Paint Solids Transfer Efficiency Test of Topcoat Operations

Fiat Chrysler Automobiles
Jefferson North Assembly Plant
2101 Conner Avenue
Detroit, Michigan

FIAT CHRYSLER AUTOMOBILES

Prepared for:

Fiat Chrysler Automobiles
Auburn Hills, Michigan

Bureau Veritas Project No. 11015-000048.00

July 1, 2015

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

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 (RO) Permit 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 described in General Condition No. 22 in the RO Permit and be made available to the Department of Environmental Quality, Air Quality Division upon request.

Source Name FCA US LLC - JNAP County Wayne

Source Address 2101 Conner Street City Detroit

AQD Source ID (SRN) N2155 RO Permit No. MI-ROP-B2155-2015 RO Permit Section No. ______

Please check the appropriate box(es):

☐ **Annual Compliance Certification (General Condition No. 28 and No. 29 of the RO Permit)**

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 RO Permit, 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 RO Permit.

☐ 2. During the entire reporting period this source was in compliance with all terms and conditions contained in the RO Permit, 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 RO Permit, unless otherwise indicated and described on the enclosed deviation report(s).

☐ **Semi-Annual (or More Frequent) Report Certification (General Condition No. 23 of the RO Permit)**

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

☐ 1. During the entire reporting period, ALL monitoring and associated recordkeeping requirements in the RO Permit 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 RO Permit 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 na To na

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

Paint solids transfer efficiency test report of the topcoat operations. Emissions data may be used to calculate monthly and annual VOC emissions. This form certifies that the testing was conducted in accordance with the test plan and the facility was operating in compliance with the permit.

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, and that any observed, documented or known instances of noncompliance have been reported as deviations, including situations where a different or no monitoring method is specified by the RO Permit.

Curt Towne	Plant Manager	313-956-7721
Name of Responsible Official (print or type)	Title	Phone Number

[signature] 7/1/15

Signature of Responsible Official Date

* Photocopy this form as needed.

EQP 5736 (8/99)

Executive Summary

Fiat Chrysler Automobiles retained Bureau Veritas North America, Inc. to conduct paint solids transfer efficiency (TE) testing of the topcoat coating operations at the Jefferson North Assembly Plant (JNAP) in Detroit, Michigan. Fiat Chrysler Automobiles operates a body shop, paint shop, and final assembly line to manufacture the Dodge Durango and Jeep Grand Cherokee vehicles at this facility. Fiat Chrysler Automobiles operates three topcoat paint booths identified as EU-Topcoat1, EU-Topcoat2, and EU-Topcoat3. The test program was performed from May 27 through 29, 2015. The testing measured the following parameters:

- Paint solids transfer efficiency (TE)—the percent of paint solids sprayed that deposit on the painted part. TE was measured when applying black metallic basecoat, standard clearcoat, and white solid basecoat in the EU-Topcoat3 line.

The results of the testing will be used to calculate emission factors that may be used in emissions reports. The testing program was conducted in accordance with applicable procedures in the U.S. Environmental Protection Agency document "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations" and Appendix A to Subpart IIII of 40 CFR 63, "Determination of Capture Efficiency of Automobile and Light-Duty Truck Spray Booth Emissions from Solvent-borne Coatings Using Panel Testing."

The results of the testing are summarized in the following table. Detailed results are presented in Table 1 after the Table tab of this report. Sample calculations and calculation spreadsheets are presented in Appendix B.

Paint Solids Transfer Efficiency Summary

Color Family	Result		
	Batch Vehicle Weight Gain (lb)	**Batch Solids Sprayed (lb)**	**Solids Transfer Efficiency (%)**
Metallic Basecoat – Black	5.05	7.20	**70.1**
Clearcoat – Standard	6.91	8.92	**77.5**
Solid Basecoat – White	9.62	12.74	**75.5**

1.0 Introduction

Fiat Chrysler Automobiles retained Bureau Veritas North America, Inc. to conduct paint solids transfer efficiency (TE) testing of the topcoat coating operations at the Jefferson North Assembly Plant (JNAP) in Detroit, Michigan. Fiat Chrysler Automobiles operates a body shop, paint shop, and final assembly line to manufacture the Dodge Durango and Jeep Grand Cherokee vehicles at this facility. Fiat Chrysler Automobiles operates three topcoat paint booths identified as EU-Topcoat1, EU-Topcoat2, and EU-Topcoat3. The test program was performed from May 27 through 29, 2015. The testing measured the following parameters:

- Paint solids transfer efficiency (TE)—the percent of paint solids sprayed that deposit on the painted part. TE was measured when applying black metallic basecoat, standard clearcoat, and white solid basecoat in the EU-Topcoat3 line.

The testing program was conducted in accordance with applicable procedures in the U.S. Environmental Protection Agency document "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations" and Appendix A to Subpart IIII of 40 CFR 63, "Determination of Capture Efficiency of Automobile and Light-Duty Truck Spray Booth Emissions from Solvent-borne Coatings Using Panel Testing."

1.1 Summary of Test Program

The topcoat paint process at JNAP is comprised of three topcoat paint lines in which basecoat and clearcoat are applied. Currently, coatings are applied to the Durango and Grand Cherokee production models. Based on production volume and surface area, the Grand Cherokee model was selected by Fiat Chrysler Automobiles for the testing program. Production or scrap vehicles on which an electrocoat corrosion inhibiting primer had been applied were used in the test program. The test program is summarized below.

EU-Topcoat3. Paint solids transfer efficiency testing was performed on May 27 through 29, 2015, following the procedures in Section 18, "Transfer Efficiency Test Procedure—In Plant" of the USEPA document, "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations." The procedure measures the weight of coating solids applied to vehicles.

The testing consisted of routing pre-weighed test and control vehicles through the EU-Topcoat3 spray booths and bake oven. Three color families were evaluated: metallic black basecoat, standard clearcoat, and solid white basecoat. After cured vehicles emerged from the oven, they were allowed to cool and re-weighed. Using the vehicle body weight gain, representing the weight of coatings applied and the weight of solids applied, the percent paint solids transfer efficiency was calculated.

Table 1-1 summarizes the sources, parameters, and test dates.

Table 1-1
Identification of Sources, Parameter, and Test Date

Source	Emission Unit	Parameter	Test Date	Coating Tested
Color 3	EU-Topcoat3	Paint solids TE	May 27 through 29, 2015	Metallic basecoat- black Clearcoat- standard Solid basecoat- white

TE = transfer efficiency

1.2 Purpose of Testing

The testing was performed to satisfy certain requirements within Michigan Department of Environmental Quality (MDEQ) Renewable Operating Permit MI-ROP-N2155-2010 due to installation of new paint applicators. The results of the testing will be used to calculate emission factors that may be used in emissions reports.

1.3 Contact Information

Mr. Dillon King, Consultant with Bureau Veritas, oversaw the environmental test program with the assistance of Mr. Jim Belanger, Manager with JLB Industries, Inc. Fiat Chrysler Automobiles personnel provided process coordination and recorded operating parameters. The testing was witnessed by Messrs. Thomas Maza and Robert Byrnes both with MDEQ. Contact information for these individuals is presented in Table 1-2.

Table 1-2
Contact Information

Facility	Emissions Testing Company
Fiat Chrysler Automobiles	Bureau Veritas North America, Inc.
Rohit Patel Air Compliance Manager 800 Chrysler Drive Auburn Hills, Michigan 48326 Telephone: 248.512.1599 Email: rohitkumar.patel@fcagroup.com	Dillon King, QSTI Consultant 22345 Roethel Drive Novi, Michigan 48375 Telephone 248.344.3002 Email: dillon.king@us.bureauveritas.com
Andrew Whitsitt Environmental Specialist 2101 Conner Avenue Detroit, Michigan 48215 Telephone: 313.956.8962 Email: andrew.whitsitt@fcagroup.com	Jim Belanger Manager – JLB Industries, Inc. 1232 Potomac Drive Rochester Hills, Michigan 48306 Telephone: 248.904.7027 Email: jim@jlbindustries.com
Michigan Department of Environmental Quality	
Thomas Maza Environmental Quality Analyst Air Quality Division-Detroit Office Cadillac Place, Suite 2-300 3058 West Grand Boulevard Detroit, Michigan 48202-6058 Telephone: 313.456.4709 Facsimile: 313.456.4692 Email: mazat@michigan.gov	Robert Byrnes Environmental Engineer Air Quality Division-Lansing District Office Constitution Hall 2th Floor, South Lansing, Michigan 48909 Telephone: 517.241.2182 Facsimile: 517.241.7462 Email: byrnesr@michigan.gov

2.0 Source and Sampling Locations

2.1 Process Description

The topcoat paint process at the JNAP facility is comprised of three topcoat paint lines in which basecoat and clearcoat coatings are applied. Currently, coatings are applied to the Durango and Grand Cherokee production models. The normal operating speed of each topcoat system is 13.8 feet per minute or approximately 30 jobs per hour. Refer to Figure 1 for the Color Booth 3 Process Map presenting the process flow, representative of the process flow at the three lines.

Paint is applied to vehicles automatically in booths. The topcoat line consists of one basecoat robot stop station, two basecoat electrostatic bells on robots stop stations, one basecoat fixed electrostatic bell zone, one basecoat recip electrostatic bells on robots stop station, basecoat flash zone, two clearcoat electrostatic bells on robots stop stations, clearcoat fixed electrostatic bells zone, a clearcoat flash tunnel, and bake oven. A summary of the spray gun applicator parameters is presented in Table 2-1. Calibration data for the applicators at the EU-Topcoat3 line is presented in Appendix D.

Table 2-1
EU-Topcoat3 Applicator Parameter Summary

Operation	Manufacturer	Applicator	Fluid Tip/Bell Size	Air Cap	Gun Voltage (kV)	RPM	Gun-to-Target Distance (inch)	Remarks
BC Robot	ABB	C3.5	1.4 mm	871	80	NA	10	
BC Bell on Robot	ITW	RMA 303	0.9 mm	NA	60	50,000	10-12	65-mm Bell
BC Fixed Bell	ITW	MMA 303	0.9 mm	NA	80	50,000	10-12	65-mm Bell
BC Recip Bell on Robot	ITW	RMA 303	1.6 mm	NA	70	50,000	12	65-mm Bell
CC Bell on Robot	ITW	RMA 303	1.6 mm	NA	80	40,000	10	65-mm Bell

Table 2-1
EU-Topcoat3 Applicator Parameter Summary

Operation	Manufacturer	Applicator	Fluid Tip/Bell Size	Air Cap	Gun Voltage (kV)	RPM	Gun-to-Target Distance (inch)	Remarks
CC Fixed Bell	ITW	MMA 303	1.6 mm	NA	80	40,000	10-12	65-mm Bell

mm = millimeter
in = inch
kV = kilovolts
RPM = revolutions per minute
BC = basecoat
CC = clearcoat

2.2 Control Equipment

The topcoat spray booths use a downdraft ventilation system and water wash system below the booth grating to control paint overspray. Captured spraybooth and basecoat flash zone VOC emissions are directed to a filter house, concentrator, and a thermal oxidizer for VOC abatement; VOC emissions from the oven are controlled by a second thermal oxidizer. The downdraft ventilation and water wash system, filters, carbon concentrators, and incinerators were not evaluated during this test program; however, they were in operating in a satisfactory manner.

2.3 Operating Parameters

Fiat Chrysler Automobiles, Bureau Veritas, and/or JLB Industries recorded the following operating parameters during the testing:

- Line speed
- Coating use
- Applicator information
- Oven temperature
- Spray booth temperature

The operating parameters recorded are summarized in Table 2-2 below and included in Appendix E.

Table 2-2
Operating Parameters

Source	Line Speed	Spray Booth Temperature (°F)	BC Flash Zone Temperature (°F)	Oven Temperature (°F)
EU-Topcoat3	13.8 fpm or 30 JPH	73-77	177	260-310

JPH: jobs per hour
fpm: feet per minute

2.4 Process Sampling Locations

Facility personnel collected three process samples of the coatings applied during the testing. The coatings were collected following procedures in USEPA's "Standard Procedure for Collection of Coating and Ink Samples for Analysis by Methods 24 and 24A."

The coatings were collected at the point of application into 4-ounce glass sampling jars with minimal headspace. The coating-as-applied samples were analyzed using USEPA Method 24 to measure percent VOC, percent solids, and density. The Method 24 coating analytical results are summarized in Table 2-3 and included in Appendix F.

Table 2-3
Method 24 Coating Analytical Results

Sample	Parameter						
	Date	% Non-volatile	% Volatile	Density		VOC	
				g/ml	lb/gal	g/L	lb/gal
Black BC	5/27/15	50.39	49.61	0.992	8.28	492.1	4.11
Clearcoat	5/28/15	55.85	44.15	1.034	8.63	456.6	3.81
White BC	5/29/15	61.97	38.03	1.263	10.32	470.1	3.92

BC = basecoat
VOC = volatile organic compound
g/ml = gram per milliliter
lb/gal = pound per gallon
g/L = gram per liter

3.0 Summary and Discussion of Results

3.1 Objectives and Test Matrix

The testing was performed to satisfy certain requirements within MDEQ Renewable Operating Permit MI-ROP-N2155-2010 due to installation of new paint applicators. The results of the testing will be used to calculate emission factors that may be used in emissions reports. The sources, parameters, processes, and test date are presented in Table 1-1.

3.2 Field Test Changes and Issues

Field test changes were communicated between Fiat Chrysler Automobiles, Bureau Veritas, JLB Industries, Inc., and MDEQ. Field test changes are presented in the following sections.

3.2.1 Metallic Black Basecoat Test Vehicle No. 3

During the metallic black basecoat transfer efficiency testing, test vehicle no. 3 was coated with basecoat and clearcoat in the spray booth. The clearcoat coating was inadvertently applied and voided the TE measurement for this test vehicle. After communication between Fiat Chrysler Automobiles, Bureau Veritas, JLB Industries, Inc., and MDEQ, it was decided one of the two designated control vehicles would be coated with metallic black basecoat only to provide three valid test vehicles for the metallic black color family. Although, one control (uncoated) vehicle was processed with the batch the vehicle batch weight was not adjusted because sealer weight loss was insignificant.

3.2.2 Solid White Basecoat Control Vehicle

During the solid white basecoat transfer efficiency testing, the designated control vehicle was released into the system; however, it was insufficiently tracked and did not return to the weigh station in a timely manner. After communication between Fiat Chrysler Automobiles and MDEQ, MDEQ approved processing the three test vehicles without a control vehicle. The pre- and post-weight data from the single control vehicle processed with the metallic black basecoat and clearcoat batches indicated sealer weight loss was insignificant. The TE measurements were not corrected based on the control vehicle data.

3.3 Presentation of Results

The results are summarized in Tables 3-1. Detailed test results are presented in Table 1 after the Tables tab of this report. Sample calculations and are presented in Appendix B with raw and computer generated field data sheets behind Appendix C and D. Facility operating data are included in Appendix E.

Table 3-1
Paint Solids Transfer Efficiency Summary

Process	Result		
	Batch Vehicle Weight Gain (lb)	**Batch Solids Sprayed (lb)**	**Solids Transfer Efficiency (%)**
Metallic Basecoat – Black	5.05	7.20	**70.1**
Clearcoat – Standard	6.91	8.92	**77.5**
Solid Basecoat – White	9.62	12.74	**75.5**

4.0 Sampling and Analytical Procedures

The testing program was conducted in accordance with applicable procedures contained in the USEPA document "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations" as referenced in 40 CFR 63, Subpart IIII. The parameters and analytical methods used during this test program are listed in Table 4-1.

Table 4-1
Sampling and Analytical Test Methods

Reference Method	Parameter	Analysis
Section 18, "Transfer Efficiency Test Procedure--In Plant" of the USEPA document, "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations."	Paint solids transfer efficiency	Gravimetric
ASTM D2369-10e1, "Standard Test Method for Volatile Content of Coatings," and D1475-98(2012), "Standard Test Method for Density of Liquid Coatings, Inks, and Related Products," incorporated by reference in EPA 24, "Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings."	Coating density, weight solids	Gravimetric
ASTM D7091-12, "Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals."	Film build	Electromagnetic induction

4.1 Test and Analytical Methods

Descriptions of the sampling methodology and analysis procedures are presented in the following sections.

4.1.1 Solids Transfer Efficiency

TE testing was conducted in accordance with the applicable procedures contained in Section 18 of the USEPA document "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations" as referenced in 40

CFR 63, Subpart IIII, "National Emission Standards for Hazardous Air Pollutants: Surface Coating of Automobiles and Light-Duty Trucks."

The TE was measured by comparing the weight gain of the test vehicle batch after (1) coating application and (2) curing to the weight of solids sprayed. For example, the vehicle weight gain measured after the solid basecoat application divided by the weight of the solid basecoat paint solids sprayed will yield an overall TE for solid basecoat. Coating material use was monitored using integrated robot or bell flow monitors. These devices measured material consumption in cubic centimeters (cc) on each applicator or at the corresponding gear pump. The summation of the coating applied through each applicator yielded the total volume of paint sprayed.

TE was measured by three separate tests for metallic basecoat, solid basecoat, and clearcoat. The measured TE values are considered representative of coatings applied in each coating group (i.e., white basecoat TE will be used as TE for the solid basecoats applied). As the process of each booth is identical, the TE values from the EU-Topcoat3 tested booth will apply to the EU-Topcoat1 and EU-Topcoat2 lines at the facility.

Each test involved coating three car bodies. A no-paint control vehicle was processed with the metallic black basecoat and clearcoat test batches. The vehicles were weighed before and after solids were applied. Figure 4-1 presents a photograph of the vehicle weigh station.

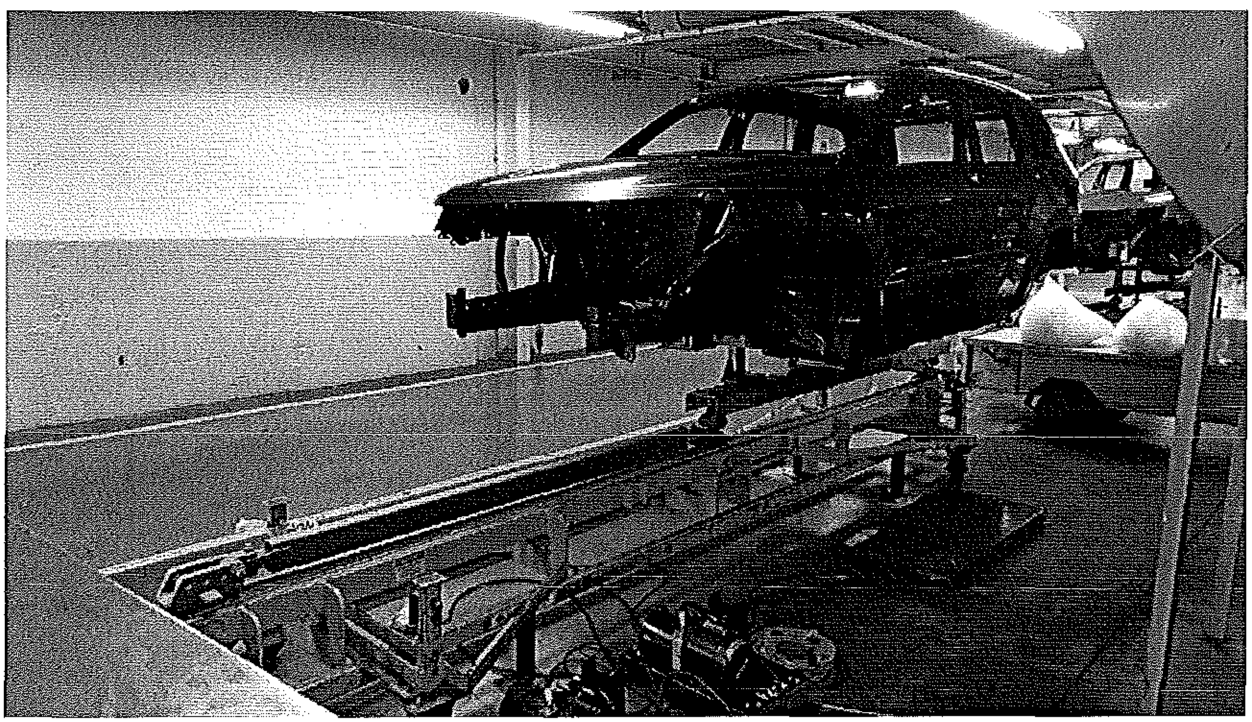

Figure 4-1. Paint Solids Transfer Efficiency Vehicle Weigh Station

Vehicles in the test were processed in the same manner as regular production vehicles and process data were recorded to evaluate that testing was conducted under normal booth conditions. The general test sequence for each TE measurement was:

- Configure vehicle weigh station (VWS) to achieve measurement accuracy to +/- 0.05 pounds.
- Pre-weigh batch of test vehicles and control vehicles.
- Load application equipment and route test vehicles to spray booth.
- Process test vehicles through spray booth as normal production vehicles.
- Record coating material usage
- Route test vehicles through bake oven.
- Allow test vehicles to cool and measure post-coating-weight to calculate weight gain attributable to coating solids applied.
- Obtain coating samples for laboratory analysis to measure coating density and weight solids fraction.

Solids in each coating sample were analyzed by ASTM D2369, incorporated by reference in EPA Method 24. Each coating sample was analyzed for density according to ASTM D1475, incorporated by reference in EPA Method 24.

4.1.2 Solids and Density Determination (USEPA Method 24)

Solids and density measurements followed USEPA Method 24, "Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings." The coating was collected following procedures in USEPA's "Standard Procedure for Collection of Coating and Ink Samples for Analysis by Methods 24 and 24A." Samples were collected at the point of application into a 4-ounce glass sampling jar with minimal headspace.

The coating-as-applied samples were analyzed following USEPA Method 24 procedures to measure the non-volatile and volatile content, density and VOC density. Laboratory results are included in Appendix F.

4.2 Procedures for Obtaining Process Data

Process data was recorded by Fiat Chrysler Automobiles personnel. The process data are summarized in Section 2.0 and included in Appendix E.

4.3 Sampling Identification and Custody

Detailed sampling and recovery procedures are described in Section 4.1. For each sample collected (i.e. coating), sample identification and custody procedures were completed as follows:

- Containers were sealed to prevent contamination.
- Containers were labeled with sample identification and date.
- Samples were logged using guidelines outlined in ASTM D4840-99 (Reapproved 2010), "Standard Guide for Sample Chain-of-Custody Procedures."
- Samples were delivered to the laboratory.

Chains of custody and laboratory analytical results are included in Appendix F.

5.0 QA/QC Activities

Equipment used in this environmental test program passed quality assurance/quality control (QA/QC) procedures. Refer to Appendix A for equipment calibration and inspection sheets.

5.1 Pretest QA/QC Activities

Before testing, the equipment was inspected and calibrated according to procedures outlined in the applicable procedures contained in the USEPA document "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations" as referenced in 40 CFR 63, Subpart IIII. Refer to Appendix A for inspection and calibration sheets.

5.2 QA/QC Audits

The results of select sampling and equipment QA/QC audits are presented in the following sections. Calibration measurements for scales are presented in Appendix A.

5.3 QA/QC Blanks

A no-paint control vehicle was run through process with the metallic black basecoat and clearcoat test batches to account for weight-loss attributable to sealers. The results of the control vehicles are presented in the Table 5-1.

Table 5-1
QA/QC Blanks

Vehicle Identification	Vehicle Weight Gain (lb)	Vehicle Batch	Comment
1855	-0.04	Metallic Black Basecoat	Control vehicles within testing tolerances, not used to adjust batch vehicle weight gain value
1855	-0.04	Clearcoat	

5.4 QA/QC Problems

No quality assurance/quality control problems were encountered during this test program.

Limitations

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This report prepared by: ______________________

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This report approved by: ______________________

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Health, Safety, and Environmental Services

____

Derek R. Wong, Ph.D., P.E.
Director and Vice President
Health, Safety, and Environmental Services

Table

Table 1

Paint Solids Transfer Efficiency Results

Fiat Chrysler Automobiles - Jefferson North Assembly Plant

Detroit, Michigan

Bureau Veritas Project No. 11015-000048.00

Date: May 27 through 29, 2015

Parameter	Units	Source
		EU-Topcoat3
Metallic Basecoat - Black		
Batch Vehicle Weight Gain	pounds	5.05
Batch Paint Sprayed	gallons	1.73
Coating Density	pounds per gallon	8.28
Weight Solids	percent	50.39
Batch Solids Sprayed	pounds	7.20
Solids Transfer Efficiency	percent	**70.1**
Clearcoat - Standard		
Batch Vehicle Weight Gain	pounds	6.91
Batch Paint Sprayed	gallons	1.85
Coating Density	pounds per gallon	8.63
Weight Solids	percent	55.85
Batch Solids Sprayed	pounds	8.92
Solids Transfer Efficiency	percent	**77.5**
Solid Basecoat - White		
Batch Vehicle Weight Gain	pounds	9.62
Batch Paint Sprayed	gallons	1.99
Coating Density	pounds per gallon	10.32
Weight Solids	percent	61.97
Batch Solids Sprayed	pounds	12.74
Solids Transfer Efficiency	percent	**75.5**