



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT MATERIALS TECHNOLOGY KITCHENER
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MECHANICAL

Valid To: March 31, 2025

Certificate Number: 0214.50

In recognition of the successful completion of the A2LA evaluation process; accreditation is granted to this laboratory to perform the following types of tests on Adhesives (Organic Resins), Glues, Paints, Varnishes, Inks, Coatings, Allied Products, Plastics, Resins, Rubbers, and Articles of Metal:

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards¹:</u>
Temperature and Humidity	(-80 to 190) °C (10 to 98%) %RH	0096Z-SM4-0000, Sect. 6 & 18; ASTM D1735; GMW3172, Sec. 8.4; GMW3259; GMW14124; GMW14650, Sect. 4.2, 4.3; GMW14729;
	Fog Type and Condensing Humidity	IEC 60068-2-1; IEC 60068-2-2; IEC 60068-2-3; IEC 60068-2-13; IEC 60068-2-14; IEC 60068-2-18; IEC 60068-2-28; IEC 60068-2-30; IEC 60068-2-38; IEC 60068-2-56; JIS D 0203; LP-463PB-22-01; MIL-STD-202F, G, H, Methods 103, 106; MIL-STD-810D, E, F,G, H, Methods 501, 502; 507; MIL-STD-883G, H, J, K, L Methods 1004, 1008 & 1010; NES M0007 [2014-N], Sect. 32 & 46; NES M0141 [2018-N], Sect. 6.2.11, 6.3.8 & 6.3.9; PF.90005, Sect. 5.2.1 & 5.5; RTCA DO-160E, F, G, Sect. 5.0 & 6.0; TS371-00-004, Sect. 14; TS371-00-004, Sect. 27 to 31; TSL3505G, Section 6.6; TSL3503G, Sect. 6.16; TSL3607G, Sect. 6.4; TSL3608G, Sect. 4.13 & 4.14; TSF7204G, Sect. 5.1 to 5.4; TSF7754G, Sect. 5.2, 5.6, 5.7, 5.11, & 5.19; TSM0502G, Sect. 4.1, 4.1.3, 4.1.4, 4.1.5, & 4.2; TSM0501G, Sect. 9.19
Thermal Shock	Air to Air (-65 to 180) °C Liquid to Liquid (-30 to 85) °C	MIL-STD-202F, G, H, Method 107; MIL-STD-810D, E, F, G, H, Method 503; MIL-STD-883G, H, J, K, L Method 1011; PF.90005, Sect. 5.1.1

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards¹:</u>
Altitude	(-70 to 100)°C (0 to 65, 000) feet	GMW3172, Sec 7.3; MIL-STD-810D, E, F, G, H Method 500; RTCA DO-160E, F G, Sect. 4.0
Leak Testing	Trace Gas Fine Leak Perfluorocarbon Gross Leak	MIL-STD-883G, H, J, K, L Method 1014.15, Test Conditions A & C
Salt Spray/ Salt Fog	(25 to 70) °C	ASTM B117; FLTM BI 103-01; GMW3172; GMW3286; HES D 2021; HES D6501; IEC 60068-2-11; IEC 60068-2-52; ISO 9227; MIL-STD-202F, G, H, Method 101; MIL-STD-810D, E, F, G, H, Method 509; NES M0140 [2014-N]; NES M0007 [2014-N] , Sect. 33; RTCA DO-160E, F, G, Sect. 14; TSH1552G; TS371-00-004, Sect. 11
Cyclic Corrosion	(25 to 70) °C (25 to 100) %RH	CETP 00.00-L-467; FLTM BI 104-02; FLTM BI 123-01; FLTM BI 123-03; FLTM BQ 105-01; GMW14872; GMW15282; GMW15288; HES D6001; SAE J2334; TSH7702G; NES M0007 [2014-N], Sect. 33
Copper Accelerated Acetic Acid Salt Spray (CASS)	(25 to 70) °C	ASTM B368; FLTM BQ 007-0; GMW14458; NES M0138 [2013-N]
Acidic Atmosphere	(25 to 70) °C	MIL-STD-810D, E, F, G, H, Method 518
Explosive Atmosphere	(1000 to 55000) feet (Ambient to 70) °C	MIL-STD-810E, F, G, H, Method 511; RTCA DO 160E, F, G, Sect. 9.0
Vibration	Frequency: (1 to 2000) Hz Random: 13500 force lbs Sine: 13500 force lbs Max. Acceleration: 104 g Sine With Temperature: (-40 to 100) °C With Humidity: (10 to 95) %RH	ASTM D4728; GMW3172, Sect. 9.3; IEC 60068-2-6; MIL-STD-202F, G, H, Methods 201, 204, & 214; MIL-STD-810D, E, F, G, H, Method 514; MIL-STD-883G, H, J, K, L Methods 2001 & 2007; RTCA DO 160E, F, G, Section 8.0; TSF7754G, Sect. 5.4; TSM0502G, Sect. 4.4

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards¹:</u>
Shock	Pneumatic Shock Table	IEC 60068-2-27;
	Duration: (0.25 to 30) msec	MIL-STD-202F, G, H, Methods 203, 207, & 213;
	Acceleration: (5 to 10 000) g	MIL-STD-810D, E, F, G, H, Method 516; MIL-STD-883G, H, J, K, L Method 2002; RTCA DO 160E, F, G, Section 7.0
	Electrodynamic Shock Tester	
	Duration: (up to 30) msec Acceleration: (1 to 100) g	
	Half Sine Sawtooth SRS	
Highly Accelerated Life Test (HALT)	Acceleration: 50 Grms Temperature Range: (-80 to 200) °C Ramp Rate: 50 °C/min.	Qualmark HALT Testing Guidelines, Document 933-0336 Rev:04
Linear and Constant Acceleration	Acceleration: (5 to 5 000) g	MIL-STD-810E, F, G, H, Method 513; MIL-STD-883G, H, J, K, L Method 2001, Test Condition A
Robotic Durability	Load Application Range: (up to 100) kgf Speed Range: (up to 2 000) mm/sec Temperature Range: (-50 to 180) °C	PF-10915; TSF7303G, TSF7356G; TSF7357G; TSF7363G
Pneumatic Compression Durability and Cycling		ASTM D3574, Test I3; TSF7350G; TSF7358G; TSF7359G; TSF7206G; TSF7303G; TSF7304G
Sand and Dust	Temperature (ambient to 70) °C Blowing Sand and Dust Free Settling Dust	IEC 60068-2-68, Test L; MIL-STD-202F, G, H, Method 110; MIL-STD-810D, E, F, G, H, Method 510; PF.90084; RTCA DO-160E, F, G, Section 12; SAE J726
Dust (IP Codes)	IP5K, IP6X, IP6K	IEC 60529; ISO 20653
Water (IP Codes)	IP1, 2, 3, 4, 5, 6, 7, 8, 9K	IEC 60529; ISO 20653
Icing/Freezing Rain		GMW3172 Sect. 9.5.5; MIL-STD-810E, F, G, H, Methods 521 & 524; RTCA DO-160, Section 24

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards¹:</u>
Waterproofness/Rain Exposure	Speed: up to 18m/s	MIL-STD-810E, F, G, H, Method 506; RTCA DO-160E, F, G, Section 10
High Pressure Cleaning / Water Jet	Temperature: (25 to 100) °C	AA-0136, ISO 16925; FLTM BI 107-05; GMW14797, GMW15919; GMW16745; NES M0141 [2018-N], Sect. 6.2.13; TS371-00-004, Sect. 36
Submergence/ Immersion		ASTM D570; ASTM D870; FLTM BI 104-01; HES D6501; IEC 60068-2-18; MIL-STD-202F, G, H, Method 104; MIL-STD-810E, F, G, H, Method 512; TSH1505G; NES M0007 [2014-N], Sect. 57
Water Resistance / Absorption		0096Z-SM4-0000, Sect. 3 & 4; AATCC 42; AATCC 127; HES D6506, Section 5.30 & 5.31; ISO 2896; LP-463KC-01-01; NES M0141 [2018-N], Sect. 6.3.1 & 6.3.10; TS371-00-004, Sect. 16 & 17; TSM0501G, Sect. 9.16; TSM0502G, Sect. 4.3
Solar Climatic / Solar Radiation / IR Exposure	(-30 to 100) °C (10- 90) %RH	DIN 75220; MIL-STD-810E, F, G, H, Sect. 505; TSF7360G, Section 4.1; TSF7754G, Sect. 5.1; TSF7755G, Sect. 4.3; TSM0502G, Sect. 4.1, Method B
Weatherability and Solar (Xenon)	CI4000 CI5000 Q-Sun	ASTM D2565; FLTM EU BO 050-01; GMW14162; HES D6601; JIS D 0205; NES M0135; SAE J1885; SAE J1960; SAE J2412; SAE J2527; TSH1585G; TSL2100G, Sect. 4.28; TSL0601G; NES M0007 [2014-N], Sect. 48 (2); NES M0141 [2018-N], Sect. 6.4.1 (7)
Accelerated Weathering	QUV	0096Z-SM4-0000, Sect. 2; ASTM G154; NES M0007 [2014-N], Sect. 48 (3); NES M0141[2018-N], Sect. 6.4.1 (6); SAE J2020
Failure Analysis		SOP 910-05 series, ASM Handbook Volume 11
Microscopic Evaluation	Magnification: 20 to 1000 x	ASTM A892; ASTM E112; ASTM E930; MIL-STD-883, Method 2009
Mass/Weight Testing		HES D6506, Section 5.3; TSL2100G, Sect. 4.1; ISO J860

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards¹:</u>
Differential Scanning Colorimetry (DSC)		ASTM D3895; ASTM D3418
Thermal Gravimetric Analysis (TGA)		ASTM D3850; ASTM E1131
Fourier Transform Infrared (FTIR) Spectroscopy	Transmission Reflectance ATR Microscope Capabilities	ASTM E168
Scanning Electron Microscope (SEM) / Energy Dispersive Spectroscopy (EDS)		ASM Handbook Volume 12; ASTM E1508
High Pressure Liquid Chromatography (HPLC)	Diode Detector Aldehyde/ Formaldehyde Analysis	0094Z-SNA-0000; GMW15635; NES M0402 [2016-N]; TSM0508G
Gas Chromatography / Mass Spectroscopy (GC/MS)	Gerstel Thermal Desorption (TDS) Headspace Markes Chamber Direct Inject	GMW8081; GMW15634; 0094Z-SNA-0000; 0094Z-T6A-0000; CS-13398; ISO 12219; NES M0402 [2016-N]; PV3341; PV3925; TSM0508G; TSM0509G; TSM0512G; VDA 278
Moisture / VOC Content		ASTM D2369; ASTM D1203; ASTM D2288; LP-463DD-04-01; NES M0007 [2014-N], Sect. 8; NES M0141[2018-N], Sect. 5.5; NES M7108 [2005-N], Sect. 17; TSM0501G, Sect. 9.17; TSL5100G, Sect. 4.14
Adhesion Testing (Tape Adhesion)		0096Z-SM4-0000, Sect. 2; ASTM B571; ASTM D3359; FLTM BI 106-01; GMW14829; GMW15851; ISO 2409; NES M0007 [2014-N], Sect. 29; NES M0141[2018-N], Sect. 6.2.4; TS 371-00-004, Sect. 7 & 8; TSM0501G, Sect. 9.22
Coating Weight		ASTM A90; ASTM B680
Coating/ Film Thickness	Microscopic Measurements Kocour Digital Thickness Gauge	ASTM B456; ASTM B487; ASTM B499; ASTM B659; FLTM BI 117-01; GMW14668; ISO 2808, Sect. 5.5 ISO 1463; ISO 2808, Sect. 5.4

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards¹:</u>
Coating/ Film Thickness (<i>cont.</i>)	Digital Thickness Gauge	TS371-00-004, Sect. 2, 3
Paint Film Permeability		NES M0141 [2018-N], Sect. 6.3.26
Stone/ Chip Resistance		AA-0079; ASTM D3170; FLTM BI 157-05; GMW14700; LP-463-PB-39-01; NES M0007 [2014-N], Sect. 28 & 77; NES M0141[2018-N], Sect. 6.2.3; SAE J400; TS371-00-004, Sect. 10; TSM0502G, Sect. 4.5.4; FLTM BI 007-01; FLTM BI 157-06; ISO 20567-1; NES M0007 [2014-N], Sect. 28, Method B
Density / Specific Gravity		ASTM D1056; ASTM D3574, Test A; ASTM D3575, Suffix W; ASTM B328; ASTM D792; GMW3182; HES D2500, Sect. 3.15; HES D6506, Sect. 5.1; ISO 1183-1; NES M0007 [2014-N], Sect. 7; NES M0141[2018-N], Sect. 5.4; TSL3505G, Sect.6.2; TSL2100G, Sect. 4.2; TSL3101G, Sect. 4.2; TSL3608G, Sect. 4.3 & 4.4; TSF7754G, Sect. 5.16; TSL5705G, Sect. 5.3; TSL3505G, Sect. 6.2; TSM0501G, Sect. 9.1; TSM0506G, Sect. 3.1
Filler & Ash Content - (40 to 1050) °C Muffle Furnace		ASTM D2584; ASTM D5630; FLTM BO 006-01; FLTM BO 006-02; FLTM BO 006-03; FLTM EU BO 006-02; ISO 1172; ISO 3451-1; ISO 3451-4; NES M0007 [2014-N], Sect. 10; TSM0501G, Sect. 9.24
Melt Flow		ASTM D1238, Procedure A; HES D2500, Sect. 3.8; ISO 1133-1; TSM0501G, Sect. 9.10; TSM0506G, Sect. 3.5
Coefficient of Friction		HES D6506, Section 5.23; TSL5100G, Sect. 4.36

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards¹:</u>
Tension/Compression		ASTM D1056; ASTM D3574, Test B, C, & D; ASTM D3575, Suffix B, D, ASTM D3575, Suffix BB; ASTM D1229; ASTM D395; ATSM D412; ASTM D575; ASTM E8; ASTM F152; ASTM A370; FLTM BN 015-01; FLTM BN 015-02; ISO 1856; ISO 844; ISO 7214, Sect. 8.8; JIS K 6767, Sect. 3 & 4; JIS K 6301, Sect. 10; MIL-STD-883, Method 2019; SAE J1352; TSL3608G, Sect. 4.7
Tear Testing		ASTM D3574, Test F; ASTM D1004; ASTM D2261; ASTM D624; ASTM D5733; HES D6506, Sect. 5.6; ISO 7214, Sect. 8.7; ISO 8067; JIS K 7128-1; JIS K 6251; JIS K 6252; JIS Z 2241; JIS K 6767, Sect. 5.6; NES M0076 [2016], Sect 13; NES M7108[2005-N], Sect. 8; TSL2100G, Sect. 4.12; TSL3607G, Sect. 6.2; TSL5100G, Sect. 4.4
Tensile		ASTM D3574, Test E; ASTM D952; ASTM D1708; ASTM D1822; ASTM D2990; ASTM D638; ASTM D882; ASTM A370; ASTM D380; ASTM D5034; HES D2500; HES D6506, Section 5.4; ISO 37; ISO 527-1; ISO 527-2; ISO 188; ISO 1798; ISO 1926; JIS K 6301, Sect. 3.5; Sect. 3.3; JIS K 6767, Sect. 5.2; JIS K 6301, Sect. 13; LP-463TB-4-01; NES M0076 [2016], Sect 12; NES M7108[2005-N], Sect. 7; TSL3505G, Sect. 6.4; TSL2100G, Sect. 4.7; TSL3608G, Sect. 4.6; 4.8, 4.9; TSL5100G, Sect. 4.3; TSM0501G, Sect. 9.2; TSM0506G, Sect. 3.2; TSL3607G, Sect. 6.1
Peel / Pluck /Shear Strength		ASTM D903; FLTM BU 112-02; GM9758P; GM3602M; GMW14892; GM3604M; GM9797P; GM9838P; HES D6506, Sect. 5.24; JIS K 6301; LP-463LB-10-01; LP-463TB-3-01; LP-463TB-8-01; NES M0007 [2014-N], Sect. 7, 44, 67, & 69; NES M0076 [2016], Sect 14; NES M0141 [2018-N], Sect. 6.3.27; NES M0152[2006-N], Sect. 12; SAE J1553; SAE J1679; TSF7754G, Sect. 5.8; TSL5100G, Sect. 4.5; TSM0502G, Sect. 4.14 & 9.23; TSF7360G, Sect. 4.7

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards¹:</u>
Flexural Bending / (3 Point) Modulus		ASTM D790; HES D2500, Sect. 3.5; ISO 178; ISO 1209-1; JIS K 7203; NES M0141 [2018-N],, Sect. 6.2.12; NES M7108[2005-N], Sect. 9; TSL3101G, Sect. 4.6, 4.7, & 4.8; TSL3608G, Sect. 4.5; TSM0501G, Sect. 9.3
Mandrel Bend / Material Flexibility		ASTM D1056; ASTM B571; ASTM D926; FLTM BI 009-05, FLTM BN 102-01; GM2221M, Sect. 3.1.10; HES D6506 Sect. 5.8; LP-463LB-11-01, Methods A & B; NES M0007 [2014-N], Sect. 30; NES M0141 [2018-N], Sect. 6.2.7; SAE J323, Method A; TS371-00-004, Sect. 34; TSL5705G, Sect. 5.9; TSL2100G, Sect. 4.15; TSL5100G, Sect. 4.18
Brittleness		ASTM D1790; ASTM D746; GM9503P; GMW16746; ISO 812; ISO 974; TSM0501G, Sect. 9.5
Gardner Impact		ASTM D2794; ASTM D5420; LP-463DB-14-01; NES M0007 [2014-N], Sect. 27; NES M0141 [2018-N], Sect. 6.2.2; TSL5100G, Sect. 4.11; TSH1504G
Izod Impact		ASTM D256; HES D2500, Sect. 3.1; ISO 180; TSM0501G, Sect. 9.4
Impact	Temperature: (-40 to 180) °C	FLTM BO 151-01; FLTM BO 151-02; FLTM BU 109-02; FMVSS 201; GM9773P ² ; GMW14093; LP-463LB-11-01, Method C; LP.7N022; NES M0007 [2014-N], Sect. 76; NES M0134 [2004-N]; PF-11014, Sec. 3.3; SAE J323, Method B; TS371-00-004, Sect. 9; TSM0502G, Sect. 4.5.2

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards¹:</u>
Dimensional Stability	FARO Arm (CMM): up to 2 400 mm (± 0.043 mm) Calipers Micrometers Temperature: (-70 to 180) °C Humidity: (10 to 100) %RH	ASTM D3575, Suffix S; GMW3172; HES D6506, Section 5.25 & 5.26; ISO 2808, Sect. 5.2.4; NES M0076 [2016], Sect 24, 25 & 26; TSL2100G, Sect. 4.5; TSL3101G, Sect. 4.1, 4.5, & 4.9; TSL5405G, Sect. 5.8; TSL5100G, Sect. 4.15; TSM0501G, Sect. 9.13
Abrasion	Taber Abraser Crock Meter Gakushin	ASTM D1044; ASTM D4060; ASTM D3884; FLTM BN 108-02; HES D6506, Section 5.10; LP-463KB-21-01; NES M0141, Sect. 6.2.8, Method 4; SAE J948; SAE J1530; TSL2100G, Sect. 4.18; TSL3607G, Sect. 6.3; TSL5100G, Sect. 4.12; TSM0502G, Sect. 4.6.4; AATCC Test Method 8; FLTM BN 107-01; FLTM BN 108-10; FLTM BI 161-01; LP-463PB-54-01; SAE J861; TSL5100G, Sect. 4.8, 4.9, Method B; HES D6506, Sect. 5.11.2; JIS L 0849; NES M0076 [2016], Sect 16 & 23; NES M7108[2005-N], Sect. 15 & 16; TSL2100G, Sect. 4.23; TSH1544G; TSL3607G, Sect. 6.5; TSF7204G, Sect. 5.6; TSL5100G, Sect. 4.8, Method A; TSL5100G, Sect. 4.33; TSM0502G, Sect. 4.13
Scratch Resistance	Car Wash Taber Pencil Scratch Five Finger Robotic – Scratch and Mar	NES M0159, Method A & B; NES M0152[2006-N], Sect. 13; NES M7108 [2005-N], Sect. 10; GMW14130; FLTM BN 108-13; ISO 20566; LP-463DD-18-01; NES M0159, Method D; GMW14688; TSL2100G, Sect. 4.18; NES M0007 [2014-N], Sect. 31 & 55; NES M0136 [2005-N], Method 1; NES M0141 [2018-N], Sect. 6.2.8, Method 1, & 6.2.9, Method 1 to 6; TSL5100G, Sect. 4.24, 4.25; TSM0502G, Sect. 4.6.2; TSF7754G, Sect 5.15; TSL5100G, Sect. 4.23; TSM0502G, Sect. 4.15; TS371-00-004, Sect. 5
Surface Roughness		FLTM BA 003-01; FLTM BI 167-01

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards¹:</u>
Flammability	Horizontal and Vertical Orientation	CMVSS 302; FMVSS302; ASTM D635; FLTM EU BN 024-02; GB 8410; GM9070P; GMW3232; HES C206; HES D6003; ISO 3795; ISO J369; LP-463KC-13-01; MES CF 050D; MS300-08; NES M0094 [2015-2]; RTCA DO-160, Sect. 26; TSM0500G; TSM0504G
Pencil Hardness	6B to 6H	0096Z-SM4-0000, Sect. 10; ASTM D3363; HES D6501; GMW14130; NES M0007 [2014-N], Sect. 26; NES M0141 [2018-N], Sect. 6.2.1; TSH1500G; TSH1539G; TS371-00-004, Sect. 4
Durometer Hardness	Shore A Shore D Asker C	ASTM D2240; HES D2500, Sect. 3.7.2; ISO 868; JIS K 6253, Sect. 5, (1) & (2); JIS K 6301, Sect. 5.1; TSM0501G, Sect. 9.9.2; TSM0506G, Sect. 3.7
Hardness – Knoop / Vickers	Test Force: (10, 25, 50, 100, 200, 300, 500, 1 000) g Load Duration: (5 to 99) sec, using 1-second increments Microscope Magnification: 100x; 200x; 500x	ASTM D1474, Method A; ASTM E92; ASTM E384; ASTM E92; ASTM E384; NES M0007 [2014-N], Sect. 62
Hardness - Rockwell	HRA, HRBW, HRC, HRR	ASTM D785; ASTM E18; HES D2500, Sect. 3.7.1; TSM0501G, Sect. 9.9.1; TSM0506G, Sect. 3.8
Appearance	AATCC Grayscale Color scale Macbeth Lightbooth	ASTM D1729; FLTM BI 109-01; GM8101G, GMW15357; JIS L 0804; MIL-STD-883, Method 2009; TS371-00-004, Sect. 1
Colour	CIE Color Scale XYZ Color Scale 10° and 45° observers	ASTM D2244; NES M0141 [2018-N], Sect. 6.1.5; SAE J1545

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards¹:</u>
Specular Gloss	Tri-Gloss (20°, 60°, 85°) 60° Micro-Gloss	ASTM D4039; ASTM D2457; ASTM D523; FLTM BI 110-01; HES D2500, Sect. 3.10; NES M0007 [2014-N], Sect. 21; NES M0141 [2018-N], Sect. 6.1.2; TSH1519G, (3)
Haze / Transmission	Haze-Gard	ASTM D1003; HES D6508; NES M0161 [2011-N]; TSH1564G; TSM0501G, Sect. 9.15
Fogging	Haake Fog Units Hart Fog Units Gravimetric Photometric	DIN 75 201; FLTM EU BO 016-02; GMW3235; HES D6508; LP-463DB-12-01; NES M0161 [2011-N]; PV3015; SAE J1756; TSM0503G
Odor / Smell Testing		FLTM BO 131-01; FLTM BO 131-03; GMW3205; HES D6506, Section 5.20; LP-463KC-09-01; MS-300-34; NES M0160 [2016-N]; PV3900, SAE J1351; TSM0505G; VDA 270
Contamination by Fluids / Fluids Susceptibility		MIL-STD-810D, E, F, G, H, Method 504; RTCA DO-160E, F, G, Sect. 11
Chemical / Fluid Resistance	Solvents Oil/Gasoline Wax Acid/Base	0096Z-SM4-0000, Sect. 7, 8, & 9; ASTM D1308; ASTM D471; ASTM D1056; FLTM BO 155-01; GMW14333; GMW14334; GMW14650, Sect. 4.10; GMW14701; GMW16955; HES D6501; LP.7M052; NES M0007 [2014-N], Sect. 36, 37, 39 to 41, 43, 59 to 64, 72, 73, & 74; NES M0133 [2018-N]; NES M0141 [2018-N], Sect. 6.3.2 to 6.3.5, 6.3.7, 6.3.11 to 6.3.16, 6.3.18, 6.3.21, 6.3.23, 6.3.24, 6.3.25, & 6.3.28; TS371-00-004, Sect. 21 to 25, & 37; TSH1551G; TSL5100G, Sect. 4.35; TSM0501G, Sect. 9.18; TSM0502G, Sect. 4.8
Contact Migration Staining	Contact Migration	0096Z-SM4-0000, Sect. 17; ASTM D925, Methods A & B; FLTM AN 101-03; HES D6506, Sect. 5.11; NES M0007 [2014-N], Sect. 70; NES M0076 [2016], Sect 22; NES M0141 [2018-N], Sect. 6.2.5 & 6.3.17; TS 371-00-004, Sect. 6; TSH1501G; TSL5100G, Sect. 4.10, 4.37, & 4.38;

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards¹:</u>
Contact Migration Staining (<i>cont.</i>)	Contact Migration	GM9069P
Gel Content (Jelly Content)		NES M0141 [2018-N], Sect. 6.3.20; NES M0007 [2014-N], Sect. 65

*** Also using customer specific test methods utilizing any combination of test equipment parameters listed--above.**

The laboratory is accredited for the test methods listed above. The accredited test methods listed above 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 specification. 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.

Chrysler: PF.7051; PF.90189; PF.90192; PS.7232

Ford: WSS-M2P180-A; WSS-M2P181-A; WSS-M2P188-A1, B1, WSS-M99P2222; WSS-M15P50; WSS-M98P13; WSS-M2P177; WSS-M4P13-A; WSS-M15P4

GM: GMW14797; GMW14444; GMW14650; GMW15725

Honda: 0094Z-SFA-9000; 0094Z-SJC-A210-MI; 0096Z-SEC-A000; 0096Z-SIE-E000; 7214Z-ST7-0000-R4P21051-E; 7244Z-STKA-A000; 7315ZS5A-0000-R4Y21094-E; 7710Z-SCC-9000; 7710Z-SCC-9001; 7410Z-SDA-A000; 7481Z-SZAAA000-SZAAF2387-E; 7710Z-SCC-9001; 7710Z-SEP-A010-M1; 7710Z-SEP-A210-M1; 7710Z-SEP-A810-M1; 7710Z-SZAA-V000 DOC070529; 7710Z-TK4-A110-M1; 7710Z-TK4-A210-M1; 7710Z-TK4-A910-M1; 7710Z-WZXA-R800; 7711Z-SOK-A011-M1; 7785Z-STXA-A810-M1; 7785Z-STX-A810-M1-C4624034-E; 7850ZSNA-N901-R4523058-E; 8102Z-SDAX-A500; 8330Z-STX-A010-M1; 8341Z-S84-A000; 8350Z-SDA-9000; 8350Z-SNA-0000; 8350Z-SNA-N000; 8410Z-SJD-9000; 8420Z-SLJ-0000; 8460Z-SEA-0000; 8461Z-SZAA-V000

Nissan: 27800NDS00; 27860NDS00; 76840NDS00; 76850NDS00; 80900NDS00; 62022NDS00; 62256NDS01; NES M5081

Rivian: RTS.2006

Tesla: TM-5016; TM-0008F-M

Toyota: TSZ0001G; TSM5518G; TSM5523G; TSM5601G; TSM5608G; TSM5725G; TSM7500G; TSH3130G; TSH3131G; TSF0901G; TSF0902G; TSF0903G; TSF0904G; TSF0905G

† *Note: Humidity values cannot exceed the absolute values of 0% & 100%*

¹ When the date, revision or edition of a test method standard is not identified on the scope of accreditation, the laboratory is required to be using the current version within one year of the date of publication, per part C., Section 1 of A2LA R101 - *General Requirements- Accreditation of ISO-IEC 17025 Laboratories*.

² NOTE: This laboratory's scope contains withdrawn or inactive 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.



Accredited Laboratory

A2LA has accredited

ELEMENT MATERIALS TECHNOLOGY KITCHENER

Kitchener, Ontario, Canada

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 6th day of July 2023.

A blue ink signature of Mr. Trace McInturff, written over a horizontal line.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 0214.50
Valid to March 31, 2025
Revised November 20, 2023

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