SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

RELIABLE ANALYSIS INC.
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MECHANICAL

Valid To: June 30, 2017 Certificate Number: 0386.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on adhesives, coatings (paints), deadeners, elastomers, foams, foundation board, metal, moldings, automotive paperboard, plastics, rubber, sealers, tapes, automotive textiles, body components, and assemblies:

Test:	Standard:
Abrasion	
Crocking	AATCC 8; FLTM BN 107-01; FLTM BN 107-02; FLTM BN 108-10; GM 9033P[1] (07/13 inactive, no replacement); SAE J861
Crock/Mar	LP-463PB-54-01
Martindale	GMW15651; ISO 12947
Snagging	SAE J948
Taber	ASTM D4060; LP-463KB-21-01; FLTM BN 108-02; GM 9337P; GM 9515P[1] (07/13 inactive, no replacement); GMW3208; SAE J948
Wyzenbeek	LP-463KB-06-01; GM 9082P[1] (10/12 inactive, no replacement); SAE J948
Fiber Loss after Abrasion	SAE J1530

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Test:	Standard:
Adhesion	
Dime Scrape	GM 9506P[1] (06/13 inactive, no replacement)
Paint/Tape	ASTM D3359; LP-463LB-19-01; FLTM BI 106-01; GM 9071P[1] (09/12 inactive, replaced by GMW14829); GM 9758P[1] (06/11 inactive replaced by GMW15201); GM 9502P[1] (08/12 inactive, no replacement); GM 9160P; GMW14829; GMW15201
Saw Grind	ASTM B571 (sec 8)
Thumbnail	GM 9507P[1] (06/11 inactive, no replacement)
Air Permeability	ASTM D737; ASTM D3574 (Method G); ISO 7231
Appearance	
Color	ASTM D2244; SAE J1545
Gloss	ASTM D523
Grain Retention	GM 9142P
Bending/Flex/Mandrel	
Cantilever/Textile	GM 9664P; GMW3390
Chemical Stress	FLTM BO 127-03; GM 9308P[1] (03/11 inactive, no replacement); GMW15790
Ductility	ASTM B490
Mandrel/Brittleness	GM 9503P[1] (06/12 replaced by GMW16746) GMW16746
Mandrel/Cold flex	LP-463LB-11-01; GMW3154; GMW14108; SAE J323-A
Mandrel/Flex	
Stiffness	ASTM D747

Test:	Standard:
Chemical Resistance	
Acid Spotting	LP-463-KC-16-01
Automotive Fluids	GM 9509P; GM 9900P[1] (03/10 inactive, replaced by GMW14334); GMW14334; LP-463PB-31-01
Cure	GM 9509P[1] (10/12 replaced by GMW15891); GMW15891
Chemical Staining	LP-463PB-57-03; FLTM AN 101-01
Fuel	FLTM BO 101-05; GMW14333
Perspiration	FLTM BI 113-03; FLTM BI 113-06; GM 9240P[1] (07/13 inactive, no replacement); GM 9517P[1] (12/12 inactive, replaced by GMW14334); GMW14296; GMW14334; LP-463KC-21-01
Spotting:	
Water	LP-463KC-03-01; GMW14102
Water & Soap	FLTM BI 113-01
Salt Stain	GM 9133P
Suntan/Insect Repellent	Ford DVM0036; Ford DVM0039; FLTM BI 113-08; GMN10033[1] (03/11 inactive, replaced by GMW14445);
Coefficient of Linear Thermal Expansion by TMA	ASTM E381
Coating Thickness/Composition	
Coulometric	ASTM B504; ISO 2177
Microscope	ASTM B487; GMN4947[1] (05/10 replaced by GMW15726); GMW15726; ISO 1463
S.T.E.P. Test	ASTM B764; GM 4260P-Method 4[1] (10/13 inactive, no replacement)

Test:	Standard:
Compatibility	
Water Colorfastness	AATCC 107
Color Trans Thread	GM 9137P
Vinyl Leather	GM 9141P; GMW4659
Migration Staining	ASTM D925; LP-463DD-06-01; FLTM BN 103-01; GMW14069[1] (Inactive 03/01/2011); GMW14141; ISO 15701
Compression/Foam	
Compression Set	FLTM BN 115-07; ISO 1856
Foam Testing	ASTM D3574 (A, B1, C, D, E, F, G, H, I3, J, K, L, X3.1, X3.3, X6)
Load Deflection	ASTM D1056 (Sec. 17-22); ISO 3386
Corrosion/Salt Spray	
CASS	ASTM B368; FLTM BQ 105-01; GM 4476P[1] (12/10 replaced by GMW14458); GMW14458
Creepback	GM 9102P; GMW15282
Salt Spray	ASTM B117; FLTM BI 103-01; GM 4298P[1] (12/10 replaced by GMW3286); GM 9540P[1] (03/10 replaced by GMW14872); GMW3286; GMW14872; SAE J2334
Density/Weight	ASTM D1475; FLTM BN 106-01; GMW3182; ISO 1183-1, Method A
Mass	ASTM D3776-C; SAE J860
Thickness	SAE J882

Test:	Standard:
Density/Weight (cont.)	
Specific Gravity	ASTM D792
Water Absorption	ASTM D570; ASTM D1056 (Sec. 43 through 49)
Water Repellency	GM 9317P; GMW4726
Dimensional/Measuring/Shrinkage	
Fabrics	ASTM D751 (*excluding 18-25, 36-63, 65-70, 89-93*)
Length	ASTM D3773-A
Width	ASTM D3774
Fabric Count	ASTM D3775
Measurements	FLTM BN 105-01; FLTM BN 105-03; FLTM BO 129-01; GM 9230P; GM 9330P; GM 9452P[1] (12/10 replaced by GMW4217); GMW4217; GMW14773; ISO 1923; ISO 2577; SAE J883
Stretch & Set	GMW3211; SAE J855
Emissions	
Aldehydes and Ketones	FLTM BZ 156-01 Parts A & B; VDA 275; PV 3925; EN 717-3; GMW15635; STD 429-0002; ISO DIN 17226-2; DIN EN ISO 14184-1
Total VOC	FLTM BZ 157-01; GMW8081; PV 3341; VDA 277; TS-INT-002; STD 429-0003
VOC/SVOC/FOG	VDA 278; GMW15634

Test:	Standard:
Flammability	ASTM D635; CMVSS 302; DBL 5307; DIN75-200; EDS-T-7602[1] (replaced by GMW3232); FMVSS 302; FLTM BN 024-02; GB 8410; GM 9070P[1] (09/11 replaced by GMW3232); GMNA6090M[1] (09/11 inactive, no replacement); GMW3232; HES D 6003; ISO 3795; Mazada MES CF 050C; Mitsubishi ES-X60410; Nissan NES M0094; SAE J369; Toyota TSM0500G; TSM0504G; Volvo Std 5031,1[1] (01/11 replaced by STD 104-0001)
Flex/Fold	
Bally Flex	ASTM D6182; ISO 5402
Cold Fold	ASTM D1912
Flex & Fold	FLTM BN 102-04; LP-463LB-09-01
Pinch Fold	LP-463KB-28-01-C
Newark/W Flex	ASTM D2097; FLTM BN 002-03; FLTM BN 102-02
Vinyl Crazing	GM 9143P
Fogging	LP-463DB-12-01; GMW3235; SAE J1756; DIN 75201
FTIR-Infrared Analysis	ASTM E334; ASTM E1252
Gas Fade/Burnt Gas	AATCC 23; ISO 105-G02
Hardness	
Pencil	ASTM D3363
Durometer (A&D)	ASTM D2240
Humidity	ASTM D1735; ASTM D2247; GMW14729

Test:	Standard:
Imaging	
3D Scanning Methodology: Scanning Volume – 200mm x 150mm x 150mm	Customer Supplied Specifications
Impact	
Ball, Tup, Pendulum	FLTM BO 151-01; GMW14093; ISO 6603-1
Charpy	ISO 179
Cold Crack	GMW14126; GMW14127; SAE J323-B
Gravelometer/Chip Resistance	GMW14700; SAE J400
Izod	ASTM D256; ISO 180
Multi-Axial	ASTM D3763; GM 9904P[1] (05/11 replaced by ASTM D3763 / ISO 1431-1); ISO 1431-1; ISO 6603-2
Stress Mark Susceptibility	GM 9302P[1] (03/14 replaced by GMW17141)
Immersion	
Water	FLTM BI 104-01; FLTM BI 104-04
Wicking	GM 9146P (*except 4.3*); SAE J913
Mace Snagging	FLTM BN 108-11
Melt Flow	ASTM D1238; ISO 1133
Melting, Crystallization, and Tg (DSC)	ASTM E794; ASTM E1356; ASTM D3418; ISO 11357
Mildew, Mold, Fungi	ASTM G21; GMW3259; GMW16124

Test:	Standard:
Odor	LP-463KC-09-01; FLTM BO 131-01; FLTM BO 131-03; GMW3205; SAE J1351; VW PV3900; VDA 270
Ozone	ASTM D1149; FLTM BP 101-01; GM 4486P[1] (12/12 inactive, replaced by ISO1431-1); ISO 1431-1
Oven/Exposure Cycle	
Accelerated Aging	FLTM BN 113-02; GMW14709; LP-463LB-13-01
Ash Content	ASTM D2584; ASTM D5630-B; FLTM BO 006-01; GM 9077P[1] (Inactive 3/2013, no replacement); ISO 3451-1 (Method A)
Blocking	GMW14132
Color Change	GM 9131P
Dust Out	GM 9635P[1] (09/13 inactive, replaced by GMW16998); GMW16998
Environmental Cycle	LP-463LB-12-01; GMW14124 (All Tables)
Shear	FLTM BV 120-02
Softening Point- Adhesive Tapes	LP-463TB-14-01
Spue Test	LP-463LB-05-01
Stab. Adhesives/Sealers	GM 9763P[1] (09/11 inactive, replaced by GMW15735); GMW15735
Sunlamp Oven	FLTM BO 115-01; FLTM BO 115-02; GM 9897P[1] (Inactive 05/01/2011); GMW 14757
VOC Sealers/Adhesives	GMW3016
pH of Aqueous Solutions	ISO 3071; ISO 4045

Test:	Standard:
Pilling/Minking/Lint	
Brush & Sponge	LP-463KB-37-01; FLTM BN 108-03; FLTM BN 108-14; GM 9652P
Random Tumbler	LP-463KB-38-01-A; GM 9139P[1] (06/11 inactive, replaced by GMW3347); GMW3347; GMW4749[1] (Inactive 03/01/2011)
Plastics	
Determination of Temperature of Deflection Under Load	ISO 75-1; ISO 75-2;
Determination of Vicat Softening Temperature	ISO 306
Ravel Resistance	
Scott-type	GMW3217
Scratch/Mar	
5 Finger	LP-463DD-18-01; FLTM BN 108-13; GMN3943[1] (01/11 replaced by GMW14698); GMW14698
Erichsen Scratch and Mar	GMW14688; LP-463DD-18-02; PV3952; 7-M0005
Paperclip	GM 9150P[1] (Inactive 12/01/2012); GMW14130
Shear Scratch	8320Z-SW5-9000; 3520Z-SFY-0000; TSL3610G; TSL5100G; TSM5754G; TSM6734G
Scuffing/Mar	
Taber Scuff Finger	FLTM BN 108-04; SAE J365
Seam Strength	
Conditioning + Tensile	LP-463KB-13-01(*except B*), (superseded by MS.50019 Annex A); MS.50019 Annex A; FLTM BN 119-01; GMW14145

Test:	Standard:
Seam Strength (cont.)	
Seam Fatigue	FLTM BN 106-02; GMW3405; GM 9129P
Soiling & Cleanability	FLTM BN 112-08; LP-463KC-04-01; GM 9126P[1] (04/12 inactive, replaced by GMW3402); GM 9156P; GMW3402
Martindale	LP-463KC-04-03; GMW3402/GMW15377
Staining	
Asphalt	LP-463PB-57-02
Sulfur Dioxide Resistance	
High Humidity	ASTM G87; GMW14728; ISO 3231
Kesternich	ASTM D1712; FLTM AN 102-01; GMW 14864; SAE J322
Spot Test	GM 9736P[1] (03/11 inactive, replaced by GMW14864); GMW14864
TGA - Thermogravametric Analysis	ASTM E1131
Thermal Shock	FLTM BI 107-05; GMW15919
Tensile	
Adhesive Strength	FLTM BN151-01; GM 9897P[1] (05/11 inactive, replaced by GMW14757); GMW14757
After Autoclave	ASTM D3574-J; FLTM BO 012-01
Bond Strength	LP-463LB-10-01[1] (superseded by LP.7M008); FLTM BN 121-01; GMW3220; LP-7M008
Breaking Strength	ASTM D2208; ASTM D5034; ASTM D5035

Test:	Standard:
Tensile (cont.)	
Coefficient of Friction	ASTM D1894
Hook & Loop	GM 9207P
Flexural Properties	ASTM D790; ISO 178
Friction	ASTM D1894; GMW3289; LP-463AB-52-01
Indentation Force Deflection	ASTM D3574-B1
Loop Pull-Out	GM 9127P[1] (03/11 inactive, replaced by GMW14148); GMW14148
Modulus of Bending	SAE J949
Peel	ASTM D903; LP-463TB-03-01; GM 9797P[1] (03/11 inactive, no replacement)
Poisson's Ratio	ASTM E132
Shear Test	ASTM D732; LP-463TB-08-01; FLTM BU 101-06
Snag	GMW14775
Stitch Tear	ASTM D4705; GM 9149P; GMW14146
Tensile Properties (-40 to 120C) (≤ 20 000 lbs)	ASTM D412-A (*except 12.2, 12.3*); ASTM D638; ASTM D882; ASTM D1708; LP-463NB-17-01; LP-463TB-04-01; FLTM BN 150-04; GMW3010; GMW14695; ISO 037; ISO 527; ISO 1798

Test:	Standard:
Tensile (cont.)	
Tear	ASTM D624 (die C, *except appendix*); ASTM D1004; ASTM D2261; ASTM D5587; ASTM D5733[1] (withdrawn 2008, no replacement); FLTM BN 150-02; GM 9149P; GMW3326; ISO 13937-2
Tuft Lock	LP-463KB-22-01
Wrinkling	GM 9897P1 (05/11 inactive, replaced by GMW14757); GMW14757
Variable Surface Heat Exposure	GM 9310P; GMW15432
Weathering	
Xenon	AATCC 16; ASTM D4459; FLTM BO 116-01; GM 9125P[1] (05/13 inactive, no replacement); GM 9327P[1] (01/11 replaced by SAE J1976); NES M0135-2001-N; SAE J1960[1] (cancelled 2008, replaced by SAE J2527); SAE J1976; SAE J2412; SAE J2527
Fiber After Degradation	FLTM BN 117-03; GM 9771P; GMW3387

Test:	Parameter/Range:	Test Method:
Environment Exposure[2]:		FLTM BQ 104-07
Temperature	(-65 to 177) ºC	
Humidity	20 to 95 %RH, up to 85 ºC	
Chamber Size	(max.) to 26 ft. deep by 16 ft. wide by 10 ft. high (full vehicles)	
Structure[2]: (Hoods, Decklids, Fenders, Other Automotive Components)		TS371-06-003
Deflection and Set	± 3 in. displacement, 10 000 lbf	
Dimensional Stability (including the use of LVDTs, Load Cells and Pressure Transducers)		TS371-06-003

Test:	Parameter/Range:	Test Method:
Pneumatic Cycling Durability[2]: Sunshade Assemblies Hood systems Rear compartment systems Consoles Ashtrays Glove Boxes Armrests Door Handles Trim Panels (interior and exterior) Latches Mirrors	Ambient or (-40 to 120) ºC 24 in. displacement 225 lbf. load	TS371-06-003
Servo Hydraulic Fatigue Test for Load or Displacement[2]:	2.5 to 11 KIP Up to 6.0 inches travel 30 GPM pump 3000 psi pressure 10 Hz max. frequency	TS371-06-003
Thermal Shock[2]:	(-40 to 177) ºC 8 ft^3 basket	GMW14124
Vibration[2]: Sine Random Classical Shock	3 in. displacement 20 to 2500 Hertz 11 000 pounds force Up to 80 g's Up to 11 milliseconds	SDS: EY-0128 (WDS 00.00ES-D11-18)
Resistance: Megohms		Fiat Auto 7.Z0250

[1] NOTE: This laboratory's scope contains withdrawn, inactive 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.

[2] This laboratory also uses customer supplied specifications and/or methods directly related to the testing technologies and parameters listed above.

Accredited Laboratory

A2LA has accredited

RELIABLE ANALYSIS INC.

Madison Heights, MI

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *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 8 January 2009*).

Presented this 21st day of July 2015.

President & CEO
For the Accreditation Council
Certificate Number 0386.01
Valid to May 31, 2017

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