



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

MICHIGAN TESTING INSTITUTE, INC.
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MECHANICAL

Valid To: August 31, 2021

Certificate Number: 0414.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on paints, organic coatings, clear and pigmented organic finishes, primed metallic substrates, organic coatings on metals, coated steel, automotive trim parts, decorative interior plastic parts, non-decorative powder coatings, polyvinyl chloride coated fabrics, polyvinyl chloride sheets, soft interior trim parts, soft vinyl chloride sheets, trim panels, textiles, plastic substrates, flexible cellular plastics, vinyl, and leather:

<u>Test</u>	<u>Standard</u>
Abrasion	ASTM D3884, D4060, D968, D2486; DSM ESX-60210 (4.8), ESX-60261 (3.10), ESX-60523 (4.18), ESX-83217 (4.19), ESX-83220 (4.11); FIAT 50488/02; FORD FLTM BN108-02, FLTM BN108-04; FTM 141C (Method 6192.1) GM 9515P *(Inactive 6/13); GMW 3208, 14125, 15487; NISSAN NES M0136, NES M0007 (2014-1) (60); SAE J365, J1530 (3, 4), J1847, J948 (3) TOYOTOA BOSHOKU BSDM0502 (4.6.4)
Air Pressure Resistance	WSS-M99P41-A10/A72 (3.31)
Adhesion and Peel Strength	ASTM B571, B533, D751 (45-48), D413 (Machine Method), D903, D3359; D1000 (46-53) FIAT CHRYSLER FCA 50461; FORD ESB-M11P8-A, FLTM BI106-01; WSS-M99P41- A10/A72 (3.11.5.3); GM 3602M (3.4, 3.5) *(Inactive 8/10), 3608M (4.1, 4.2, 4.3) *(Inactive 8/10), 3611M *(Inactive 5/11), 3622M (4.3) *(Inactive 12/10), 9071P *(Inactive 8/12), 9160P *(Inactive 6/15), 9502P *(Inactive 8/12); GMW 14892, 14829, 16005, 16443, 14695; ISO 8510-2, 2409 NISSAN M0007 (2014-1) (25, 29, 44) TOYOTA BOSHOKU BSDM0502 (4.14)
Alkaline Acid Resistance	DSM ESX-71227 (4.7); MAZDA MES MN601 (16)

<u>Test</u>	<u>Standard</u>
Appearance	FORD FLTM BI109-01; GM 4383M (3.2.2.1) *(Inactive 12/10)
Ash	ASTM D1278 (Part 14), D2584, D5630 (Method B); ISO 1172, 3451-1 (Method A) NISSAN NES M0007 (2014-1) (s10.)
Blistering Evaluation	ASTM D714
Breaking Strength	ASTM D751 (Procedure A-Grab Test Method), (Procedure B-Cut Strip Method), ASTM D1000 (37-45, 110-115)
Car Wash Simulation/Grained Surface Cleanability	GM 9600P, 9688P; GMW 14865; NISSAN NES M0007 (2014-1) (31) TOYOTA BOSHOKU BSDM0502 (4.11)
Checking Evaluation	ASTM D660
Chip Resistance (Gravel)	ASTM D3170; FORD FLTM BI157-06; GM 9508P *(Inactive 8/10); GMW 14700; MAZDA MES MN601 (29); NISSAN NES M0007 (2014-1) (28); SAE J400
Cleaning/Solvent Resistance	ASTM D1308, D896; CHRYSLER 463KC-4-01, 463PB-31-01, 463PB-57-03; DSM ESX-60210 (4.8), ESX-60211 (4.7), ESX-60261 (3.9), ESX-71227 (4.9), ESX-83244 (3.9); Ford WSS-M99P41- A10/A27 (3.32); GM 4383M (3.2.3.3.2) *(Inactive 12/10), 7400M (3.2.3.1.5) *(Inactive 12/13), 7453M (6.2) *(Inactive 3/11), 9126P *(Inactive 4/12), 9509P *(Inactive 10/12), 9533P (2, 3) *(Inactive 11/09), 9900P *(Inactive 3/10); GMW 3402, 14334, 14867 (3.3, 3.6), 14701 (2, 3), 15891, 15725 (4.7); NISSAN NES M0133 (Methods 1-4), NES M0007 (2014-1) (36, 37, 38, 39, 40, 41, 42, 43, 45, 59, 64, 72, 73, 74, 75) TOYOTA BOSHOKU BSDM0502 (4.8.1, 4.8.2)
Coating Thickness	ASTM B499, D6132, D7091; ISO 2808 (Methods 6 and 7); FLTM BI117-01
Color	ASTM E1331; FORD FLTM BI109-01; GM 7400M (3.2.3.1.4), GM 9131P; NISSAN NES M0007 (2014-1) (24); SAE J1545, J1767

<u>Test</u>	<u>Standard</u>
Color Crocking/Mar Resistance	AATCC Method 8; AATCC 107-2013; CHRYSLER 463PB-54-01; FORD FLTM BN107-01, FLTM BN108-10, FLTM BI 161-01 GM 9033P *(Inactive 7/13); ISO 105-X12, ISO 15701; SAE J861; AATCC 107-2013 TOYOTA BOSHOKU BSDM0502 (4.13)
Color Transfer	GM9137P
Conical Bend Test	ASTM D522 (Method A)
Condensing Water Vapor	FORD FLTM BI 104-02
Corrosion and Corrosion Creepback	ASTM D1654, D6899; CS-CORROSION (<i>Section 4 only</i>) (Component Level); FORD FLTM BI123-03, FLTM BI123-01; CETP:00.00-L-467, GM 9102P *(Inactive 12/10), 9511P *(Inactive 12/10), 9540P *(Inactive 3/10); GMW 3286, 14872, 15282, 15288; ISO 9227 (5.2); ISO 11997-1; NISSAN NES M0158, NES M0007 (2014-1) (33, 34); SAE J1389; SAE J2334; SAE J2721; TOYOTA TSH1555G (A); PV1210
Dead Load Seam Strength	ASTM D751 (80-83)
Detergent Resistance	ASTM D2248
Determination of Water Spotting	GMW 14102
Determining Fiber Degradation of Automotive Textiles	GM 9771P; GMW 3387
Determining the Cohesive Strengths of Felts and Similar Materials	GMW 14695
Dime Scrape Test	GM 9506P *(Inactive 6/13)
Dimension and Mass	ASTM D751 (7-11)
Dimensional Stability	DSM ESX-62310 (4.4), ESX-83220 (4.17); FORD FLTM BN105-03; GM 7400M (3.2.3.1.7), 7451M (3.6), 7452M (3.5), 9452P; GMW 4217; SAE J315 (15)
Durometer Hardness (Shore A and D)	ASTM D2240; ISO 7619-1
Dust – Out	GM9635P *(Inactive 6/13); GMW 16998
Elongation	ASTM D751 (17)

Test

Standard

Environmental Cycle Temperature: (-40 to 250) °C Humidity: (30 to 95) %RH	ASTM D2126, ASTM D1000 (129-139); BMW TP 303.4; CHRYSLER 463LB-12-01 (A and B), 463PB-22-01; DSM ESX-60210 (4.3.1, 4.3.2), ESX-60211 (4.3), ESX-60256 (3.1), ESX-60261 (3.2), ESX-62310 (4.8), ESX-83215 (3.4), ESX-83244 (3.3, 3.4, 3.5); FCA 50184; FORD FLTM BQ 104-07 (<i>Except 7-9, 16-18</i>), FLTM BO 040-01, WSS-M99P32-C (3.8.1), WSS-M99P41- A10/A72 (3.12.5, 3.22); GM 3628M (3.3.6) *(<i>Inactive 3/11</i>), 4383M (3.2.3.1) *(<i>Inactive 12/10</i>), 9200P (4.1), 9505P *(<i>Inactive 12/10</i>); GMW 14124 (<i>Except Cycle T</i>), 14650 (4.3), 15725 (4.3); MAZDA MES MN601 (12), MES PWPT001A (7.6); MERCEDES DBL 9202 (4.1.2); NISSAN NES M0132, NES M0007 (2014-1) (46) SAE J2100; TOYOTA TSF7754G (5.2), BSDM0502 (4.1.3, 4.1.4, 4.9) Volkswagen PV1200
Fabric: Mass Per Unit Area Width of Textile Fabrics	ASTM D3776 (<i>Except A</i>); ASTM D3774, ASTM D1000 (11-20)
Filiform Corrosion Resistance	ASTM D2803; NISSAN NES M0007 (2014-1) (35); SAE J2635
Film Hardness	ASTM D3363; ISO 15184; FIAT CHRYSLER FCA 50452/02; MAZDA MES MN601 (9) NISSAN NES M0007 (2014-1) (s26., 62.)
Film Thickness	ASTM D7091; ISO 2808 (Methods 6 & 7)
Flaking Evaluation	ASTM D772

Test

Standard

Flammability

ASTM D350 (B),
BMW GS 97038;
CMVSS 302;
CHRYSLER MSJP 9-4 (Steam and Burn);
FIAT CHRYSLER CP-508A; CP-5237LA;
DBL 5307.10;
DIN 75200;
DSM ESX-60410, ESX-62101 (4.10), ESX-83220 (4.24);
DOT TP-302-03;
FMVSS 302;
FORD ES-E97B-1011014-AA; EU BN 024-02,
GB 8410;
GM 9070P *(Inactive 9/11);
GMW 3232;
HONDA HES C206, HES D6003;
ISO 3795;
KMVSS 302;
MAZDA MES PWPT001A (7.10);
MS 300-8;
NISSAN NES0094;
PV 3904;
SAE J369;
TL 1010;
TOYOTA TSF7754G (5.12);
TSM 0500G;
VOLVO VCS5031.19;
VSTD 19-1

Flexural Properties

ASTM D790, D1184, D6272;
ISO 178, 6272-2

Fluorescent UV Exposure (QUV)

ASTM D4329, G53:1995, G154;
SAE J2020

Foam Laminate Curl Test

GM 9330P *(Inactive 9/12);
GMW 4089

Fogging

FORD FLTM BO116-03,
GM 9305P;
GMW 3235;
SAE J1756;
TOYOTA TSM0503G Method B, BSDM0503

Fuel Resistance

DSM ESX-62310 (4.12), ESX-71227 (4.8);
FORD FLTM BO 101-05;
GM 9500P *(Inactive 8/10), 9501P *(Inactive 8/10),
9659P *(Inactive 12/10);
GMW 14650 (4.7), 14333, 17137;
MAZDA MES MN601 (18, 20)

<u>Test</u>	<u>Standard</u>
Gloss	ASTM D523; FIAT CHRYSLER FCA 50457; ISO 2813; FMTL- BI 110-01
Grain Retention of Interior Trim Materials	GM 9142P
Haze	ASTM D4039
Humidity	ASTM D1735, D2247; DIN 50017 (<i>Constant Atmosphere only</i>); DSM ESX-71227 (4.4), ESX-83215 (3.3); FORD WSS-M99P41-A10/A72 (3.12.4); GM 2617M (3.4.2.9) <i>*(Inactive 3/08)</i> , 4465P <i>*(Inactive 1/11)</i> , 2210M (3.3.1.1, 3.3.1.2); GMW 14729, 14650 (4.4); ISO 6270-02; MERCEDES DBL 9202 (4.1.3); NISSAN NES M0007 (2014-1) (32); TOYOTA TSF7754G (5.7) BOSHOKU BSDM0502 (4.2, 4.2.1, 4.2.2)
Impact	ASTM D5420; CHRYSLER 463LB-11-01-C; DSM ESX-60210 (4.11), ESX-62310 (4.7), ESX-83244 (3.10); FORD FLTM BO151-01; GM 9032P <i>*(Inactive 6/10)</i> , 9140P <i>*(Inactive 3/12)</i> , 9302P <i>*(Inactive 3/14)</i> ; GMW 14093 (Apparatus A); ISO 6272-2; MAZDA MES MN601 (33); NISSAN NES M0134, NISSAN NES M0007 (2014-1) (27, 76, 77); TOYOTA TSF7754G (5.3), BOSHOKU BSDM0502 (4.5, 4.5.1,4.5.2, 4.5.3)
Interior Trim Hand Peel Strength	GM 9907P <i>*(Inactive 03/01/11)</i>
Irradiation Heat Resistance	DSM ESX-83215 (3.1); GM 9310P; GMW 15432;
Irradiation Heat Resistance (<i>cont'd</i>)	TOYOTA TSF7754G (5.1)
Laminate Bond Strength	GMW 3220
Laminate Softening Point	DSM ESX-83220 (4.23.2)

<u>Test</u>	<u>Standard</u>
Mandrel Bend	ASTM D522 (Method B); FORD FLTM BN 102-01; GM 3628M (3.6) *(Inactive 3/11), 7400M (3.2.3.1.3) *(Inactive 3/11), 9503P *(Inactive 6/12); GMW 16746, 14108; MAZDA MES MN601 (31); NISSAN NES M0007 (2014-1) (30) SAE J323
Mass Per Area	GMW3182
Melt Flow Rate	ASTM D1238; ISO 1133
Mildew Growth	FORD WSS-M5H34-A (3.12), WSS-M99P32-C (3.7); GM 9128P *(Inactive 4/11); GMW 3259
Moisture Absorption	FORD WSS-M99P32-C (3.11); GMW 16856
Odor	CHRYSLER 463KC-09-01; DSM ESX-62101 (4.9), ESX-83217 (4.5), ESX-83220 (4.22); FORD FLTM BO 131-01, -03, GM 9130P *(Inactive 6/15), 9832P *(Inactive 2/12); GMW 3205; MS 300-34; SAE J1351; TOYOTA TSM 0505G (Except 8.3); BOSHOKU BSDM 0505 Volkswagen VDA 270; Volkswagen AG PV3900;
Oil Immersion Test	GM 4350M (Appendix B) *(Inactive 12/13), ASTM D1000 (116-122)
Orange Peel Measurement	GMW 15777 Section 3.2.2
Oven Aging Temperature: (38 to 250) °C	ASTM D751 (72-79); D1000 (77-82) Chrysler 463LB-13-01; DSM ESX-60210 (4.4), ESX-60261 (3.15), ESX-60359 (4.9), ESX-60523 (4.16), ESX-62101 (4.8), ESX-62310 (4.9); FORD FLTM BN113-02, WSB-15P40-A (3.11), WSK-M98P5-A (3.6), WSS-M99P32-C (3.8.2); WSS-M99P41- A10/A72 (3.12.2, 3.12.3) GM 2210M (3.3.1.1), 3628M (3.15) *(Inactive 03/11), 7452M (3.4) *(Inactive 12/13), 7453M (5.2)* (Inactive 03/11/11), 9504P* (Inactive 05/01/11); GMW 14867 (3.9), 14650 (4.2), 15725 (4.5), GMW 17538 (3.4.1.1); MAZDA MES MN601 (11), MES PWPT001A (7.3, 7.4); MERCEDES DBL 9202 (4.1.1); NISSAN M0007 (2014-1) (15) TOYOTA TSF7754G (5.6); BOSHOKU BSDM0502 (4.1.1, 4.1.2, 4.1.5)

Test**Standard**

Oven Aging (cont'd)
Temperature:
(38 to 250) °C

Volkswagen VW 44045 (5.14)

Paint Electrical Resistance Values

NISSAN NES M0007 (2014-1) (61)

Parting Line

GM9684P *(Inactive 10/12);
GMW 15424

Performance Specification for Cable-
to-Terminal Electrical Crimps

SAE/USCAR-21, Except 4.5.5

Perspiration Resistance

AATCC TM15-2013;
Chrysler 463KC-21-01;
FORD FLTM BI 113-07, FLTM BI113-06;
GM 9240P;
GMW 14296, AATCC TM15-2013;
SAE J1326

Pile Distortion

GMW 4141

Print Resistance

MAZDA MES MN601 (10)

Puckering Resistance

TOYOTA TSF7754G (5.11)

Resistance to Cold Crack of Folded
Materials

GMW 14126

Resistance to Loop Pull-out of Floor
Carpet

GMW 14148

Resistance to Water and Soap
Spotting

FORD FLTM BI113-01

Resistance to Water Wicking

ASTM D751, 94-98;
SAE J913

Sag Test

GM 3628M (3.8) *(Inactive 3/11)

Salt Spray

ASTM B117;
DIN 50021 (Salt Spray only);
DSM ESX-71227 (4.5);
GM 4298P *(Inactive 12/10);
GMW 3286;
ISO 9227;
NISSAN NES M0140,
TSH1552G, TSC0511G, Section 6.12;
JIS Z2371

Scratch Resistance of Organic
Coatings – Simulation of Car Wash
Installations

GMW 14865

<u>Test</u>	<u>Standard</u>
Scratch Resistance of Organic Coatings and Self Adhesive Foils	GMW 14698
Scuff and Mar	CHRYSLER 463DD-18-01, 463DD-18-02; DSM ESX-60210 (4.9); FORD FLTM BN108-13, BO 162-01 GM 4367M (3.3.7), 9150P; GMN 3943; GMW 14130, 14688, ISO 1518-1 NISSAN NES M0007 (2014-1) (55, 56)
Scuffing	FORD FLTM BN108-04
Shift Strength	DSM ESX-83220 (4.10)
Shrinkage	DSM ESX-60523 (4.7), ESX-83217 (4.15.1), ESX-83220 (4.13); GM 3628M (3.10) *(Inactive 3/11); SAE J883
Soil Resistance	CHRYSLER 463KC-4-01; DSM ESX-60261 (3.17), ESX-60411 (3.3), ESX-83217 (4.25); FORD FLTM BN112-08
Specific Gravity	ASTM D792 (Method A) NISSAN NES M0007 (2014-1) (s7.)
Stain	ASTM D925 (Method A); DSM ESX-60523 (4.11), ESX-83217 (4.13); FORD FLTM BN103-01 GM 9141P; GMW 14864, GM 14132; SAE J912
Stain Resistance to Identification Markings	FORD FLTM BO112-06
Standard Atmosphere	DIN 50014 (Class 2)
Standard Conditioning of Organic Material	GMW 3221
Static Shear Test	GM 3608M (3.3) *(Inactive 3/10)
Steam Resistance	FLTM BO 160-04
Stickiness Test	TOYOTA BOSHOKU BDSM502 (4.12)
Stiffness Testing	ASTM D1388 (Option A), D5732; DIN 53362; GMW 3390; ISO 9073-7; SAE J949

<u>Test</u>	<u>Standard</u>
Stretch and Set	GMW 3211; SAE J855
Sunscreen Lotion/Insect Repellent	FORD FLTM BI 113-08; GMW 14445
Tackiness	FORD FLTM BO 061-01
Tear Resistance	ASTM D624, D1004, D3574 (Test F); DSM ESX-60523 (4.6), ESX-83217 (4.9), ESX-83220 (4.7); ISO 13937-2, 9073-4; LP-13160
Tear Strength	ASTM D751 (16) (Procedure B - Tongue Tear Method), D2261
Tensile Properties	ASTM D638, D952, D1708, D5034, D5733, D1876, D5587, D412; CHRYSLER 463LB-10-01; DSM ESX-60256 (3.3), ESX-60359 (4.2), ESX-60523 (4.4, 4.5), ESX-83217 (4.6, 4.8, 4.10), ESX-83220 (4.4.1, 4.5, 4.23.1); FORD ESB-M11P8-A, ESF-3LE8A080-AA (IIIE), FLTM BN113-01, FLTM BO113-0,3 FLTM BA 116-01, WSS- M99P41-A10/A72 (3.33); GMW 14695, 3326, 3010; ISO 527-1, -2, 34-1, 9073-18; NISSAN NES M0007 (2014-1) (67); TOYOTA TSF7754G (5.8)
Thermal-Oxidative Stability Characteristics of Plastics	ASTM D3012, GM 9059P *(<i>Inactive 06/11</i>); GMW 15725, 4.4; ISO 4577
Thermal Shock for Coating Adhesion	FLTM BI 107-05; 463PB-64-01; GMW 15919; GM 9525P *(<i>Inactive 04/14</i>)
Thickness	ASTM B487, ASTM D1000 (21-27); ISO 2808 (Method 5), 9037
Thickness of Plastic Sheet – Weight Method	FORD FLTM EU BN050-07
Thickness Test for Padding Materials	FORD FLTM BN023-02
Thumbnail Hardness Test	GM 9507P
Topcoat Materials Exterior (Yellowing)	GM 4367M (3.3.15) *(<i>Inactive 08/01/2010</i>); GMW 15433 Section 4.3
Trapezoidal Tear	ASTM D751 (32-35)

<u>Test</u>	<u>Standard</u>
Vibration Testing (-40 to 150) °C (5 to 2000) Hz 6600 lbf	FIAT 9.90111/02; Ford ES-9L3T-14540-AA, ES-BR3E-6A949-AA, ES-FR3E-6A949-AA, ES-FC44-8146-AA, ES-CM5E-6A949-AA; SAE J1455; USCAR 20; Volkswagen VW80101, VW80000 TOYOTA BOSHUKU BSDM0502 (4.4, 4.4.1, 4.4.2, 4.4.3)
Visual Color Difference Evaluation with a Gray Scale	AATCC Procedure 1; ASTM D2616; ISO 105-A02; FORD WSS-M99P41-A10/A72 (3.12.1.1);
Visual Evaluations	ASTM D610; GMW 15356, 15357, 15358, 15359; ISO 105-A03
Water Immersion	ASTM D870; DSM ESX-60211 (4.6), ESX-71227 (4.3), ESX-83220 (4.12), ESX-83244 (3.8); FCA 50470; FORD FLTM BI104-01, WSS-M99P41-A10/A72 (3.26); GM 3628M (3.12) <i>*(Inactive 03/11)</i> , 9514P <i>*(Inactive 03/11)</i> ; MAZDA MES MN601 (13); NISSAN NES M0007 (2014-1) (57) TOYOTA BOSHOKU BSDM0502 (4.3)
Water Impact Penetration	AATCC TM42; ISO 9073-17
Water Jet Tests for Painted Parts	FORD FLTM BO160-04; GM 9531P (Method B); GMW 14797 (Table A1A), 16745
Weight	DSM ESX-60523 (4.3), ESX-62310 (4.3), ESX-83217 (4.1), ESX-83220 (4.2.1); FORD FLTM BN 106-01; GM 9337P; GMW 3182; SAE J860
Xenon Exposure	ASTM G155; FORD FLTM BN117-03, GM 9125P (3.3) <i>*(Inactive 5/13)</i> , GMW 14162 Method D ISO 105-B06; NES M0135 (II), NES M0007 (2014-1) (48); SAE J1885 <i>*(Withdrawn 1/08)</i> , J1960 <i>*(Withdrawn 1/08)</i> , J2412, J2527

*NOTE: 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.

The laboratory is only accredited for the test methods listed above. The accredited test methods are used in determining compliance with the material specifications listed below. The inclusion of these material specifications on this Scope does not confer laboratory accreditation to the material specifications nor does it confer accreditation for the method embedded within the specifications.

GM 2210M, GM 2617M, GMW14838, GMW14867, GMW14444, GMW14650, GMW 15725, PF-7051, MS-PZ-4-1, MS-PZ-5-1, MS-PD-48-1, WSS-M15P34-D



Accredited Laboratory

A2LA has accredited

MICHIGAN TESTING INSTITUTE, INC.

Sterling Heights, 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 21st day of August 2019.

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

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 0414.01
Valid to August 31, 2021

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