

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT MATERIALS TECHNOLOGY KITCHENER
150 Trillium Drive
Kitchener, Ontario, CANADA, N2E 2C4
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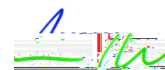
MECHANICAL

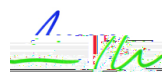
Valid To: March 31, 2025

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; 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; ISO 9001:2015 to Air
	Fog Type and Condensing Humidity	
	(-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>
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, 0.98 -0 0 10.98 331.68 511

Test Technology **Test Capabilities** **Test Specifications/Standards¹:**

Waterproofness/Rain
Exposure Test Methods 7/e8 64.5 -3.8 (o)-3.apabilities



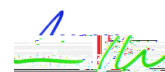
Test Technology

Test Capabilities

Test Specifications/Standards¹:

Coating/ Film
Thickness (*cont.*)

Digital



<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

Test Technology

Test Capabilities

Test Specifications/Standards¹:

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; --II



<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 5il Sraect. 4SL3607Ga4.645 -1.1533 Tw7.(5)-1TJ /P MCID 54 BDC Qq16c33 Tw7.3.8 (

Test Technology

Test Capabilities

Test Specifications/Standards¹:

Specular Gloss

Tri-Gloss (20°, 60°, 85°)
60° Micro-Gloss

ASTM D4039; ASTM D2457; ASTM D523;
FLTM BI 110-01;
HES D25ES D25ES D25aaES DES DH21.7 (ES D)1.6.08 Tm[(A)3.7-9.8





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

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