



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

ELEMENT MATERIALS TECHNOLOGY DETROIT – WARREN CONCEPT

1920 Concept Dr.

Warren, MI 48091-1385

Stephen Karrer Phone: 586 754 9000 x 32900 Fax: 586 754 9045

MECHANICAL

Valid To: August 31, 2019

Certificate Number: 2207.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on automotive components, catalytic converters, DPFs, exhaust systems, shock absorbers/struts, chassis and suspension components, cooling system components, automotive interior/exterior trim, structural components, electrical components, roof systems, metal stampings, consumer products, construction products, mining products, heavy truck products, agriculture products, marine products, aerospace products, military/defense products, motorcycles, electronic circuits, cables, and connectors.

Test(s):

3D Image Blue-Light Scanning

Scan Volume 200 mm x 150 mm x 150 mm

Scan Volume 500 mm x 380 mm x 380 mm

Abrasion Resistance

Taber

Traverse

Abrex

Adhesion Testing

Breaking Strength

Test Method(s):

GOM ATOS V8 SR1 Manual Basic;

Customer Specifications²

ASTM D3884, D3389, D4060;

Chrysler LP-463KB-21-01;

Ford FLTM BN 108-02;

GMW15692;

NES M0141 (Section 6.2.8, Method 4);

NES M0154 (Section 18.1)

SAE J948, J1530, J1847

NES M0136 (Method 1);

NES M0141 (Section 6.2.8, Method 1)

Ford FLTM BN 155-01;

GS 97024-1, -4, -5

ASTM B571 (*except sections 6 and 11*), D3359;

Ford BI 106-01, BI 106-02;

GM9502P (Inactive 2012)¹;

GMW3368, GMW14829

ASTM D5034

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

Chemical Resistance

Solvent, Acids and Acid Rain,
Soap and Water, Synthetic Perspiration
Hydrogen Sulfide, Various Fluids

ASTM D1308, D4752;
Chrysler LP-463PB-31-01, LP-463PB-57-03;
Ford FLTM AN 101-01, BI 113-01, BI 113-02, BI
113-07, BI 113-05, BI 152-01, BN 103-01, BN
112-08;
GM9133P (Inactive 2016)¹, GM9509P (Inactive
2012)¹, GM9517P (Inactive 2012)¹; GMW14333,
GMW14334, GMW14864, GMW14869,
GMW14701, GMW14864, GMW16625;
NES MO133; SAE J322

Chip or Gravel Resistance

ASTM D3170;
Chrysler LP 463PB-52-01;
Ford BI157-04, BI 157-06;
GMW14700;
SAE J400

Cleanability of Textiles and Plastics

Chrysler LP-463KC-04-01;
GM9531P (Inactive 2012)¹, GM9600P
(Inactive 2014)¹;
GMW3402, GMW14334, GMW96745,
GMW14865, GMW16745

Color Measurements

Instrumental, sphere

ASTM D2244, E1331;
SAE J1545, J1717 (Appendix E)

Instrumental (0°/45°)

Ford BI 109-03;
GM9741P (Inactive 2012)¹

Visual (Light Booth)

AATCC (EP1);
ASTM D1729;
Ford BI 109-01;
ISO 105-A03;
SAE J1545

Compression Testing

Compression Set (Rubber)

ASTM D395 (Method B)

Compressive Properties (Ridged Plastics)

ASTM D695;
ISO 604

Corrosion Testing

Spray (CASS) Testing

ASTM B368

Cyclic Corrosion Testing

CETP 00.00-L-467 Spray Method Only;
Ford BQ105-01, BI123-01, BI123-03;
GM4476P (Inactive 2010)¹, GM9511P
(Inactive 2010)¹, GM9540P (Inactive 2010)¹;
GMW14458, GMW14872, GMW15288;
NES M0158-96 CCTI & CCTIV; SAE J2334

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

Corrosion Testing
Crock, Rubbing, and Mar Resistance

AATCC (TM8);
Chrysler LP-463PB-54-01;
Ford BI 161-01, BN 107-01;
SAE J861;

Density of Non-Cellular Plastics

ISO 1183-1 (Method A)

Density and Specific Gravity

ASTM D792, D3574 (Section A), D1217, D1475

Environmental Conditioning & Cycling
Brittleness Temperature/ Cold Cracking

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

Cold Cycling

Chrysler LP-463DD-08-02; SAE J323

Humidity

ASTM D1735, D2247;
GMW14729

Hot/ Cold/ Humidity Cycling

Chrysler LP-463DD-08-02;
GM9200P (Inactive 2016)¹, GM9310P (Inactive 2011)¹

Hot/ Cold/ Humidity / IR

GMW15432

Accelerated Ageing/Automotive Cycles

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;
Ford BI 107-02, BI 107-05, BQ 104-07; DVO-
0001-IP;
GM9310P (Inactive 2011)¹, GM9540P (Inactive 2010)¹;
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*);
GM9102P (Inactive 2010)¹; GMW15282

Falling Sand Abrasion

ASTM D968

Filiform Corrosion

ASTM D2803;
Ford BI 124-01

Film Thickness

ASTM B487, B659, D4138 (Method A), D7091;
Ford BI 117-01;
GM9518P (Inactive 2010)¹, GM4260P (Inactive 2013)¹

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

Flexibility

ASTM D522, D4145;
Ford BI 105-01;
GM9503P (Inactive 2010)¹, GM9836P (Inactive 2011)¹;
GMW16746

Flex/Fold Testing of Uncoated & Coated Textiles

Chrysler LP-463KB-13-01, LP-463LB-09-01;
Ford FLTM BN 102-04A, BN 119-01

Flexural Properties of Plastic

ASTM D790;
ISO 178;
SAE J949Flow Rates of Thermoplastics by Extrusion
PlastomerASTM D1238;
ISO 1133

Fluorescent UV Condensation Exposure

ASTM D4329, D4587, G151, G154;
SAE J2020;
TSH3130G

Foams

ASTM D3574 (*except G,H, I₂, I₄*)

Fogging

Chrysler LP-463DB-12-1;
GMW3235;
NES MO153;
SAE J1756

Gloss/Haze Measurements

ASTM D523, D4039;
Ford BI 110-01;
SAE J1717 (Appendix E)

Hardness

Durometer Hardness (Rubber)

ASTM D2240 (Shore A&D); ISO 868

International Hardness

ASTM D1415 (Type M)

Microindentation Hardness (Knoop & Vickers)
(500 Kg)

ASTM E384; Ford BI 112-02

Pencil

ASTM D3363

Rockwell Hardness

ASTM D785, E18;

(A,B,C, L, N, T, HRM, HRR)

ISO 2039-01

Humidity Resistance

Water Fog

ASTM D1735, D2247, D4585;

Condensing

Ford BI 104-02, BI 106-03, BQ 104-02;

Cleveland Condensing

GMW14729

Test(s):

Impact
Gardner

High Speed Puncture Properties of Plastics
Using Load and Displacement Sensors

Indentation and Recovery

Mass and Thickness Determination

Metallurgical Preparation & Evaluation
Coating Thickness by Microscopic
Examination
Plating Thickness – Method 1 (Microscopic)

Mildew Growth / Mildew Resistance

Moisture & Temperature on Adhesive Bonds

Odor

PACCAR Paint Performance

Salt Spray (Fog) Testing

Scratch/ Scrape/ Scuff/ Snag/ Mar Resistance
Scratch Resistance (Five Finger)

Resistance to Fiber Loss
Erichsen Scratch

Scuff and Mar

Sealer Adhesion

Test Method(s):

ASTM D2794, D5420 (Geometry GC and GE);
Ford BI 108-01, BO 151-01 (Method B [Impact
Ball Shore A 72.5])

ASTM D3763

Ford BO 111-02

Chrysler LP-463LB-07-01

ASTMB 487; GM4260P (Inactive 2013)¹

ASTM B659 (Method 7.1)

GM9215P (Inactive 2016)¹; GMW3259

ASTM D1151

Chrysler LP-463KC-09-01;
Ford BO 131-03;
GMW3205;
NES MO160;
SAE J1351;
TSM 0505G

PACCAR CMT-0033 (*except section 8.1*)

ASTM B117, G85;
Ford BI 103-01;
GM4298P (Inactive 2010)¹; GMW3286;
ISO 9227;
JIS 22371;
NES M0140-01

Chrysler LP-463DD-18-01;
Ford BN108-13; GMW14688 (Method A)

SAE J1530-A (*Taber Abrasion Only*)
Chrysler LP-463DD-18-02

Ford BN 108-04;
GM9150P (Inactive 2012)¹; GMW14130;
SAE J365

Chrysler LP-463NB-29-02;
Ford BV 101-02;
GM9011P (Inactive 2014)¹;
GM9807P (*except section 3.4*) (Inactive 2010)¹;
SAE J1523

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

Set & Stretch

SAE J855

Shrinkage

SAE J883

Solvent Wipe

ASTM D5402;
GM9509P (Inactive 2012)¹; GMW15891

Stain Resistance

Sunscreen Lotion Resistance

Ford BI 113-08;
GMN 10033

Standard Atmosphere for Conditioning & Testing

ASTM D618;
ISO 291

Surface Roughness

Ford BA 003-01

Tear Strength

Tearing Strength (Tongue)

ASTM D2261

Tearing Strength (Trapezoidal)

ASTM D5587

Tear Strength of Conventional Vulcanized
Rubber and Thermoplastics

ASTM D624 (Types B, C and T)

Tensile/Compression/Elongation

Tear Strength

ASTM D412 (Method A – Types A and C)

Shear Strength

ASTM D624 (Types B, C and T)

Bond Strength

ASTM D638 (Type I, *except Sections 5.2.4, 6.2, and 6.3*), D903, D1000 (Sections 11-27, 37-53, 110-122, and 129-139), D1876, D3574 (Sections B-F, K, L)

Peels

Chrysler PS-9040, LP-463TB-03-01;
Ford BN 113-01, BV 101-06;
GM9521P (Sections 3.9-4.2) (Inactive 2014)¹,
GM9907P (Inactive 2011)¹;
GMW3371;
SAE J1523

Tension (Plastics)

ASTM D638; ISO 527-1 & 2

Tension (Rubber)

ASTM D412

Tensile Textiles

ASTM D5035

Thickness Textiles

ASTM D1777

Torque

(0-1023)Nm, (0-497)RPM

FCA PS.20006;
Customer Specifications²

Water Absorption

ASTM C272

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

Water Resistance

Water Immersion
Water Chemistry
Car Wash

ASTM D870
Ford BI 104-01, BI 104-04
GM9231P (Inactive 2017)¹; GMW16745,
GMW14865, GMW17103

Weathering (Artificial)

Artificial Weathering (Sunshine Carbon Arc)
Artificial Weathering (Fade-O-Meter)
Artificial Weathering (Xenon Arc)

ASTM D2565, D4459, G26, G151, G152, G153,
G155; Ford BO 116-01;
GMW3414 (Cycle A and B), GMW14162;
ISO 4892, Part 2;
SAE J2412, J2527, J1885 (Inactive 2008)¹,
J1960 (Inactive 2008)¹; Toyota TSH3130G

Weight/Mass

ASTM D3776

Whiteware

(Water Absorption, Density, Porosity &
Specific Gravity)

ASTM C373

Wicking

SAE J913

Width of Textile Fabric

ASTM D3774

Test(s):**Test Method(s):****Parameter(s):*****Flexible Test Cells***Electrical

DC Voltage
Resistance
DC Current

AMD 005, 009, 022;
USCAR 2, 15, 21;
Chrysler PF 9590;
GMW3172, GMW3431;
Customer Specifications²

Up to 100 VDC
(1 to 1,000) mOhm
(1 to 100,000) Ohm
(0.1 to 1.0) TOhm
0.01 mA to 100 A

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

Hot Vibration

Ford CETP: 09.02-E-302,
09.02-E-304, 09.02-E-308,
09.02-E-309;
GMPT Catalytic Converter Assembly;
CTS section 4.4.2.1;
Chrysler PF-9010 (Section 2.4);
Customer Specifications²

Multiple Load Inputs
(10 to 35,000) lbs

<u>Test(s):</u>	<u>Test Method(s):</u>	<u>Parameter(s):</u>
<u>Durability Testing</u> Jounce & Squirm	ST-0036; Chrysler PF-10859, PF 8401; Customer Specifications ²	Durability Cycling of Seat Backs, Cushions and Bolster
<u>Multi Axis Simulation Table (MAST)</u> (6 axis) up to 100 Hz	ST-0009; DC-10859; IP 0008; Customer Specifications ²	6 DOF, vertical, lateral, longitudinal pitch, roll, and yaw inputs (-50 to 177) °C
<u>High Temperature Air Flow/ Environmental Simulation Testing</u>	GMPT Catalytic Converter Assembly; CTS section 4.4.2.1; Ford CEPT: 09.02-E-300, 09.02-E-301; Chrysler PF-9019 (Section 4.4.2.1); Customer Specifications ²	Rate & Temperature Programmable up to 2200 °F (1204 °C)
<u>Environmental Testing</u> Solar Loading/ Heating Testing High & Low Temperature Testing with Relative Humidity Thermal Shock	AMD 002, 05, 010, 011, 012, 014, 017; GM9505P (Inactive 2010) ¹ , GM9310P (Inactive 2011) ¹ ; Chrysler PF 11084, 11029; Ford SDS IT 0005, 9014; MES PA 5500 D; NES MO 131; Customer Specifications ²	Temperature: (-100 to 374) °F / (-73 to 190) °C (using various reach-in, walk-in, and drive-in chambers) 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
<u>Vertical Pitch and Roll +4D 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	Ambient Noise <30dBA Vibration Frequency (3 to 200)Hz Acceleration Up tp 1.4 Gs Base Table Area (60.6 x 25.2) in

<u>Test(s):</u>	<u>Test Method(s):</u>	<u>Parameter(s):</u>
<u>Vibration with and without Environmental Simulation</u>		
Sine or Random: Classical Shock	MIL STD 810F, 810G (Methods 514, 516); MIL STD 202E; MIL STD 167-1, 167-1A; IEC-68-2-34; IEC-68-2-6; IEC-68-2-27; USCAR 15, 20; SAE J1455; J1211 GMW3172; Customer Specifications and/or customer supplied profiles ²	(1 to 5,000) Hz 13,000 pounds force sine 12,000 pounds force random 12,000 pounds sine on random Field Data Replicator Temperature: (-100 to 374) °F / (-73 to 190) °C (using various reach-in, walk-in, and drive-in chambers) Humidity: Up to 95% RH Remote Conditioners
<u>Vehicle/ Component Road Load Data Acquisition</u>	ASTM E1237; Customer Specifications ²	Strain, Load, Acceleration, Displacement, Temperature, Pressure, Voltage, Speed. (Maximum sampling rate speed 250,000 samples per second)

¹ This laboratory's scope contains withdrawn or superseded methods. As a clarifier, this indicates that the applicable method itself has been withdrawn or is now considered "historical" and not that the laboratory's accreditation for the method has been withdrawn.

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 CONCEPT

Warren, MI

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *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 8 January 2009).



Presented this 27th day of December 2018.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2207.01
Valid to June 30, 2019
Revised May 30, 2019

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



Accredited Laboratory

A2LA has accredited

ELEMENT MATERIALS TECHNOLOGY DETROIT – WARREN CONCEPT

Warren, MI

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *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 8 January 2009).



Presented this 27th day of December 2018.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2207.01
Valid to August 31, 2019
Revised July 30, 2019

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