9,781	9,989	10,210	9,993
TGO, as propane				
ppmvw	2.02	2.85	2.29	2.38
Methane, as propane				
ppmvw	0.13	0.16	0.15	0.15
VOC (TGNMO), as propane				
ppmvw	1.9	2.7	2.1	2.2
lb/hr	0.13	0.18	0.15	0.15
VOC Destruction Efficiency (DE	=1			
VOC Destruction Efficiency (DE %	=) 97.90	97.06	96.31	97.09

<sup>\*</sup> Process Data was provided by General Motors-Flint Assembly personnel.

TABLE 4-5
VOC EMISSIONS RESULTS TOPCOAT 1 RTO 1 INLET DUCT

Run Number	1	2	3	Average
Date	5/19/2021	5/19/2021	5/19/2021	
Time	15:00-16:00	16:17-17:17	17:33-18:33	
Flue Gas Parameters				
flue gas temperature, °F	264.1	265.8	243.6	257.8
approximate moisture content, % volume*	2.63	2.37	2.37	2.46
volumetric flow rate, scfm	10,353	10,199	10,470	10,341
TGO, as propane				
ppmvw	123.2	153.5	103.6	126.8
Methane, as propane				
ppmvw	0.55	0.84	0.64	0.68
VOC (TGNMO), as propane				
ppmvw	122.6	152.7	103.0	126.1
İb/hr	8.72	10.69	7.40	8.94

<sup>\*</sup> See Section 4.1 for details.

TABLE 4-6
VOC EMISSIONS AND DE RESULTS TOPCOAT 1 RTO 1 EXHAUST STACK

Run Number	1	2	3	Average
Date	5/19/2021	5/19/2021	5/19/2021	
Time	15:00-16:00	16:17-17:17	17:33-18:33	
Process Data* RTO temperature, °F	1500.4	1500.3	1499.3	1500.0
Flue Gas Parameters				
flue gas temperature, °F	339.1	342.8	343.9	341.9
moisture content, % volume	3.90	2.92	3.01	3.28
volumetric flow rate, dscfm	10,161	10,508	10,574	10,415
TGO, as propane				
ppmvw	3.82	4.27	4.07	4.05
Methane, as propane				
ppmvw	0.37	0.40	0.39	0.39
VOC (TGNMO), as propane				
ppmvw	3.45	3.87	3.68	3.67
lb/hr	0.24	0.28	0.27	0.26
VOC Destruction Efficiency (D	E)			
%	<b>9</b> 7.23	97.39	96.39	97.01

<sup>\*</sup> Process Data was provided by General Motors-Flint Assembly personnel.

TABLE 4-7
VOC EMISSIONS RESULTS TOPCOAT 2 RTO 2 INLET DUCT

Run Number	1	2	3	Average
Date	5/20/2021	5/20/2021	5/20/2021	
Time	9:00-10:00	10:33-11:33	14:15-15:15	
Flue Gas Parameters				
flue gas temperature, °F	261.9	259.1	263.0	261.3
approximate moisture content, % volume	2.72	2.63	2.27	2.54
volumetric flow rate, scfm	9,967	10,112	9,926	10,001
TGO, as propane				
ppmvw	129.8	151.8	133.6	138.4
Methane, as propane				
ppmvw**	0.92	0.63	0.00	0.52
VOC (TGNMO), as propane				
ppmvw*	128.9	151.1	133.6	137.9
lb/hr*	8.82	10.49	9.11	9.47

<sup>\*</sup> See Section 4.1 for details.

<sup>\*\*</sup> Run 3 utilizes a methane concentration of zero in determining emissions. See Section 4.1 for details.

TABLE 4-8
VOC EMISSIONS AND DE RESULTS TOPCOAT 2 RTO 2 EXHAUST STACK

Run Number	1	2	3	Average
Date	5/20/2021	5/20/2021	5/20/2021	<b></b>
Time	9:00-10:00	10:33-11:33	14:15-15:15	
Process Data*				
RTO temperature, °F	1500.2	1500.5	1499.7	1500.1
Flue Gas Parameters				
flue gas temperature, °F	342.3	342.1	342.3	342.3
moisture content, % volume	3.91	3.49	2.80	3.40
volumetric flow rate, dscfm	10,379	10,303	10,343	10,342
TGO, as propane				
ppmvw	3.41	3.79	4.39	3.86
Methane, as propane				
ppmvw*	0.34	0.43	0.00	0.26
VOC (TGNMO), as propane				
ppmvw**	3.1	3.4	4.4	3.6
lb/hr**	0.22	0.24	0.31	0.26
VOC Destruction Efficiency (DE	≣)			
%	97.52	97.73	96.57	97.28

<sup>\*</sup> Process Data was provided by General Motors-Flint Assembly personnel.

<sup>\*\*</sup> Run 3 utilizes a methane concentration of zero in determining emissions. See Section 4.1 for details.

TABLE 4-9
VOC EMISSIONS RESULTS SPRAYBOOTH RTO INLET DUCT

Run Number	1	2	3	Average
Date	5/21/2021	5/21/2021	5/21/2021	
Time	9:22-10:22	10:38-11:38	11:50-12:50	
Flue Gas Parameters				
flue gas temperature, °F	98	97	99	98
approximate moisture content, % volume*	2.54	2.50	2.45	2.50
volumetric flow rate, scfm	65,462	65,986	66,325	65,924
VOC (TGO), as propane				
ppmvw	226.7	307.6	179.7	238.0
lb/hr	101.9	139.4	81.8	107.7

<sup>\*</sup> See Section 4.1 for details.

TABLE 4-10
VOC EMISSIONS AND DE RESULTS SPRAYBOOTH RTO EXHAUST STACK

Run Number	1	2	3	Average
Date	5/21/2021	5/21/2021	5/21/2021	
Time	9:22-10:22	10:38-11:38	11:50-12:50	
Process Data*				
RTO temperature, °F	1552.2	1552.2	1552.2	1552.2
Flue Gas Parameters				
flue gas temperature, °F	170.0	168.2	169.9	169.4
moisture content, % volume	2.87	2.55	3.04	2.82
volumetric flow rate, scfm	64,729	67,481	67,008	66,406
VOC (TGO), as propane				
ppmvw	11.0	12.3	8.5	10.6
lb/hr	4.9	5.7	3.9	4.8
VOC Destruction Efficiency (D	E)			
%	- <b>,</b> 95.19	95.90	95.19	95.43

<sup>\*</sup> Process Data was provided by General Motors-Flint Assembly personnel.

#### 5.0 INTERNAL QA/QC ACTIVITIES

#### 5.1 QA/QC AUDITS

The meter box and sampling trains performed within the requirements of the respective methods. The post-test leak check and minimum metered volume met the applicable QA/QC criteria.

EPA Method 25A FIA calibration audits were within the measurement system performance specifications for the calibration drift checks and calibration error checks except where noted.

An EPA Method 205 field evaluation of the calibration gas dilution system was conducted. The dilution accuracy and precision QA specifications were met.

#### 5.2 QA/QC DISCUSSION

During Run 3 at the TOPCOAT 2 RTO 2 Inlet Duct the Method 25A for Methane (CH<sub>4</sub>) failed the post test drift check. See Section 4.1 for details.

#### 5.3 QUALITY STATEMENT

Montrose is qualified to conduct this test program and has established a quality management system that led to accreditation with ASTM Standard D7036-04 (Standard Practice for Competence of Air Emission Testing Bodies). Montrose participates in annual functional assessments for conformance with D7036-04 which are conducted by the American Association for Laboratory Accreditation (A2LA). All testing performed by Montrose is supervised on site by at least one Qualified Individual (QI) as defined in D7036-04 Section 8.3.2. Data quality objectives for estimating measurement uncertainty within the documented limits in the test methods are met by using approved test protocols for each project as defined in D7036-04 Sections 7.2.1 and 12.10. Additional quality assurance information is included in the report appendices. The content of this report is modeled after the EPA Emission Measurement Center Guideline Document (GD-043).