General Motors Lansing
Delta Township Assembly Plant

Environmental Testing Program

September/October 2016

Transfer Efficiency

Prepared By:

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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 Permit (ROP) 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 specified in Rule 213(3)(b)(ii), and be made available to the Department of Environmental Quality, Air Quality Division upon request.

Source Name: General Motors LLC Lansing Delta Township — County: Eaton

Source Address: 8175 Millett Highway — City: Lansing

AQD Source ID (SRN): N6950 — ROP No.: MI-ROP-N6950-2014 — ROP Section No.: 1

Please check the appropriate box(es):

☐ **Annual Compliance Certification (Pursuant to Rule 213(4)(c))**

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 ROP, 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 ROP.

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

☐ **Semi-Annual (or More Frequent) Report Certification (Pursuant to Rule 213(3)(c))**

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

☐ 1. During the entire reporting period, **ALL** monitoring and associated recordkeeping requirements in the ROP 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 ROP 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 _____ To _____

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

September/October 2016 Topcoat Transfer Efficiency Test Report

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

Marcos A. Purty	Plant Manager	517-721-3001
Name of Responsible Official (print or type)	Title	Phone Number
[signature]		11/15/2016
Signature of Responsible Official		Date

* Photocopy this form as needed.

EQP 5736 (Rev 11-04)

1.0 Executive Summary

JLB Industries, LLC completed a compliance environmental testing program during the week of September 26 and on October 13, 2016 at the General Motors LLC Lansing Delta Township Assembly Plant, located in Lansing, Michigan. The testing served as a compliance demonstration for the existing Topcoat (FG-Topcoat) coating operations. Solids transfer efficiency (TE) values were determined for the Solid Basecoat, Metallic Basecoat and Clearcoat processes. These processes are currently operating under Air Quality Permit #MI-ROP-N6950-2014.

The testing program was conducted in accordance with all applicable procedures contained 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* as referenced in 40 CFR, Part 63. The resultant test values will be used to calculate emissions.

Transfer Efficiency values were derived for the Chevrolet Traverse, which is representative of the current production at the facility. Personnel from the paint shop, GM environmental staff and JLB Industries, LLC conducted the testing. These groups worked together at each stage of testing to ensure that the results were representative of production conditions.

JLB Industries used highly accurate weighing systems to determine the vehicle weights before and after coating application. Calibrated volumetric flow meters, located on each applicator, were used to measure paint usage. Bob Byrnes of the *Michigan Department of Environmental Quality* was present for portions of the testing program.

Material samples were collected from the paint circulation tanks directly after vehicle processing. Determination of percent solids by weight and density was performed by BASF at their laboratory facilities in Southfield, Michigan.

Table 1 – Testing Results Summary

Material	Transfer Efficiency (%)
White Solid Basecoat	**70%**
Silver Metallic Basecoat	**78%**
Clearcoat	**66%**

2.0 Introduction

JLB Industries, LLC (JLBI) was contracted by the General Motors Delta Township Assembly Plant (GM) to perform an environmental testing program on the existing Topcoat coating operations. Solids transfer efficiency (TE) values were determined for the Solid Basecoat, Metallic Basecoat and Clearcoat processes. This testing was conducted using the Chevrolet Traverse model during the week of September 26 and on October 13, 2016.

3.0 Sampling and Analytical Procedures

Transfer Efficiency testing was conducted in the South Topcoat Spraybooth, where Summit White Solid Basecoat, Switchblade Silver Metallic Basecoat and Clearcoat coatings were applied by robotic applicators. Applicator and environmental conditions were monitored to ensure that the testing accurately reflected production conditions. Measured parameters included: vehicle weight gain, coating material usage, coating material analysis (percent solids by weight and density), applicator settings, film build and oven heat settings.

A total of five vehicle bodies were used for each tested process. Three vehicles were processed as normal production vehicles, while two were dedicated as no-paint test controls in conjunction with each test. Testing was performed with production vehicles.

An on-line vehicle weigh station (VWS) was constructed to measure the weight of the test vehicles before and after each coating process. Test vehicles were routed to the VWS after each process. Test vehicles were lifted free from their carriers by two lift-table mounted scale bases. Ultra-high molecular weight (UHMW) plastic blocks were strategically placed on the scale bases to lift the vehicle at the center of gravity locations. The UHMW blocks minimized friction loading from the vehicles on scale bases.

Vehicle weights were measured three times and recorded. All test vehicles were weighed with production fixtures (door hooks and hood props) installed. The vehicle weigh station scales were calibrated using Class F calibration weights conforming to the National Bureau of Standards handbook 105-1. A one-pound avoirdupois, Class F stainless steel weight was added periodically during pre- and post-process weighing to verify scale linearity.

Coating thickness was measured on a representative vehicle to verify paint film-build was within the production specification. The data was taken with an Elcometer gauge.

Robotic coating material usage was monitored via volumetric flow measurement devices located on each applicator. A verification of each applicator was performed before testing to ensure accurate usage measurement.

Switchblade Silver Metallic Basecoat

Primed test vehicles were weighed and processed through the South Topcoat Spraybooth and coated with Switchblade Silver Metallic Basecoat. The test sequence was:

1. Test Vehicle ID TE 1
2. Test Vehicle ID TE 2
3. Test Vehicle ID TE 3
4. Test Vehicle ID TE 4 (No-paint)
5. Test Vehicle ID TE 5 (No-paint)

Clearcoat

The test vehicles were weighed and processed through the South Topcoat Spraybooth and coated with Switchblade Silver Metallic Basecoat and Clearcoat. The Clearcoat transfer efficiency value was determined mathematically using the results from the Basecoat-only and Basecoat/Clearcoat composite tests. The test sequence was:

1. Test Vehicle ID TE 1
2. Test Vehicle ID TE 2
3. Test Vehicle ID TE 3
4. Test Vehicle ID TE 4 (No-paint) **Not included in test results due to mis-routing.
5. Test Vehicle ID TE 5 (No-paint)

The test vehicles were routed through the Topcoat Oven and allowed to cool before a final weight measurement was taken at the VWS.

White Solid Basecoat

Primed test vehicles were weighed and processed through the South Topcoat Spraybooth and coated with White Solid Basecoat. The test sequence was:

1. Test Vehicle ID TE 8
2. Test Vehicle ID TE 9
3. Test Vehicle ID TE 10
4. Test Vehicle ID TE 6 (No-paint)
5. Test Vehicle ID TE 7 (No-paint)

The test vehicles were routed through the Topcoat Oven and allowed to cool before a final weight measurement was taken at the VWS.

4.0 Test Equipment and Calibration

Vehicle Weigh Station

A dedicated vehicle weigh station (VWS) equipped with two 1,000 lb. capacity scale bases was used to obtain pre- and post-process vehicle weights. The VWS is accurate to better than 0.05 pounds.

The scales were calibrated as directed by the operating instruction manual. Scales were powered up and exercised by placing 250 pounds of Class F calibration weights on each scale platform. Then, the VWS was calibrated with 600 pounds of Class F calibration weights. VWS linearity was checked using a one-pound, Class F stainless steel calibration weight. The two-pound weight was also added to each test vehicle during pre- and post-process weighing to verify scale linearity.

Material Usage

Coating material usage was monitored by volumetric flow measurement devices located on each applicator. A verification of each applicator was performed by GM prior to testing to ensure accurate usage data. Paint usage was measured at each applicator in a graduated cylinder and compared to the expected volume. The Paint Metering Verification Record is included in Section 7 of this report.

A sample of each material was taken after each test and analyzed by BASF at their laboratory facilities in Southfield, Michigan. As referenced in EPA Method 24, ASTM Method D-2369 was used to determine paint solids and ASTM Method D-1475 was used to determine paint density. These values were used in calculating the paint solids sprayed and the transfer efficiency for each process.

5.0 Discussion of Test Results

The measured vehicle weight gains for each tested coating fell within ten percent of the average weight gain as specified by the protocol. The weight change associated with the no-paint control vehicles was used in calculating transfer efficiency values. During the clearcoat test, one of the control vehicles was not routed back to the vehicle weigh station and was unable to be post-weighed. The white basecoat test, originally scheduled for September 29, was postponed until October 13 due to an equipment breakdown in the tested spraybooth.

6.0 Calculation of Results

Table 2 - White Solid Basecoat Transfer Efficiency Summary
GM Lansing Delta Township Transfer Efficiency Test
September/October 2016

Vehicle ID	Vehicle Weight Gain (lb.)	Avg. Vehicle Weight Gain (lb.)	Avg. Paint Sprayed (gal)	Coating Density (lb/gal)	Weight Solids Fraction	Avg. Solids Sprayed	Transfer Efficiency (%)
Variable:	VWG	BVWG	BPS	CD	WSF	BSS	TE
Calculation:	(W2-W1)	(avg VWG)-SWL	(avg PS)	(Method 24)	(Method 24)	(BPS*CD*WSF)	(BVWG/BSS)
TE 8	1.90	1.83	0.686	9.906	0.3868	2.63	**70%**
TE 9	1.75						
TE 10	1.89						

Control Vehicle	SWL
TE 6	0.00
TE 7	0.02

Table 3 - Silver Metallic Basecoat Transfer Efficiency Summary
GM Lansing Delta Township Transfer Efficiency Test
September/October 2016

Vehicle ID	Vehicle Weight Gain (lb.)	Avg. Vehicle Weight Gain (lb.)	Avg. Paint Sprayed (gal)	Coating Density (lb/gal)	Weight Solids Fraction	Avg. Solids Sprayed	Transfer Efficiency (%)
Variable:	VWG	BVWG	BPS	CD	WSF	BSS	TE
Calculation:	(W2-W1)	(avg VWG)-SWL	(avg PS)	(Method 24)	(Method 24)	(BPS*CD*WSF)	(BVWG/BSS)
TE 1	0.75	0.91	0.550	8.750	0.2449	1.18	**78%**
TE 2	0.75						
TE 3	0.67						

Control Vehicle	SWL
TE 4	-0.18
TE 5	-0.20

Table 4 - Clearcoat Transfer Efficiency Summary
GM Lansing Delta Township Transfer Efficiency Test
September/October 2016

Vehicle ID	Vehicle Weight Gain (lb.)	Avg. Vehicle Weight Gain (lb.)	Avg. Paint Sprayed (gal)	Coating Density (lb/gal)	Weight Solids Fraction	Avg. Solids Sprayed (lb.)	Composite Transfer Efficiency (%)
Variable:	VWG	BVWG	BPS	CD	WSF	BSS	TE
Calculation:	(W2-W1)	(avg VWG)-SWL	(avg PS)	(Method 24)	(Method 24)	(BPS*CD*WSF)	(BVWG/BSS)
TE 1	3.23	3.35	0.805	8.706	0.5237	3.67	69%
TE 2	3.22		0.550	8.750	0.2449	1.18	
TE 3	3.32						
Control Vehicle	SWL					4.85	
TE 5	-0.09						
TE 4	**						

Note: The total solids sprayed (4.85) is the sum of the Clearcoat solids sprayed (3.67) and the Basecoat solids sprayed (1.18).
** Control vehicle TE 4 was mis-routed after process and no post-weight was taken.

Clearcoat Transfer Efficiency Calculation

Composite TE	$TE_{Composite} = TE_{BC}*SR_{BC}+TE_{CC}*SR_{CC}$	
BC Solid Ratio	$SR_{BC} = BSS_{BC}/BSS_{Total}$	0.243
CC Solid Ratio	$SR_{CC} = BSS_{CC}/BSS_{Total}$	0.757
BC TE	TE_{BC}	78%
Composite TE	$TE_{Composite}$	69%
Clearcoat TE	$TE_{CC} = [TE_{Composite} - (TE_{BC}*SR_{BC})]/SR_{CC}$	**66%**

Table 5 - Applicator Parameter Summary
GM Lansing Delta Township Transfer Efficiency Test
September/October 2016

Operation	Manufacturer	Applicator	Fluid Tip	Air Cap	Gun Voltage	RPM	Gun-to-Target Distance	Remarks
BC Interior	Fanuc	VersaBell 3	1.3 mm	N/A	40 kV	40,000	7-9 inches	
BC Exterior	Fanuc	VersaBell 3	1.3 mm	N/A	80 kV	50,000	10 inches	
CC Interior	Durr	EcoBell 2	1.3 mm	N/A	60 kV	45,000	7-9 inches	
CC Exterior	Durr	EcoBell 1	0.9 v/1.1 h	N/A	40-60 kV	55,000	10 inches	

Line Speed: 14.7 ft/min

Paint Metering Data Record
White Solid Basecoat
GM Lansing Delta Township Transfer Efficiency Test, September 26-29, 2016

Process	Applicator	Vehicle ID/Paint Sprayed (cc) 399	639	413
Zone 1	P1	217	217	217
	P2	217	217	217
	P3	--	--	--
	P4	--	--	--
	P5	212	212	212
	P6	212	212	212
Zone 2	2P1	232	232	232
	2P2	226	226	226
	2P3	211	211	211
	2P4	211	211	211
Zone 3	3P1	--	--	--
	3P2	--	--	--
	3P3	233	233	233
	3P4	--	--	--
	3P5	196	196	196
	3P6	233	233	233
	3P7	--	--	--
	3P8	195	196	196
	Total (cc):	2595	2596	2596
	Total (gal):	0.686	0.686	0.686

Avg. Paint Sprayed (gal): 0.686

Paint Metering Data Record
Silver Metallic Basecoat
GM Lansing Delta Township Transfer Efficiency Test, September 26-29, 2016

Process	Applicator	Vehicle ID/Paint Sprayed (cc) 436	447	629
Zone 1	P1	--	--	--
	P2	--	--	--
	P3	173	173	173
	P4	175	175	175
	P5	203	203	203
	P6	203	203	203
Zone 2	2P1	186	186	186
	2P2	180	180	180
	2P3	150	150	150
	2P4	149	150	150
Zone 3	3P1	--	--	--
	3P2	--	--	--
	3P3	188	188	188
	3P4	--	--	--
	3P5	143	143	143
	3P6	188	188	188
	3P7	--	--	--
	3P8	142	143	143
	Total (cc):	2080	2082	2082
	Total (gal):	0.550	0.550	0.550

Avg. Paint Sprayed (gal): 0.550

Paint Metering Data Record
Clearcoat
GM Lansing Delta Township Transfer Efficiency Test, September 26-29, 2016

Process	Applicator	Vehicle ID/Paint Sprayed (cc) 629	436	447
Interior	CR3	233	233	233
	CR4	240	240	240
	CR7	256	257	256
	CR8	246	246	246
Exterior	1.1	103	103	104
	2.1	86	85	86
	1.2	162	162	163
	2.2	150	150	150
	1.3	139	139	140
	2.3	154	154	154
	3.1	237	237	237
	3.2	250	250	251
	3.3	248	249	248
	3.4	259	259	259
	1.4	125	125	125
	2.4	142	142	142
	1.5	--	--	--
	2.5	15	14	15
	Total (cc):	3045	3045	3049
	Total (gal):	0.804	0.804	0.806

Avg. Paint Sprayed (gal): 0.805

BASECOAT ROBOTS FLOW RATE AUDIT

color 50

BOOTH: NORTH 5 SOUTH DATE: 8/31/16

COLOR: 5 system

Notes: 1.- Beakering Time MUST be Set for 30 seconds; Set Fill Cycle for 650 cc's.

2.- ALL Application Parameters MUST be Set Initially to ZERO.

3.- Only Robot(s) been Beakered MUST be Enabled; ALL Other Robots Must be Disabled.

4.- Follow Proper Lock-out Procedures Before Have Access to the Booth to Do Beakering.

☐ 6.- Check the Box if ANY Flow Rate Beakered(Volume Measured) is Found with a Deviation Greater Than +/- 10% to the Volume Requested, Contact Tech Support for Corrective Actions.

P2	Volume Requested	Actual Volume Measured
	150	75
	300	150

P4	Volume Requested	Actual Volume Measured
	150	75
	300	150

P6	Volume Requested	Actual Volume Measured
	150	75
	300	150

2P2	Volume Requested	Actual Volume Measured
	150	72
	300	150

2P4	Volume Requested	Actual Volume Measured
	150	75
	300	150

3P2	Volume Requested	Actual Volume Measured
	150	75
	300	145

3P6	Volume Requested	Actual Volume Measured
	150	75
	300	146

3P8	Volume Requested	Actual Volume Measured
	150	75
	300	150
	~~150~~	
	~~300~~	

P1	Volume Requested	Actual Volume Measured
	150	75
	300	150

P3	Volume Requested	Actual Volume Measured
	150	70
	300	150

P5	Volume Requested	Actual Volume Measured
	150	75
	300	150

2P1	Volume Requested	Actual Volume Measured
	150	75
	300	150

2P3	Volume Requested	Actual Volume Measured
	150	75
	300	150

3P1	Volume Requested	Actual Volume Measured
	150	~~80~~ 79 (repeat)
	300	147

3P3	Volume Requested	Actual Volume Measured
	150	80
	300	148

3P5	Volume Requested	Actual Volume Measured
	150	~~80~~ 79 (repeat)
	300	149

3P7	Volume Requested	Actual Volume Measured
	150	75
	300	150

CLEARCOAT BELLS FLOW RATE AUDIT

BOOTH: NORTH (SOUTH) DATE: 8/31/16

Notes: 1.- Beakering Time MUST be Set for **30 seconds.**
2.- ALL Application Parameters MUST be Set Initially to **ZERO.**
3.- Only Bell(s) been Beakered MUST be Enable; ALL Other Bells Must be Disabled.
4.- ALL Bells MUST be Locked Out Before Personel Have Access to the Booth to Do Beakering.
5.- ONLY MAIN AIR AND MCP POWER MUST REMAIN UNLOCKED TO ALLOW BEAKERING PROCESS.

☐ 6.- Check the Box if ANY Flow Rate Beakered(Volume Measured) is Found with a Deviation Greater Than +/- 10% to the Volume Requested, Contact Tech Support for Corrective Actions.

2.1	Volume Requested	Actual Volume Measured
	150	75
	300	140

2.2	Volume Requested	Actual Volume Measured
	150	75
	300	135

2.3	Volume Requested	Actual Volume Measured
	150	75
	300	140

2.4	Volume Requested	Actual Volume Measured
	150	75
	300	140

2.5	Volume Requested	Actual Volume Measured
	150	75
	300	140

3.3	Volume Requested	Actual Volume Measured
	150	80
	300	160

3.4	Volume Requested	Actual Volume Measured
	150	80
	300	160

1.1	Volume Requested	Actual Volume Measured
	150	75
	300	145

1.2	Volume Requested	Actual Volume Measured
	150	75
	300	145

1.3	Volume Requested	Actual Volume Measured
	150	75
	300	145

1.4	Volume Requested	Actual Volume Measured
	150	75
	300	140

1.5	Volume Requested	Actual Volume Measured
	150	75
	300	140

3.1	Volume Requested	Actual Volume Measured
	150	80
	300	150

3.2	Volume Requested	Actual Volume Measured
	150	80
	300	160

CLEARCOAT ROBOTS FLOW RATE AUDIT

BOOTH: NORTH (SOUTH) DATE: 8/31/16

Notes 1.- Beakering Time MUST be Set for **30 seconds.**
2.- ALL Application Parameters MUST be Set Initially to **ZERO.**
3.- Only Robot(s) been Beakered MUST be Enable; ALL Other Robots Must be Disabled.
4.- ALL Robots MUST be Locked Out Before Personel Have Access to the Booth to Do Beakering.
5.- ONLY MAIN AIR MUST REMAIN UNLOCKED TO ALLOW BEAKERING PROCESS.

☐ 6.- Check the Box if ANY Flow Rate Beakered(Volume Measured) is Found with a Deviation Greater Than +/- 10% to the Volume Requested, Contact Tech Support for Corrective Actions.

CR2	Volume Requested	Actual Volume Measured
	150	75
	300	150

CR4	Volume Requested	Actual Volume Measured
	150	70
	300	140

CR8	Volume Requested	Actual Volume Measured
	150	70
	300	140

CR1	Volume Requested	Actual Volume Measured
	150	75
	300	150

CR3	Volume Requested	Actual Volume Measured
	150	70
	300	140

CR7	Volume Requested	Actual Volume Measured
	150	75
	300	140

Vehicle Weigh Station Data Record
White Solid Basecoat
GM Lansing Delta Township Transfer Efficiency Test, October 13, 2016

Test Vehicle 1		**Pre-Weight (lb.)** *W1*	**Post-Weight (lb.)** *W2*
Carrier	399	1309.44	1311.34
VIN	TE 8	1309.47	1311.34
		1309.42	1311.36
One-Pound Linearity Check:		*1310.43*	*1312.34*
Average Vehicle Weight:		1309.44	1311.35
		Vehicle Weight Gain:	**1.90**

Test Vehicle 2		**Pre-Weight (lb.)** *W1*	**Post-Weight (lb.)** *W2*
Carrier	639	1309.65	1311.43
VIN	TE 9	1309.67	1311.41
		1309.67	1311.41
One-Pound Linearity Check:		*1310.67*	*1312.41*
Average Vehicle Weight:		1309.66	1311.42
		Vehicle Weight Gain:	**1.75**

Test Vehicle 3		**Pre-Weight (lb.)** *W1*	**Post-Weight (lb.)** *W2*
Carrier	413	1310.70	1312.62
VIN	TE 10	1310.73	1312.58
		1310.74	1312.63
One-Pound Linearity Check:		*1311.73*	*1313.63*
Average Vehicle Weight:		1310.72	1312.61
		Vehicle Weight Gain:	**1.89**

Vehicle Weigh Station Data Record
Solid Basecoat Control Vehicle
GM Lansing Delta Township Transfer Efficiency Test, October 13, 2016

Control Vehicle		Pre-Weight (lb.) *W1*	Post-Weight (lb.) *W2*
Carrier	415	1309.50	1309.54
VIN	TE 6	1309.54	1309.53
		1309.54	1309.52
One-Pound Linearity Check:		*1310.54*	*1310.52*
Average Vehicle Weight:		1309.53	1309.53
		Vehicle Weight Gain:	**0.00**

Control Vehicle		Pre-Weight (lb.) *W1*	Post-Weight (lb.) *W2*
Carrier	585	1309.26	1309.28
VIN	TE 7	1309.32	1309.34
		1309.29	1309.32
One-Pound Linearity Check:		*1310.29*	*1310.32*
Average Vehicle Weight:		1309.29	1309.31
		Vehicle Weight Gain:	**0.02**

Vehicle Weigh Station Data Record
Silver Metallic Basecoat
GM Lansing Delta Township Transfer Efficiency Test, September 26-29, 2016

Test Vehicle 1		**Pre-Weight (lb.)** *W1*	**Post-Weight (lb.)** *W2*
Carrier	436	1308.79	1309.51
VIN	TE 1	1308.80	1309.58
		1308.80	1309.55
One-Pound Linearity Check:		*1309.80*	*1310.56*
Average Vehicle Weight:		1308.80	1309.55
		Vehicle Weight Gain:	**0.75**

Test Vehicle 2		**Pre-Weight (lb.)** *W1*	**Post-Weight (lb.)** *W2*
Carrier	447	1307.82	1308.59
VIN	TE 2	1307.87	1308.60
		1307.88	1308.62
One-Pound Linearity Check:		*1308.87*	*1309.62*
Average Vehicle Weight:		1307.86	1308.60
		Vehicle Weight Gain:	**0.75**

Test Vehicle 3		**Pre-Weight (lb.)** *W1*	**Post-Weight (lb.)** *W2*
Carrier	629	1307.08	1307.72
VIN	TE 3	1307.05	1307.76
		1307.09	1307.74
One-Pound Linearity Check:		*1308.07*	*1308.74*
Average Vehicle Weight:		1307.07	1307.74
		Vehicle Weight Gain:	**0.67**

Vehicle Weigh Station Data Record
Metallic Basecoat Control Vehicle
GM Lansing Delta Township Transfer Efficiency Test, September 26-29, 2016

Control Vehicle		Pre-Weight (lb.) *W1*	Post-Weight (lb.) *W2*
Carrier	380	1309.43	1309.24
VIN	TE 4	1309.47	1309.28
		1309.49	1309.32
One-Pound Linearity Check:		*1310.49*	*1310.31*
Average Vehicle Weight:		1309.46	1309.28
Vehicle Weight Gain:			**-0.18**

Control Vehicle		Pre-Weight (lb.) *W1*	Post-Weight (lb.) *W2*
Carrier	637	1307.74	1307.59
VIN	TE 5	1307.82	1307.60
		1307.81	1307.57
One-Pound Linearity Check:		*1308.82*	*1308.58*
Average Vehicle Weight:		1307.79	1307.59
Vehicle Weight Gain:			**-0.20**

Vehicle Weigh Station Data Record
Clearcoat
GM Lansing Delta Township Transfer Efficiency Test, September 26-29, 2016

Test Vehicle 1		**Pre-Weight (lb.)** *W1*	**Post-Weight (lb.)** *W2*
Carrier	436	1309.51	1312.73
VIN	TE 1	1309.58	1312.80
		1309.55	1312.79
One-Pound Linearity Check:		*1310.56*	*1313.79*
Average Vehicle Weight:		1309.55	1312.77
		Vehicle Weight Gain:	**3.23**

Test Vehicle 2		**Pre-Weight (lb.)** *W1*	**Post-Weight (lb.)** *W2*
Carrier	447	1308.59	1311.79
VIN	TE 2	1308.60	1311.85
		1308.62	1311.84
One-Pound Linearity Check:		*1309.62*	*1312.83*
Average Vehicle Weight:		1308.60	1311.83
		Vehicle Weight Gain:	**3.22**

Test Vehicle 3		**Pre-Weight (lb.)** *W1*	**Post-Weight (lb.)** *W2*
Carrier	629	1307.72	1311.07
VIN	TE 3	1307.76	1311.08
		1307.74	1311.04
One-Pound Linearity Check:		*1308.74*	*1312.04*
Average Vehicle Weight:		1307.74	1311.06
		Vehicle Weight Gain:	**3.32**

Vehicle Weigh Station Data Record
Clearcoat Control Vehicle
GM Lansing Delta Township Transfer Efficiency Test, September 26-29, 2016

Control Vehicle		Pre-Weight (lb.) *W1*	Post-Weight (lb.) *W2*
Carrier	637	1307.59	1307.47
VIN	TE 5	1307.60	1307.51
		1307.57	1307.51
One-Pound Linearity Check:		*1308.58*	*1308.51*
Average Vehicle Weight:		1307.59	1307.50
Vehicle Weight Gain:			**-0.09**

Paint Analytical Data
GM Lansing Delta Township Transfer Efficiency Test, September 26-29 and October 13, 2016

Paint samples were taken from the circulation system each test day and sent for analysis by USEPA Method 24 to BASF laboratory.
BASF Corporation, 26701 Telegraph Rd. Southfield, MI , 48033, USA

Sample Code	Name	Density	%NV	% Solvent	% Water	VOC (Method 24)
E211AW628A	Switchblade Silver	8.750	24.49	12.94	62.57	1.13
E54WW310A	Summit White	9.906	38.68	15.17	46.15	1.50
R10CG062L	UreGloss CW	8.706	52.37	47.63		4.14