



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT MATERIALS TECHNOLOGY DETROIT - WARREN 11 MILE

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MECHANICAL

Valid To: December 31, 2026

Certificate Number: 0098.11

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory at the location above as well as the two satellite laboratory locations listed below to perform the following types of tests:

Mechanical Tests: Tensile/Elongation; Hardness (Durometer and Rockwell); Compression; Impact (Izod, Charpy, and GM9300P); Strength at Room and High Temperatures; Shear Strength; Physical Properties Following Fluid Exposure; Hoses and Tubing; Tear Strength Using Tongue, and Trapezoid Methods; Filler, Glass, Carbon Black Content; Volume Change; Specific Gravity and Density; Cleanability; Dimensional Stability; Water Absorption; Melt Flow/Index; Migration and Contact Staining; Flammability; Compression Set; Low-Temperature Brittleness; Deflection Temperature; On Plastics, Rubber, Elastomer, Composite, Paper/Paperboard, Construction Elements, and Textile Products.

Environmental Simulation Tests: Weatherometer (Xenon); Sunlamp and QUV Exposure; Fadometer; Ozone Resistance; Fogging; Salt Spray; CASS; Humidity; Condensing; Crocking; Water Immersion; Taber Abrasion; Gravelometer; Specular Gloss; Luminous Transmittance; Chromaticity; Color Reading; Corrodokote; Oil/Gas Immersion Solvent and Detergent Resistance; Thermal Shock; Paint Adhesion; Spot Test Acid/Water and Soap; Cleanability; Coating Thickness; Flexibility; Perspiration; Scrub Resistance; Dime Scrape; Cure Test; Thumbnail Hardness; Oven Aging; Scab Corrosion; Environmental Cycling; Accelerated Corrosion; Filiform Corrosion.

Environmental Chambers Testing: Temperature, Dust and Humidity Exposures are Performed during Durability Cycling Simulating Actual Environment; Microprocessors Control Chambers allowing Automatic Cycling and Tracking of Desired Time, Temperature and Humidity; Sizes up to 4m x 10m x 5m; Flow Measurement (Liquid and/or Gas); Hydraulic Pump Performance; Fan and Blower Delivery Capabilities, Radiator Heat Exchange Capacity, Heater Output; Stress Measurements; Pressure Testing; Durability Testing Mechanical/Electrical Cycling; Marine Products (Pumps/Motors/Electronics); Hydrostatic Leak Testing (up to 40,000 psi); Electrodynamical Vibration Systems: Generate Controlled Sine or Random Vibration, Sine-on Random Vibration Control, Transient Vibration Control, Mechanical Shock in Sawtooth, Half-sine and Squared Wave Forms, Field Data Replication, Operating or Non-Operating Mode Environments, High or Low Temperature and Humidity Conditions Can be Applied; Servohydraulic Test Systems: Control of Displacement, Force or Acceleration; Thermal Shock, Liquid and Air; Light Intensity; Sound; MAST, Pressure Cycling; Pressure-Vacuum Cycling; Temperature Cycling; Component Performance Testing; Performance Testing including Electrical Evaluation; Hydrostatic Burst Testing

Using the following capabilities:

(A2LA Cert. No. 0098.11 (Formerly 0038.01)) 02/26/25

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<u>Test Technology</u>	<u>Range</u>	<u>Reference Standard</u>
Combined Environments:	(-77 to 177) °C; (20 to 95) % RH	MIL-STD-810 (Method 514 Procedure I)
Dimensional	(0.00015 to 36.000) in	WSS-M15P4
Force	(0.01 to 22,000) lbf	GMW3172
Humidity	(5 to 98) % RH	MIL-STD-810
Liquid Flow	0.01 cc/min to 35 gpm	GM10004C
MAST: Multi Axial Simulation Table ¹	(1 to 50) Hz 6 Degrees of Freedom +/- Three Axis in all Axis Linear Displacement 2.95 (+/-) Angular Displacement roll 6.8° Pitch and Yaw 8.5° Linear Acceleration at max payload Vertical: 5 g's, Lateral 3 g's, Longitudinal: 2.4 g's Max Payload 1000 lbs 4'x 6' to 6'x 8' Table Size	MAST USC.13324.200X 433132 (Per Customer Specification)
Pressure	(0.008 to 45,000) psi	ESDS7H-19B591-AA
Pulse Pressure	Up to 1000 PSIG, Up to 20 Hz	GMW14139
Servohydraulic Frequencies	Up to 50 Hz	MIL-STD-810 (Method 514 Procedure I)
Servohydraulic Load Capacity	Up to 150,000 lbf	MIL-STD-810 (Method 514 Procedure I)
Servohydraulic Stroke	Up to 50 inches	MIL-STD-810 (Method 514 Procedure I)
Temperature	(-100 to 650) °C	GMW14124
Torque	1 oz·in to 80,000 lbf·in	GMW15607
Vacuum	(0.008 to 29.98) in Hg	IEC 60068-2-13
Vibration:		
Displacement	2 in Peak to Peak	MIL-STD-810 (Method 514 Procedure I)
Load/Impact Velocity	1/2 SINE up to 1 ms to 35 m/s at Terminal Peak	MIL-STD-810 (Method 514 Procedure I)
Mechanical Shock Capacity	Up to 3,500 g	MIL-STD-810 (Method 514 Procedure I)
Vibration Acceleration	Up to 100 g	MIL-STD-810 (Method 514 Procedure I)
Vibration Frequencies	(3 to 2,700) Hz	MIL-STD-810 (Method 514 Procedure I)
Vibration Load Capacity	Up to 22,000 lbf	MIL-STD-810 (Method 514 Procedure I)

Also using customer specific test methods utilizing any combination of test equipment parameters listed above and the following tests and standards:

Test Method**Test Technology****Abrasion**

ASTM D4157
GMW15487
NES M0136 Method 1
SAE J948

Abrasion Resistance of Textiles, Wyzenbeek
Resistance to Abrasion of Organic Coating
Abrasion Resistance
Resistance to Abrasion

Martindale Abrasion

ASTM D4966
ASTM D4970

Abrasion Resistance of Textile Fabrics
Pilling Resistance and Other Related Surface Changes of Textile
Fabrics: Martindale Tester
Seam Fatigue for Automobile Textiles
Determination of Fabric Propensity to Surface Fuzzing and to Pilling,
Modified Martindale Method
Abrasion Resistance of Fabrics by the Martindale Method
Abrasion Resistance of Fabrics by the Martindale Method – Specimen
Breakdown
Abrasion Resistance of Fabrics by the Martindale Method – Mass Loss
Abrasion Resistance of Fabrics by the Martindale Method –
Assessment of Appearance Change

Taber Abrasion

ASTM C501
ASTM D3389
ASTM D3884
ASTM D4060
FLTM BN 108-02
FLTM BN 108-04
SAE J1530
SAE J1847
SAE J365

Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber
Abraser
Coated Fabrics Abrasion Resistance (Rotary Platform, Double-Head
Abrader)
Abrasion Resistance of Textiles, Taber
Taber Abrasion, Organic Coatings
Abrasion-Taber
Scuffing
Resistance to Abrasion, Bearding, and Fiber Loss of Carpet, Taber
Taber Abrasion
Scuffing Resistance, Taber

Adhesion

ASTM B571
ASTM D3359
ASTM D952
GMW14829
GMW14892

Qualitative Adhesion Testing of Metallic Coatings (Except Draw and
Push tests)
Adhesion Tape Test
Bond of Cohesive Strength of Sheet Plastics and Electrical Insulation
Tape Adhesion Test for Paint Finishes
Adhesion

Brittleness

Chrysler LP-463LB-11-01
Chrysler LP-463DD-07-01

Resistance to Cold Cracking of General Trim Materials

Charpy

ISO 179-1

Charpy Impact Properties, Non-Instrumented Impact Test

Test Method**Test Technology****Chemical Resistance**

AATCC TM 104	Spot Test Water
AATCC TM 15	Perspiration
AATCC TM 6	Spot Test Acid
ASTM D1308	Effect of Household Chemicals on Clear and Pigmented Organic Finishes
ASTM D4752	Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub
ASTM D1693	Environmental Stress Cracking
ASTM D471	Rubber Property-Effect of Liquids
ASTM D543	Resistance of Plastics to Chemical Reagents
ASTM D925 Method A	Staining of Surfaces (Contact/Migration/Diffusion)
ASTM F146	Fluid Resistance of Gasket Materials
Chrysler LP-463PB-31-01	Resistance to Various Fluids
Chrysler LP-463PB-57-03	Automotive Fluids Staining of Plastics
FLTM AN 101-01	Resistance of Textiles to Bleeding, Perspiration and Water Spotting
FLTM BI 113-01	Spot Test Water and Soap
FLTM BI 113-02	Spot Test Acid
FLTM BI 113-05	Acid Spotting of Painted Test Panels or Actual Finished Parts
FLTM BI 113-07	Resistance to Synthetic Perspiration Staining
FLTM BI 152-01	Resistance of Paint Films to Solvents
FLTM BN 103-01	Resistance of Coated Fabrics and Plastic Film to Migration Staining and Blocking
FLTM BN 112-08	Soiling & Cleanability Test for Interior Trim Materials
GMW14102	Determination of Water Spotting Test
GMW14141	Dye Migration
GMW14333	Fuel Resistance of Automotive Exterior Materials and Components
GMW14334	Chemical Resistance to Fluids
GMW14444	Material Related Interior Part Performance
GMW14445	Sunscreen and Insect Repellent Resistance
GMW14864	Procedure for Determining the Staining of Trim Materials Due to Sulfur Dioxide, SO ₂ , and Hydrogen Sulfide, H ₂ S
GMW14701	Resistance of Coatings to Chemical Etching and Distortion
GMW16625	Preparation of Acid Rain Solution
GMW3402	Soil and Cleaner Resistance of Automotive Materials
NES M0133 Method 2 & 3	Chemical Resistance Test Methods
Nissan 28401NDS01 [10] Section CH/11	Resistance to Calcium Chloride
<u>Color</u>	
ASTM D1003	Haze and Luminous Transmittance
ASTM D2244	Calculation of Color Differences from Instrumentally Measured Color Coordinates
SAE J1545	Delta-E Value (Color Measurement)

Test Method**Test Technology****Compression**

ASTM D1056	Compression Force
ASTM D1229	Compression Set at Low Temperatures
ASTM D1621	Compressive Properties of Rigid Cellular Plastics
ASTM D395	Rubber Property-Compression Set (Method B)
ASTM D575	Rubber Properties in Compression
ASTM D695	Compressive Properties of Rigid Plastics
ASTM F36	Compressibility and Recovery of Gasket Materials
ISO 3386-2	Flexible Cellular Polymeric Materials – Determination of Stress-Strain Characteristics in Compression
ISO 815	Determination of Compression Set of Thermoplastic/Vulcanized Rubber at Ambient, Elevated, or Low Level Temperatures

Salt Spray

ASTM B117	Operating Salt Spray (Fog) Apparatus
ASTM G85	Corrosion Testing
DIN 50021 (Withdrawn 06/88)	Salt Spray (SS only)
GM4298P (Inactive 12/10)	Salt Spray Test
GMW3286	Neutral Salt Spray
ISO 9227	Corrosion Testing, Salt Spray
RTCA DO-160 Section 14.0	Environmental Conditions/Test Procedures for Airborne Equipment: Salt Spray

Crocking

AATCC TM 8	Crocking, Dry and Wet
FLTM BN 107-01	Crocking, Dry and Wet
SAE J861	Crocking

Density

ASTM D1622	Apparent Density of Rigid Cellular Plastics
ASTM D3776	Mass Per Unit Area (Weight) of Fabric
ASTM D792	Density Method A
GMW3182	Determination of Mass per Area
ISO 1183-1	Determining the Density of Non-Cellular Plastics Using Immersion Method
ISO 845	Cellular Plastics and Rubbers – Determination in Apparent Density (Bulk)

Dimensional

ASTM D1777	Thickness of Textile Materials
ASTM D5729	Standard Test Method for Thickness of Nonwoven Fabrics
ASTM D7091	Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals
FLTM BI 117-01	Coating Thickness
ISO 5084	Determination of Thickness of Textiles and Textile Products
SAE J882	Thickness of Textile Materials

Test Method**Test Technology**

SAE J883

Dimensional Stability of Automotive Textiles

Environmental Exposure

IEC 60068-2-78

Test Cab: Damp Heat, Steady State

ISO 22088-3

Determination of Resistance to Environmental Stress Cracking (ESC)

MIL-STD-810C/D/E/F/G
(Sections 500-503, 507,
512-514, 516, 520, 524,
528 only)

Environmental Test Methods and Engineering Guidelines

NES M0153

Moisture Resistance Test Method

SAE J323

Cold Cracking of Flexible Plastic Materials

ISO 4892-3

Plastics - Methods of exposure to laboratory light sources

Fabric, Leather, and Other Textiles

ASTM D1117

Evaluating Non-woven Fabrics

ASTM D751

Coated Fabrics (except Bursting Strength, Hydrostatic Pressure,
Adhesion Coating, Strength of Coating, Crack Resistance, and Crush
Resistance)

FLTM BN 106-02

Seam Fatigue Testing

GMW3211

Resistance to Stretch and Set

ISO 13937-2

Tear Properties of Fabrics

SAE J913

Wicking

SAE J855

Stretch and Set

Fatigue

ASTM D6182

Flexibility and Adhesion of Finish on Leather

Flexural

ASTM D790

Flexural Properties of Unreinforced and Reinforced Plastics and
Electrical Insulating Materials

ISO 178

Determination of Flexural Properties

SAE J949

Stiffness (Modulus of Bending)

Foams and Flexible Cellular Materials

ASTM D1667

Flexible Cellular Materials-Vinyl Chloride Polymers and Copolymers

ASTM D3574

Test Methods for Flexible Cellular Materials (except Test G, I2, I3, I4,
I5)

ASTM D3575

Test Methods for Flexible Cellular Materials Made from Olefin
(except Sections 34-35, 45-46, 49-50, 66-67)**Fogging**

GMW3235

Fogging

SAE J1756

Fogging Characteristics of Interior Automotive Materials

Toyota TSM0503G

Fogging Test Method for Non-Metallic Materials

Gloss

ASTM D523

Specular Gloss

FLTM BI 110-01

Specular Gloss

JIS Z 8741

Specular Glossiness Methods of Measurement

Test Method**Test Technology****Handling Drop/Free Fall**

GMW3172 section 9.3.10

General Specification for Electrical/Electronic Components -
Environmental/Durability

ISO 16750-3 section 4.3

Mechanical Loads

HardnessASTM D2240, Shore A
and D

Durometer Hardness

ASTM D3363

Film Hardness by Pencil Test

ISO 868

Plastic and Ebonite – Determination of Indentation Hardness by Means
of a Durometer (Shore Hardness)**Heat**

ASTM D2584

Ignition Loss of Cured Reinforced Resins

ASTM D3012

Thermal-Oxidative Stability of Propylene Plastics Using a Specimen
Rotator Within an Oven

ASTM D3769

Heat Sag

ASTM D518

Rubber Deterioration-Surface Cracking

ASTM D573

Rubber-Deterioration in an Air Oven

ISO 188

Rubber, Vulcanized Thermoplastic-Accelerated Aging and Heat
Resistance Test

ISO 3451-1

Determination of Ash

SAE J912

Blocking Resistance

Hoses and Hard/Soft Lines

ASTM D380

Method for Rubber Hose (except Sections 12-13)

GMW14319 Section 4.3.20
(pressure cycling) only

Air Conditioning Hose and Coupling Assemblies R134a and R1234yf

GMW14329 (Sections 4.3,
4.5, and 4.6)

Performance Testing of Heater and Coolant Hoses

GMW15724 (Section 4.3.8
(PDT) only)

Transmission and Engine Oil Cooler Plumbing System

PF 90080 (Sections 9.3.1
and 9.3.2 only)

Coolant Hoses and Plumbing Assemblies

Humidity & Water Resistance

ASTM D870

Testing Water Resistance of Coatings Using Water Immersion

ASTM D1735

Standard Practice for Testing Water Resistance of Coatings Using
Water Fog Apparatus**Impact**

ASTM D5420

Gardner Impact

GMW16746

Evaluating Brittleness of Painted Plastics

SAE J400

Chip Resistance of Surface Coatings

Izod

ASTM D1822

Tensile Impact

ASTM D256

Izod Pendulum Impact Resistance of Plastics

ASTM D4812

Unnotched Cantilever Beam Impact Strength of Plastics

ISO 180

Plastics – Determination of Izod Impact Strength

Test Method**Test Technology****Melt Flow**

ASTM D1238

Melt Index (Flow Rate)

ISO 1133-1

Plastics – Determination of the Melt Mass-Flow Rate (MFR) and the Melt Volume-Flow Rate (MVR)

Odor

FLTM BO 131-03

Interior Odor Test

GMW3205

Test Method for Determining the Resistance to Odor Propagation of Interior Materials

GMW3259

Determination of Resistance to Mildew Growth

SAE J1351

Hot Odor Test for Insulation Materials

VDA 270

Determination of the Odor Characteristics

VW PV3900

Odor Test

Ozone

ASTM D1149

Rubber Deterioration Surface Ozone Cracking in a Chamber (Method B only)

28400NDS26

Exposure Only

Peel

ASTM D1000

Unwind Pull (Method B only)

ASTM D3330

Peel Adhesion of Pressure Sensitive Tape

ASTM D903

Peel or Stripping Strength of Adhesive Bonds

PSTC 101

Non-ASTM Peel

Protection against Dust, Sand, Water, or Foreign Object Ingress

DIN 40050-9 (Withdrawn 1993)

Protection Against Foreign Objects; Water and Contact; Electrical Equipment (IP5KX, IP6KX, IPX1 through IPX4, IPX4K, IPX5, IPX6, IPX6K, IPX7, IPX8, IPX9K only)

IEC 60068-2-68

Dust and Sand (except LA1 and LC1)

IEC 60529

Degrees of protection provided by enclosures (IP code) (IP5X, IP6X, IPX1 through IPX9 only)

ISO 20653

Road Vehicles – Degrees of Protection (IP-Code) – Protection Against Foreign Objects, Water and Access – Electrical Equipment (IP5KX, IP6KX, IPX1 through IPX4, IPX4K, IPX5, IPX6, IPX6K, IPX7, IPX8, IPX9K only)

JIS D 0203 (R2, S1, S2)

Moisture, Rain and Spray Test for Automobile Parts

JIS D 0207

Dust Test for Automobile Parts (F-Type Only)

Scratch

FLTM BN 108-13

Scratch Test

GMW14130

Scuff and Mar Resistance

GMW14688

Resistance to Scratching

GMW14698 Method B

Scratch Resistance of Organic Coatings and Self-Adhesive Foils

Chrysler LP-463DD-18-01

Scratch and Mar Resistance of Automotive Plastics

Tear

ASTM D1004

Initial Tear Resistance of Plastic Film and Sheeting

ASTM D2261

Tongue Tear

Test Method

ASTM D5587
ASTM D5733
ASTM D624

GMW3326
GMW3387
ISO 34-1

Tensile

ASTM D1894
ASTM D3163
ASTM D412
ASTM D5034
ASTM D5035
ASTM D638
ASTM D882
ASTM E132
ASTM F152
ISO 1798

ISO 37

ISO 527-1

ISO 527-2

ISO 527-3

ISO 527-4

ISO 527-5

ISO 8295

SAE J2044

Thermal Cycle

GMW14124
VW PV1200
Ford CETP 00.00.E-412
FCA CS.00056
ISO 16750-4 section 5.4

Vibration

IEC 60068-2-27
IEC 60068-2-64
JIS D 1601

Test Technology

Tearing Strength of Fabrics by the Trapezoid Procedure
Tearing Strength of Nonwoven Fabrics by the Trapezoid Procedure
Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomer
Tearing Strength of Textile Materials by Trapezoid Method
Fiber Degradation of Automotive Textiles
Determination of Tear Strength of Thermoplastic/Vulcanized Rubber Using Trouser, Angle and Crescent Pieces

Static and Kinetic Coefficients of Friction of Plastic Film and Sheet
Strength of Adhesive Bonded Rigid Lap Shear Joints
Tensile Properties, Vulcanized Rubber and Thermoplastics Elastomers
Tensile Strength
Breaking Strength, Textile Fabrics, Strip Method
Tensile Properties of Plastics (Including Poisson's Ratio)
Tensile Properties Thin Plastic Sheet
Poisson's Ratio
Tension Testing of Nonmetallic Gasket Materials
Flexible Cellular Polymeric Materials- Determination of Tensile Strength and Elongation at Break
Determination of Tensile Stress/Strain Properties of Thermoplastic/Vulcanized Rubber
Tensile Properties Part 1 General Principles
Tensile Properties Part 2 Test Conditions for Molding and Extrusion Plastic
Tensile Properties Part 3 Film, Sheets
Tensile Properties Part 4 Isotropic and Orthotropic Fiber-Reinforced Plastics
Tensile Properties Part 5 Test Conditions for Unidirectional Fiber-Reinforced Plastics
Coefficient of Friction
Quick Connector Specification for Liquid Fuel and Vapor/Emissions Systems

Automotive Environmental Cycles
Resistance to Environmental Cycle Test (80 to -40) °C
Sections 6.4.5.1-6.4.5.8
Sections 5.3.1-5.3.7
Temperature Shock with Splash Water

Shock
Vibration, broadband random and guidance
Vibration Testing Methods for Automobile Parts

Test Method**Test Technology****Vicat and HDT/DTUL**

ASTM D1525	Vicat Softening Temperature of Plastic
ASTM D648	Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position
ISO 306	Determination of Vicat Softening Temperature (VST) of Thermoplastic Materials
ISO 75-1	Plastics-Determination Temperature of Deflection Under Load Part 1 General Test Method
ISO 75-2	Plastics – Determination of Temperature of Deflection Under Load Part 2 Plastics and Ebonite
ISO 75-3	Plastics – Determination of Temperature of Deflection Under Load Part 3 High Strength Thermosetting

ELEMENT MATERIALS TECHNOLOGY¹

14610 Jib Street
Plymouth, MI 48170

Test Method**Test Technology**

Ford IP-0105	Instrument Panel Sunload Resistance
Ford MA-0128	Simulated Sunload Resistance – Exterior
Ford MA-0130	Humidity Aging
Ford MA-0131	Heat Age
Ford OR-0329	Sunload Resistance – Exterior Ornamentation
GMW14124	Automotive Environmental Cycles
NES M0132	Thermal Cycle Test Methods for Plastic Parts
Nissan 96030 NDS00	Air Spoiler Testing
PF-11084	Door Trim Panel Assembly and Components
WSS-M15P32-C	Trim Assembly, Enclosed Luggage Compartment Covering
WSS-M15P45-A (except 3.12)	Performance, Instrument Panel Assembly, Flexible Cover Skin Material
WSS-M15P4-E	Interior Trim, Assembly Performance
WSS-M15P4-F	Assembly Performance, Hard Mold-In-Color Interior Components
WSS-M15P4-G (Sections 3.4.1, 3.4.2, 3.5.1.1)	Assembly Performance, Hard Mold-In-Color Interior Components



ELEMENT MATERIALS TECHNOLOGY¹
1920 Concept Dr.

Warren, MI 48091-1385

Test(s):

Test Method(s):

Abrasion Resistance Abrex	Ford FLTM BN 155-01; GS 97024-1, -4, -5; IEC 60068-2-70, TM5010, DIN68-2-70, D24 5020
Adhesion Testing	ASTM B571 (except sections 6 and 11), ASTM D3359; Ford BI 106-01, BI 106-02; GMW3368, GMW14829
Bend Mandrel Bend	ASTM D522
Chip or Gravel Resistance	ASTM D3170; Ford BI 157-04, BI 157-06; GMW14700; Chrysler LP 463PB-52-01; SAE J400
Color Measurements Instrumental, sphere	ASTM D2244, ASTM E1331; SAE J1545, J1717 (Appendix E)
Visual (Light Booth)	SAE J1545; ASTM D1729; Ford BI 109-01; AATCC (EP1); ISO 105-A03
Corrosion Testing Spray (CASS) Testing Cyclic Corrosion Testing	ASTM B368 Ford BQ 105-01, BI 123-01, BI 123-03, CETP 00.00-L-467; GMW14458, GMW14872, GMW15288; GMW15288 NES M0158-96 CCTI & CCTIV; SAE J2334, RTS.1681, ASTM B380, SAE J2334
Environmental Conditioning & Cycling Cold Cycling Humidity Hot/ Cold/ Humidity Cycling Hot/ Cold/ Humidity / IR Accelerated Ageing/Automotive Cycles	Chrysler LP-463DD-08-02 ASTM D1735, ASTM D2247; GMW14729 GM9310P; Chrysler LP-463DD-08-02 GMW15432 ASTM D5427; GMW14124
Environmental Cycles / Exposure / Thermal Shock	Chrysler LP-463CB-10-01, LP-463LB-12-01, LP-463PB-22-01, LP-463PB-52-01, LP-463LB-13-01, LP-463PB-36-01; BI 107-05, BQ 104-07; DVO-0001-IP; GM9310, GMW14124, GMW14872, GMW15432; MIL-STD 810G (Methods 501, 502, 503, 507, 521)
Evaluations	ASTM D610, D660, D661, D714, D1654; Ford BI 160-01 (except procedure A); GMW15282
Falling Sand Abrasion	ASTM D968
Filiform Corrosion	ASTM D2803; Ford BI 124-01
Film Thickness	ASTM D7091; Ford BI 117-01;
Fluorescent UV Condensation Exposure	ASTM D4329, ASTM D4587, ASTM G151, ASTM G154; TSH3130G; SAE J2020
Flame	UL2596



Test(s):**Test Method(s):**

Fogging	GMW3235; HES D6508 SAE J1756; VW PV 3015, BSDM0503, TSM05003, ISO 6452, RTS.1755, VCS 1027,2719, STD420-003 Chrysler LP-463DB-12-1; NES M0161; DIN 75201
Gloss/Haze Measurements	ASTM D523, ASTM D4039; Ford BI 110-01; SAE J1717 (Appendix E)
Hardness	
Pencil	ASTM D3363
Humidity Resistance	
Water Fog	ASTM D1735, ASTM D2247, ASTM D4585;
Condensing	Ford BI 104-02, BI 106-03, BQ 104-02;
Cleveland Condensing	GMW14729
Impact	
Gardner	ASTM D2794, ASTM D5420 (Geometry GC and GE); Ford BI 108-01, BO 151-01 (Method B [Impact Ball Shore A 72.5])
Odor	NES M0160; TSM 0505G, GSMD0505, VDA 270, FLTM BO131-03, TS300-00-0001, GMW3205, STD 429-0001, GMW3205, STD429-0001, GMW 17914, LP463KC-09-01, MS 300-34, PV3900, SAE J1351
Smell Quality of Non-Metallic Materials	Toyota TSM0505G
PACCAR Paint Performance	PACCAR CMT-0033 (except section 8.1, 9.2.4, 9.3, 9.32)
Salt Spray (Fog) Testing	ASTM B117, ASTM G85; ISO 9227; Ford BI 103-01; GMW3286; NES M0140-01; JIS Z2371; IEC 60068-2-11
Solvent Wipe	ASTM D5402; GMW15891
Standard Atmosphere for Conditioning & Testing	ASTM D618; ISO 291
Three-Dimensional (3D) Image Blue-Light Scanning	
Scan Volume 200 mm x 150 mm x 150 mm	ATOS V8 SR1 Manual Basic; Customer-Specified
Scan Volume 500 mm x 380 mm x 380 mm	
Water Resistance	
Water Immersion	ASTM D870
Water Chemistry	Ford BI 104-01, BI 104-04
Car Wash	GMW16745
Weathering (Artificial)	
Weatherometer	
ASTM D2565	Xenon-Arc Exposure of Plastics Intended for Outdoor Applications
ASTM D4459	Xenon-Arc Exposure of Plastics Intended for Indoor Applications
ASTM D7869	Xenon Arc Exposure Test with Enhanced Light and Water Exposure for Transportation Coatings
ASTM G155	Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials
Ford FLTM BO 116-01	Resistance to Interior Weathering
GMW14162	Colorfastness to Artificial Weathering
GMW3414	Colorfastness to Artificial Light



Test(s):**Test Method(s):**

ISO 4892-2
SAE J1885 (Inactive 2008)

SAE J1960 (Inactive 2008)
SAE J2412

SAE J2527

Xenon Exposure Testing
Accelerated Exposure of Automotive Interior Trim Components
Using a Controlled Irradiance Water Cool
Xenon Arc Accelerated Exposure (External)
Accelerated Exposure of Automotive Interior Trim Components
using a Controlled Irradiance Xenon-Arc
Accelerated Exposure of Automotive Exterior Materials using a
Controlled Irradiance Xenon-Arc

Xenon Weathering utilizing any combination of the following parameters²

(0.2 to 1.38) W/m² at 340nm

(0.45 to 3.11) W/m² at 420 nm

(26 to 166) W/m² at (300 to 400) nm

Chamber Air Temperature (15 to 90) °C

Black Panel Temperature (25 to 125) °C

Chamber Humidity (10 to 95) %RH

Test(s):**Test Method(s):****Parameter(s):****Flexible Test Cells****Durability Testing**

Mechanical Cycling

DVM 0019-ST;
GMW3067, GMW7699, GMW7000,
GMW9123, GMW3172;
Chrysler PF 8502, PF 8401, PF 11029;
DC-10859, 10254;
Customer Specifications²

Axial & Bending Fatigue:
(50,000 lb max)
Ultimate Strength: (200,000 lb
max)
Torsion: (up to 4000 ft./lbs –
100° Rotation)
Pneumatic & Hydraulic
actuation with force and/or
position feedback

Slosh

PF.90083; PF.8950

Table travel length up to 1250
mm
Table weight capacity 1300 lbs
Table speed up to 300 mm /
second
Table acceleration up to 1.0 g
Table cycle rate up to 3 Hz

Multi Axis Simulation
Table (MAST)
(6 axis) up to 100 Hz

ST-0009; DC-10859
(Heidedauerlauf);
IP-0008 (Key Life Test); Customer
Specifications²

6 DOF, vertical, lateral,
longitudinal pitch, roll, and
yaw inputs
(-50 to 177) °C

Environmental Testing

Solar Loading/
Heating Testing

GM9310P;
Chrysler PF 11084, 11029;
Ford SDS IT 0005, 9014;
MES PA 5500 D;
NES MO 131;

Temperature:
(-100 to 374) °F / (-73 to 190) °C
(using various reach-in, walk-
in, and drive-in chambers)

<u>Test(s):</u>	<u>Test Method(s):</u>	<u>Parameter(s):</u>
High & Low Temperature Testing with Relative Humidity Thermal Shock	Customer Specifications ²	Humidity: Up to 95% RH

<u>Noise Analysis Testing</u> BSR Objective and Jury Evaluator	GMW7293, GMW14011; Customer Specifications ²	Real Time 33 db ambient
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<u>Vertical Pitch and Roll +4D</u> <u>Quiet Shaker System</u>	GMW14011, GMW14144, GMW14155, GMW14188, GMW14240, GMW14264, GMW15655; Chrysler LP.7R027, LP.7R0774, PF 90192, PF 90052, PF 90223, PF 90232 (2015), PF 90243, PF 90283; Ford CETP 00.00-L-448, CETP 01.10-L-419_2, CETP 01.12-L-300, CETP 18.03-L-400, CETP 00.00-E-412, CETP 01.10-L-413, CETP 12.00-L-403, CES_Seat Recliner Component Eng., CES_Seat Track Component Eng., DVM-0010-SM, ES-6E5H-19980-AJ, Seat SDS v18 or newer
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The laboratory is accredited for the test methods listed above. The accredited test methods are used in determining compliance with the material specifications listed below; however, the inclusion of these material specifications on this Scope does not confer laboratory accreditation to the material specifications. Inclusion of these material specifications on this Scope also does not confer accreditation for every method embedded within the specification. Only the methods listed above on this Scope are accredited.

<u>Test(s):</u>	<u>Test Method(s):</u>
<u>Chrysler:</u>	
CS-11982	Electrical/Electronic (E/E) Environmental Specification
MS JP 1-3	Color Durability of Interior Materials
MS-DC 40	Co-Extruded Polyethylene Film
PF-10952	Floor Console Assembly System Requirements
PF-11084	Door Trim Panel Assembly and Components
PF-11203	Material Durability Requirements for Interior Plastic Trim Components

Test(s):	Test Method(s):
<u>Ford:</u>	
WSS-M1F27	Luxury Leather
WSS-M8P18	Fabric Performance
WSS-M15P32-C	Trim Assembly, Enclosed Luggage Compartment Covering
WSS-M15P45-A, except section 3.12	Performance, Instrument Panel Assembly, Flexible Cover Skin Material
WSS-M15P4-E	Interior Trim, Assembly Performance
WSS-M15P4-F	Assembly Performance, Hard Mold-in-Color Interior Components
WSS-M15P4-G	Assembly Performance, Hard Mold-In-Color Interior Components
WSS-M1F28	Leather
FMVSS 571.106	Brake Hoses
<u>GM:</u>	
GMW14231	Automotive Fabrics
GMW14650	Performance Requirements for Exterior Plastic Parts
GMW16443	Peel Test Pressure Sensitive Adhesive
GMW15201	Double-Coated Foam Tape for Exterior Attachments
GMW14325	HVAC Air Ducts
<u>Japan:</u>	
JIS L 1096	Woven Fabrics
<u>Hyundai:</u>	
MS 300-32	Woven, Knit
MS 320-05	Fabrics for Seats
<u>Nissan:</u>	
Nissan NES M0094	Flammability of Automotive Materials
<u>SAE:</u>	
SAE J1639	Test Methods for Nylon Materials
SAE J17	Latex Foam Rubbers
<u>Toyota:</u>	
Toyota TSH3130G	Paint Quality for Interior Parts
<u>Volkswagen:</u>	
VW PV3366	Elastomer Seals

¹ This accreditation covers the specified testing performed at the laboratory locations listed in this scope of accreditation.

² Using the following standards and test methods:

ASTM, FMVSS, JIS, ISO, IP, SAE, GM, Ford, Chrysler, Mazda, Honda, Toyota, Navistar, Paccar, Volvo, Freightliner, and standards and specifications furnished by the customer for the parameters listed above and the equipment capabilities.



Accredited Laboratory

A2LA has accredited

ELEMENT MATERIALS TECHNOLOGY DETROIT – WARREN 11 MILE

Warren, MI

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 26th day of February 2025.

A blue ink signature of Mr. Trace McInturff.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 0098.11
Valid to December 31, 2026

For the types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.