

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

NATIONAL TECHNICAL SYSTEMS SLMT INC.
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Kitchener, Ontario, CANADA, N2E 2C4
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MECHANICAL

Valid To: June 30, 2023

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: 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/Standards</u>
Temperature and Humidity	(-100 to 190)°C (10 to 100)%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 600682-1; IEC 600682-2; IEC 600682-3; IEC 600682-13; IEC 600682-14; IEC 600682-18; IEC 600682-28; IEC 600682-30; IEC 600682-38; IEC 600682-56; JIS D 0203; LP-463PB22-01; MIL -STD-202F, G, H, Method 103, 106; MIL -STD-810D, E, F, G, H, Methods 501, 502; 507; MIL -STD-883G, H, J, K, Methods 1004, 1008 & 1010; NES M0007, Sect. 32 & 46; NES M0141, Sec 6.2.11, 6.3.8 & 6.3.9; PF.90005, Sect. 5.2.1 & 5.5 RTCA DO-160E, F, G, Sec 5.0 & 6.0 NES M0007, Sect. 33; TS37100-004, Sect. 14; TS37100-004, 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, 5.5, 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, Method 1011; PF.90005, Sect. 5.1.1

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards</u>
Altitude	(-70 to 100)°C (0 to 76 000) 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, Method 1014.15, Test Conditions A & C
Salt Spray/ Salt Fog (25 to 70)°C		ASTM B117; FLTM BI 10301; GMW3172; GMW3286; HES D 2021; HES D6501; IEC 600682-11; IEC 600682-52; ISO 9227; MIL -STD-202F, G, H, Method 101; MIL -STD-810D, E, F, G, H Method 509; NES M0140; NES M0007, Sect. 33; RTCA DO-160E, F, G, Sect 4, TSH1552G; TS3700-004, Sect. 11
Cyclic Corrosion		

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards</u>
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, Section 1; ISO J860
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 1;2 ASTM E1508
High Pressure Liquid Chromatography (HPLC)	Diode Detector Aldehyde/ Formaldehyde Analysis	0094Z-SNA-0000; GMW15635; NES M0402; TSM0508G
Gas Chromatography / Mass Spectroscopy (GC/MS)	Gerstel Thermal Desorption (TDS) Headspace Markes Chamber Direct Inject	GMW8081; GMW15634; 0094Z-SNA-0000; 0094ZT6A-0000; CS-13398; ISO 12219; NES M0301; NES M0402;

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards</u>
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; TS37100-004, Sect. 2, 3
Paint Film Permeability		NES M0141, Sect. 6.3.26
Stone/ Chip Resistance		AA-0079; ASTM D3170; FLTM BI 157-05; GMW14700; LP-463-PB-39-01; NES M0007, Sect. 28 & 77; NES M0141, Sect. 6.2.3; SAE J400; TS37100-004, Sect. 10; TSM0502G, Sect. 4.5.4; FLTM BI 007-01; FLTM BI 15706; ISO 205674; NES M0007, Sect. 28, Method B
Density / Specific Gravity		ASTM D1056; ASTM D3574, Elm Jre W n BT /TI 438 n (A)4

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards</u>
Tension/Compression		ASTM D1056; ASTM D3574, Test B, C, & D; ASTM D3575, Suffix B, D, ASTM D3575, Suffix BB; ASTM D1229; ASTM D395; ASTM D412; ASTM D575; ASTM E8; ASTM F152; ASTM A370; FLTM BN 015-01; FLTM BN 01502; 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 71281; JIS K 6251; JIS K 6252; JIS Z 2241; JIS K 6767, Sect. 5.6; NES M7108, 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; ISO 5272; 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 M7108, 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, Sect. 7, 44, 67, & 69; ,

Test Technology

Test Capabilities

Test Specifications/Standards

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

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards</u>
SLIDO		FLTM BI-167-01
Flammability	Horizontal and Vertical Orientation	CMVSS 302; FMVSS302 ASTM D635; FLTM EU BN 02402; GB 8410; GM9070P; GMW3232; HES C206; HES D6003; ISO 3795; ISO J369; LP-463KC-13-01; MES CF 050D; MS3008; NES M0094; RTCA DO-160, Sect26; TSM0500G; TSM0504G
Pencil Hardness	6B to 6H	096Z

<u>Test Technology</u>	<u>Test Capabilities</u>	<u>Test Specifications/Standards</u>
Contact Migration Staining	Contact Migration SO2 & H2S staining	0096Z-SM4-0000, Sect. 17; ASTM D925, Methods A & B; FLTM AN 101-03; HES D6506, Sect. 5.11; NES M0007, Sect. 70; NES M0141, Sect. 6.2.5 & 6.3.17; TS 37100-004, Sect. 6; TSH1501G; TSL5100G, Sect. 4.10, 4.8 & 7.38; GMW14864; GM9069P
Gel Content (Jelly Content)		NES M0141 Sect. 6.3.20; NES M007, 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

Accredited Laboratory

A2LA has accredited

NATIONAL TECHNICAL SYSTEMS SLMT INC.

Kitchener, Ontario Testing mOL .9-6. /P <</MCI4, Mechanical

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 23rd day of March 2021.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 0214.50
Valid to June 30, 2023
Revised March 20, 2023