



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604**

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Ford Motor Company, Chicago, Illinois

FROM: Victoria Nelson, Environmental Engineer
AECAB (MI/WI)

THRU: Sarah Marshall, Section Supervisor
AECAB (MI/WI)

TO: File

BASIC INFORMATION

Facility Name: Ford Motor Company (Ford)

Facility Location: 12600 South Torrence Avenue, Chicago, IL 60633

Date of Inspection: July 15, 2022

EPA Inspectors:

1. Victoria Nelson, Environmental Engineer
2. Emma Leeds, Environmental Engineer

Other Attendees:

1. Michael Polk, Plant Engineering Manager
2. Jacob Hoitsma, Environmental Engineer (by phone)
3. Bruce Platt, Maintenance Team Manager (tour)

Contact Email Address: Jacob Hoitsma - jhoitsm@ford.com

Purpose of Inspection: To investigate compliance with the Clean Air Act as part of the USEPA South Chicago Community Group Initiative

Facility Type: Automobile assembly plant

Regulations Central to Inspection: New Source Performance Standard (NSPS) Subpart MM: Automobile and Light Duty Truck Surface Coating Operations; National Emission Standards for

Hazardous Air Pollutants (NESHAP) Subpart IIII: Surface Coating of Automobiles and Light-Duty Trucks

Arrival Time: 10:00 AM

Departure Time: 2:15 PM

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☐ Provided Small Business Resource Information Sheet
- ☒ Small Business Resource Information Sheet not provided. Reason: Not a small business
- ☒ Provided CBI warning to facility

The following information was obtained verbally from Ford personnel unless otherwise noted.

Process Description:

Stamped white metal parts arrive at the body shop and are assembled to form car bodies. Formed bodies then move through a phosphorus dip tank to prepare the car body surfaces for coating, followed by an e-coat dip tank and e-coat oven. Next, paint sealer and deadener are applied to the car bodies, which then move through the sealer oven, prime coating spray booths and prime oven. Lastly in the paint process, car bodies move through the base and clear enamel spray booths followed by the topcoat ovens. After all coatings have been applied and cured, the vehicles move through spot repair done by hand, followed by glass installation, urethane windshield adhesive application, and any other necessary final steps before the finished vehicles are sent to dealers.

Two abatement systems, each consisting of a filtration system and two zeolite wheels and exhausting to the same regenerative thermal oxidizer (RTO), are used to concentrate and control volatile organic compound (VOC) emissions from portions of the coating process. Emissions from the prime coating spray booths and the topcoat spray booths exhaust to two separate systems of waterwash scrubbers, the two abatement systems, and finally to one of the RTOs. The e-coat dip tank also exhausts to one of the abatement systems which vents to an RTO. Emissions from the sealer oven are also routed to this RTO. A second RTO is used to control emissions from the e-coat oven, and a third RTO controls emissions from the prime oven. Emissions from the paint sealer and deadener application are not controlled and are emitted inside the building.

Staff Interview:

The facility operates 24/7 with 4,500 employees, aside from a weekly plant shut down from Saturday night to Sunday during the day. In 2019, the facility shut down for 30 days to replace all equipment in the body shop, allowing for increased production of different types of vehicles.

Certain equipment in the paint process was also updated at this time, and new abatement equipment was installed.

Ford performs a quality test on each new paint batch to determine VOC content and calculate emissions.

Breakthrough monitors are used to track VOC adsorption on the zeolite wheels and ensure compliance with a VOC permit limit of 10 parts per million (ppm) determined over a three-hour average. Zeolite wheels are tested on an annual basis and normally replaced every three to five years. Ford replaced their zeolite wheels in 2020 after receiving a violation notice from the Illinois Environmental Protection Agency (IEPA).

Seventy-two cars are currently coated at the facility per hour, compared to 70 cars coated per hour before the 2019 updates to the facility.

Coating oven temperatures range from 150 to 395 degrees Fahrenheit.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

EPA inspectors toured the building where Ford's coating operations are conducted and screened for hydrocarbon emissions using an optical gas imaging forward looking infra-red camera, or "FLIR." EPA inspectors observed odors and potential hydrocarbon emissions using the FLIR camera from the inlet and outlet of the e-coat oven and at an access door at the side of the e-coat oven.

Photos and/or Videos: were taken during the inspection.

Field Measurements: were not taken during this inspection.

RECORDS REVIEW

A process flow diagram including the abatement systems was used as a reference during the opening conference.

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents:

- Most recent stack test reports and associated Method 204 reports for each regenerative thermal oxidizer (RTO) and abatement system
- Process flow diagrams for the facility's operations, including the paint operations and the abatement systems

- Copy of the IEPA Violation Notice related to the VOC concentrator systems
- Copy of the Safety Data Sheet for the purge solvent used
- Emissions calculations for 2019 – 2021, including paint coating usage
- Three months of differential pressure measurements for each RTO inlet

DIGITAL SIGNATURES

Report Author: **VICTORIA NELSON** Digitally signed by
VICTORIA NELSON
Date: 2022.09.12
14:47:33 -05'00'

Section Supervisor: **SARAH MARSHALL** Digitally signed by
SARAH MARSHALL
Date: 2022.09.12
15:01:09 -05'00'

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APPENDICES AND ATTACHMENTS

1. Appendix A – Digital Image Log
2. Appendix B – FLIR Video Log

Facility Name: Ford Motor Company

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APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: Emma Leeds	2. Archival Record Location: USEPA Region 5 Electronic Record Center – “Enf_Ford_IL_22” folder
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Image Number	File Name	Date*	Description of Image
1	DC_0417	7/15/22	Open Zircobond tank

*Note: Photos collected during the inspection were taken between 12:15 and 1:30 PM Central Time.

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APPENDIX B: FLIR VIDEO LOG

1. Inspector Name: Emma Leeds	2. Archival Record Location: USEPA Region 5 Electronic Record Center – “Enf Ford IL 22” folder
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Video Number	File Name	Date*	Description of Image
1	MOV_0418	7/15/22	Inlet of e-coat oven
2	MOV_0419	7/15/22	Access point of e-coat oven
3	MOV_0420	7/15/22	E-coat oven outlet

*Note: FLIR Videos collected during the inspection were recorded between 12:15 and 1:30 PM Central Time.