



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

GTA MATERIAL LABORATORY  
 Div. of Martinrea International Inc.  
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MECHANICAL

Valid To: March 31, 2020

Certificate Number 1431.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on automotive materials and assemblies:

Tests/Technology	Test Method(s)/ Test Standard(s) <sup>1</sup>
Cleanliness of Fuel and Hydraulic System	GMW16037, GMW15450, GMW15964; GM9080P; SAE J2045; (TPR-30); FLTM BZ 2-1; PF-90195; ASTM A254
Coating Tape Adhesion	ASTM D3359; GMW14829
Coating Thickness (Eddy Current)	ASTM D7091, ASTM B499; (TPR-03)
Coating Thickness (Microscopic)	ISO 2064, ISO 1463; ASTM B487
Coating Weight	ASTM A90, ASTM A428; (TPST-05), (TPST-08)
Cold Flexibility, Hose	ASTM D380; GM6405M; SAE J30
Compression Tests (Push Out, Insertion)	SAE J2044; GMW14291
Pull-off	SAE J2044; CG-3188; PF-90195; FU-1061; (TPGM-41, TPGM-14)
Corrosion Creepback	GMW15282
Corrosion, Accelerated Testing	GMW14124, GMW14872; (TSH1555G); (TPGM-08); SAE J2334; FLTM BI 103-01, FLTM BI 123-01/02/03; CETP 00.00-L-467
Durometer	ASTM D2240, Shore A and Shore D
Fuel Permeation Tests	SAE J1737, SAE J30; GM9061P; (TPGM-12)
Gravelometer-Chip Resistance	SAE J400; GMW14700
Hardness, Rockwell Superficial (B, C, and T)	ASTM E18
Heat Aging, and Temperature Cycling	GMW15964, GMW17552, GMW14658, GMW17334, GMW15724, GMW15667; PF-90195; ES-3U5A-9034; FU-1061
Hose Burst Test (Ambient and Elevated Temp.) Up to 30,000 psi	ASTM D380; (TPGM-15); SAE J2045
Helium Leak Test	ASTM E493
Humidity Test (10 to 98) % RH	ASTM D2247; GMW14729; (TPST-02)
Immersion Test (Volume/Mass Change)	ASTM D380, ASTM D471

<b>Tests/Technology</b>	<b>Test Method(s)/ Test Standard(s)<sup>1</sup></b>
Kink Test	SAE J2260
Leak Test, Under Water (Air), Mass Flow or Bubble Technique	ASTM E515; (TPST-10), (TPST-11)
Metallographic Preparation	ASTM E3
Microhardness (Vickers)	ASTM E384
Peroxide Number in Hydrocarbons	ASTM D3703; Ford AZ-105-01; ISO 4639
Salt Spray (Fog)	ASTM B117; ISO 9227; GMW3286
Temperature/Pressure Cycle, Oil (-60° to +175) °C	SAE J1401, SAE J2044; GMW15964, GMW15724; GM9080P; PF-90197;
Tensile test – Metals and Elastomers (Strength, Yield, Elongation and n-value) Up to 100 kN	ASTM E8, ASTM D638, ASTM E646; (TPST-20); ISO6892-1, ISO 37;
Torque Test	GMW14871; (TPST-25); ES-9CPC-2B109-AA; CETP: 06.06-L-400
Vibration Testing: (Sine Sweep, Dwell, Random, Shock) 8000 lbf 3 inch Displacement (5-3000) Hertz X-Y-Z Vibration one at time – Slip Table Combined Environment: (-40° to +165)°C	SAE J1211, SAE J1455, SAE J2044; GMW17070, GMW 15570; PF-90195;
Volumetric Expansion, Hose	ASTM D380; SAE J1401; (TPST-12)
Weld Joint Integrity-Macro Etching Inspection	ASTM E3; (TPGM-22), (TPGM-21); (TPR-10)
Electrical Resistance for Conductive Fuel Lines	SAE J2260, SAE J1645; ASTM D257
Fracture Mode: Scanning Electron Microscope – 10 nanometer Resolution Optical Microscope – Magnification Up to 1000X	(TPST-35)
Grain Size	ASTM E112
Flame Arrestor Capability, Flame Resistance	GMW14844; SAE J2027
Rubber-Compression Set	ASTM D395; SAE J1638
Rubber Hardness (IHRD), Method M and N	ISO 48; ASTM D1415
Layer Adhesion	ASTM D413; ISO 8033
Vacuum Collapse	SAE J30
Extractables	SAE J30
Coating Evaluation	ASTM D610, ASTM D714; GMW15357
Water Resistance	FLTM BI 104-01, FLTM BI 104-04
Drift Expanding Test	ISO 8493; ASTM A 254
Solvent Rub/Cure Test	GMW15891
Fluid Resistance	GMW14658, GMW17334, GMW17137, GMW14638; WSS-M21P30-A1/A4; PS-8688
Zinc Chloride, Calcium Chloride Resistance	GMW14658, GMW14638
Temperature and Humidity Resistance	GMW14658, GMW14638

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<p>Brake Lines Performance: (Mechanical properties, drift expanding test, bend test, flattening test, adhesion test, hardness, pressure and burst test, coating thickness, coating weight, gravelometer/salt spray test, staggered knife/salt spray test, humidity test, solvent rub test, fluid resistance, corrosion resistance, cleanliness, temperature resistance, heat ageing, zinc chloride resistance)</p>	<p>GMW14658; WSS-M21P30-A1/A2/A3/A4; WSA-M1A308-A1/A2; ESA-M1A270-A; MS.90025/06&lt;S&gt;; PS-8688; SAE J527, SAE J1677; ASTM A254; QV 34 092; DBL 4040; STJLR.50.5311;</p>
<p>Fuel Lines Performance: (Mechanical properties, drift expanding test, bend test, flattening test, adhesion test, hardness, pressure and burst test, coating thickness, coating weight, gravelometer/salt spray test, staggered knife/salt spray test, humidity test, solvent rub test, fluid resistance, corrosion resistance, cleanliness, temperature resistance, heat ageing, zinc chloride resistance, fuel recirculation for fuel feed lines, electrical resistance)</p>	<p>GMW17334; WSS-M21P30-A1/A2/A3/A4; WSA-M1A308-A1/A2; ESA-M1A270-A; PS-8688; SAE J526, SAE J1677; DBL 4040;</p>
<p>Fuel Lines Nylon Tubes: (Burst test at room and elevated temperature, ovality, cold impact resistance (-40 C°), electrical resistance, permeation resistance, mandrel insertion, layer adhesion, kink resistance, fuel exposure preconditioning by recirculation, auto-oxidized fuel, recirculation, surface resistivity, permeation, Zinc Chloride resistance, Calcium Chloride resistance, heat aging resistance, bend radius, tensile strength and elongation, solid particle contamination, cold temperature flexibility, resistance to stone impact, flexural test, resistance to brake fluid, resistance to underbody protective wax, resistance to oil)</p>	<p>SAE J2260; GMW14638; WSS-M98D33-A1/A2/A3/A4/A5/A6/A7/A8/A9/A10/A11/A12/A13/A14</p>
<p>Fuel Lines assemblies: (Leak test, vacuum leak test, assembly effort, pull-apart effort, side load capability, electrical resistance, corrosion, zinc chloride resistance, external chemical resistance, fuel compatibility, life cycle, elevated temperature burst, fitting pull-off, formed bend restriction, cleanliness, burst, cover stock heat resistance, electrostatic charge mitigation, chemical resistance)</p>	<p>SAE J2045, SAE J2044; GM9080P, GM9676P; PF-90197; ES-FU5A-9J279-AB</p>

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<b>Fuel Filler Pipes Performance:</b> (Leak test, siphon capability, ESD, nozzle insertion, cap insertion/removal, pressure and vacuum cycling, nozzle insertion and removal forces, nozzle loading, break away, fuel soak and burst, drop test, cleanliness, corrosion, temperature cycling, vibration, shock, pressure spike, hose pull-off)	GMW15667; PF-90195; ES-3U5A-9034-AB
<b>Coating Finishes Performance:</b> (Appearance, coating thickness, adhesion, corrosion resistance, hydrogen embrittlement using microhardness method, fuel resistance, conductivity, humidity, stone impact, water resistance, fluid resistance, solvent resistance)	GMW3044, GMW15197, GMW17246; WSS-M2P177-C1/C2/C3; PS-9163; PF-7051
<b>Transmission Oil Cooler Lines:</b> (Cleanliness, burst, tensile, leak, heat age, corrosion, pressure cycling, temperature cycling, pressure and temperature cycling, vibration, insertion force, serviceability, pressure drop)	GMW15724, GMW15964; ESBT4P-7H420-AB; PF-11051
<b>Evaluating Stress-Corrosion-Cracking Resistance of Metals and Alloys in a Boiling Magnesium Chloride Solution</b>	ASTM G36

*Note: Internally written test methods are shown in parentheses.*



## *Accredited Laboratory*

A2LA has accredited

### **GTA MATERIAL LABORATORY**

*Ontario, Canada*

for technical competence in the field of

### **Mechanical Testing**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *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 April 2017).



Presented this 4<sup>th</sup> day of April 2018.

A handwritten signature in black ink, written over a horizontal line.

President and CEO  
For the Accreditation Council  
Certificate Number 1431.01  
Valid to March 31, 2020

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