FLINT ASSEMBLY
CAM PLAN DESCRIPTION - ELECTROCOAT PROCESS
Revision Date: November 21, 2022
Reviewed: November 25, 2024

I. BACKGROUND

A. Emissions Unit

Description: Prime coating operations are performed in an electrodeposition tank followed by a curing oven, oven canopy, cooler zone, and a dry filter scuff booth. Two Regenerative Thermal Oxidizers (RTO) control Volatile Organic Compound (VOC) emissions from the electrodeposition tank and curing oven.

Identification: EU-ECOAT

Facility: General Motors LLC - Flint Assembly
G-3100 Van Slyke Road
Flint, MI 48551

B. Applicable Regulation, Emissions Limit, and Monitoring Requirements

Permit No. MI-ROP-B1606-2020

Volatile Organic Compounds Emissions Limits, specified in FG-Paint & Assembly:

649.6 TPY, Rules 336.1205(1)(a) and (1)(b), 336.1702(a)
4.8 pounds per job, Rule 336.1702(a)

Monitoring Requirements: RTO combustion chamber temperature

Potential Pre-Control Emissions: 117.9 tons per year (TYP; EU-ECOAT only)

C. Control Technology

EU-ECOAT has two RTOs, each with minimum destruction efficiency of 95% or greater. Based on the April 2022, performance tests, the tested inlet flow rate was 11,109 and 12,423 scfm, for RTO 1 and 2, respectively.

II. MONITORING APPROACH

	Compliance Indicator: RTO Temperature
A. Indicator	RTO combustion temperature is measured with two thermocouples, one per combustion chamber. The average of the two readings is used for compliance with the minimum temperature required by the permit. The temperatures are monitored continuously and recorded at equally spaced intervals at least once every 15 minutes.
B. Indicator Range	The RTO temperature shall be at a minimum as determined by the most recent approved destruction efficiency test showing compliance with a minimum destruction efficiency of 95%. The minimum temperature determined during the May and July 2021 compliance test is 1515 degrees Fahrenheit (ºF) for ECOAT RTO 1 and 1511 ºF ECOAT RTO 2. These temperatures were reported in the test report submittal date June 8, 2022 (Doc. Number: MW023AS-014491-RT-1376).
C. Bypass System Detection	The permit flexible group, FG-Controls, condition no. VI. 5 requires bypass monitoring, during production, for each bypass valve such that the valve or closure method cannot be opened without creating an alarm condition for which a record shall be made.

III. PERFORMANCE CRITERIA

	Compliance Indicator: RTO Temperature
A. Data Representativeness	There is a thermocouple located in each combustion chamber.
B. Verification of Operational Status	NA - The system is not new and has not been modified.
C. QA/QC Practices & Criteria	Validation of thermocouple accuracy or recalibration of each thermocouple a minimum will occur once every 12 months. The thermocouple may be replaced in lieu of validation.
D. Monitoring Frequency	Continuous, and recorded at equally spaced intervals at least once every 15 minutes.
E. Data Collection Procedures and Averaging Period; and excursion determination	An electronic data file documents the average combustion temperature from the two thermocouples at least every 15 minutes during coating operations. Compliance with the minimum combustion temperature is based upon the average combustion temperature recorded every 15 minutes. Further, GM calculates three-hour averages of the combustion temperature when any one data point falls below the minimum required temperature, per EU-ECOAT, special condition no. IV.1. Excursion determinations will be performed based upon the EGLE CAM template requirements. The temperature monitoring excursion

	summary is shown below, based upon the April 30, 2019, template found on the ADQ EGLE website: a. A temperature excursion is defined as a confirmed three-hour period during which the average fails to meet the specified temperature requirements in special conditions. Note: the averaging time for a temperature excursion is 3 hours. b. A monitoring excursion is defined as a failure to properly monitor as required in special conditions. Upon confirming that an excursion has occurred, site personnel will document the excursion and initiate corrective action as soon as practical.

IV. JUSTIFICATION

A. Rational for Selection of Performance Indicators

The RTO combustion chamber temperature was selected because it is indicative of the VOC destruction occurring within the RTO and is a widely accepted method of monitoring. If the chamber temperature decreases significantly, then complete combustion may not occur, reducing the destruction efficiency. Therefore, the requirement to monitor temperature and maintain appropriate records is a justification for assuring VOC destruction efficiency. Temperature monitoring is specifically identified in the monitoring/recordkeeping requirements under the current ROP flexible group, FG-CONTROLS.

B. Rational for Selection of Indicator Ranges

The selected indicator is the minimum average combustion chamber temperature, as determined by the most recent approved destruction efficiency test showing compliance with a minimum destruction efficiency of 95%. This minimum temperature is specified in the current ROP under EU-ECOAT design/equipment parameters.

C. Performance Test

In April 2022, VOC Destruction Efficiency performance testing of both ELPO RTOs, was conducted. The destruction efficiency was 98.2% and 97.5% for RTO 1 and 2, respectively. This demonstrated compliance with the permit required minimum of 95 %. A copy of the performance tests (MW023AS-014491-RT-1376, prepared by Montrose Air Quality Services dated June 8, 2022, were sent to the District Supervisor and Technical Programs Unit on June 16, 2022.