



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

RELIABLE ANALYSIS – SHANGHAI, INC.
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MECHANICAL

Valid To: May 31, 2019

Certificate Number: 0386.04

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, automotive paperboard, plastics, rubber, sealers, tapes, and automotive textiles:

Test:

Standard:

Abrasion Resistance / Wear Resistance
Taber

ASTM D3884, D4060;
Chrysler LP-463KB-21-01;
FLTM BN 108-02;
GM 9515P¹;
GMW 3208, 15487

Schopper

GMW 3283

Wyzenbeek

Chrysler LP-463KB-06-01;
GM 9082P¹;
SAE J948, J1530

Abrasion Resistance and Surface Strength / Scratch
Resistance

ISO 16750-3 (Sec. 4.4)

Acid Spotting Resistance

FLTM BI 113-02

Adhesion Test

ASTM D3359;
FLTM BI 106-01, -02;
GM 9071P¹, 9502P¹;
GMW 14829;
VCS 1029,54739;
VCS 1029,54729

Adhesive Strength

FLTM BN 151-01;
GMW 14892

Ash Content

ASTM D2584;
ISO 3451-1 (Method A)

Bleeding, Perspiration, and Water Spotting

FLTM AN 101-01

Blocking Resistance

GMW 14132

Test:**Standard:**

Bond Strength	Chrysler LP-463LB-10-01 (<i>except Proc. C</i>); FLTM BN 121-01; GMW 3220
Breaking Strength, Grab Method	ASTM D2208, D5034
Breaking Strength and Elongation	ASTM D5035 (Strip Method)
Brittleness by Means of a Mandrel	GM 9503P ¹
CASS Corrosion	ASTM B368; FLTM BQ 105-01; GMW 14458
Cellular Material Urethane Foams	ASTM D3574 (<i>except Secs. 23-29, 76-112</i>)
Charpy Impact	ASTM D256; ISO 179-1
Chemical Resistance	FLTM BO-101-05; GMW 14334; GMW 3402, 14333, 14701
Chip Resistance (Gravelometer)	SAE J400; GMW 14668, 14700; DIN 55996; ISO 20567; D24 1312; VCS 1024,7136
Cleanability	GMW 3402
Cleanability and Soilability	Chrysler LP-463KC-04-01; FLTM BN 112-08
Cold Cracking Resistance	ASTM D1912; GMW 14126, 14127 (Part A)
Color Measurement	ASTM D2244; GMW 4750; SAE J1545
Color Migration	ISO 15701
Colorfastness to Burnt Gas Fumes	AATCC 23; ISO 105-G02
Colorfastness to Crocking	AATCC Method 8; GM 9033P ¹ ; ISO 105-X12, 20433, 11640; PV 3906
Colorfastness to Light	AATCC Method 16
Colorfastness to Water	AATCC Method 107

<u>Test:</u>	<u>Standard:</u>
Compression Load Deflection	ISO 3386
Compression Set	ASTM D3574 (Method D); ISO 1856, 3386-1
Crazing of Vinyl Material	GM 9143P ¹
Crocking	FLTM BN 107-02
Crock Mar Resistance	Chrysler LP-463PB-54-01; FLTM BN 107-01; SAE J861
Cure Test	GM 9509P ¹ ; GMW 14867, 15891
Cyclic Corrosion Test	GMW 14872; ISO 16750, (Sec. 5.5); VCS 1027,1449; CETP:00.00-L-467
Density	ASTM D1475; FLTM BN 106-01; ISO 1183-1 (Method A)
Determining the Tackiness of Polypropylene Parts	PV 1306; PES 11040
Differential Scanning Calorimetry	ISO 11357
Dime Scrape	GM 9506P ¹
Dimensional Stability	GMW 4217, 14444 (Sec. 3.4.11)
Determination of Crack and Pore Number	ASTM B456, B604
Dust Test	ISO 16750-4 (Sec. 5.10)
Effect Amines	GMW 14131
Emission of Parts-Bag Method	TS-BD-003; SMTC 5 400 018(V1); ISO 12219-2
Environmental Cycle	Chrysler LP-463LB-12-01; FLTM BQ 104-07; GM 9200P ¹ ; GMW 3286, 14124, 14729; ISO 188; ISO 4577; ASTM D3012; ISO 15512 (Method A); ISO 16750-4:2014, Secs. 5.1, 5.2, 5.3, 5.4, 5.6, 5.7
Fabrics	
Test Methods, Coated Fabrics	ASTM D751 (<i>except Secs. 22-25, 41-49, 54-63, 65-70, 89-98</i>); GMW 14122, 14231

Test:**Standard:**

Fabrics (cont'd)	
Length	ASTM D3773 (Option A)
Width	ASTM D3774 (Option B)
Fabric Count	ASTM D3775
Mass	ASTM D3776 (Option C)
Bow and Skew	ASTM D3882
Weight Loss	GM 9337P
Fiber Deterioration	GM 9771P ¹ ; GMW 3387
Filiform Resistance	GMW 15287; SAE J2635
Film Thickness	ISO 2808
Flammability	
Horizontal Flame Test	FMVSS 302; GB 8410-2006; GMW 3232; ISO 3795; SAE J369; VCS 5031,19
Vertically Burning Test	UL94
Flex Test / Newark Flex / "W" Flex	ASTM D2097; FLTM BN 102-02; ISO 5402
Flexural Strength / Flexural Properties	ASTM D790; ISO 178
Fogging Test	Chrysler LP-463DB-12-01; GM 9305P ¹ ; GMW 3235; PV 3015; SAE J1756; SMC 30157; DIN75201; VCS 1027,2719
Aldehyde and Ketonic Emission Test	GMW 14236, 15635; PV 3925; SMC 30155; VDA 275; VCS 1027,2739
Friction Test	ASTM D1894; FLTM BN 014-03
Gloss Measurement	ASTM D523; Chrysler LP-463PB-11-01; FLTM BI 110-01; ISO 2813; VCS 1026,52729

Test:**Standard:**

Heat Deflection Temperature (HDT) / Vicat Softening	ISO 75-1, -2, 306
Hydrogen Sulfide Resistance	ASTM D1712; FLTM AN 102-01; GMW 14864; SAE J322
Immersion	FLTM BI 104-04
Impact Resistance	FLTM BO 151-01; GM9300P ¹ ; GMW 14093, 14127
Impact - Free Fall	ISO 16750-3 (Sec. 4.3)
Izod Impact	ASTM D256; ISO 180
Lint Retention	GMW 3347
Loop Pullout	GMW 14148
Mandrel Bend	GM 9503P ¹ (Sec. 12)
Mass and Thickness Determination	GMW 3182; ISO 2589, 5084; SAE J860 (Mass), J882 (Thickness)
Melt Mass Flow and Melt Volume Flow (MFR & MVR)	ISO 1133-1, -2
Mildew	GMW 3259
Mold Shrinkage	ISO 294, 2577
Multi-axial Impact	ASTM D3763; ISO 6603-2
Odor Test	FLTM BO 131-01, BO 131-03; GMW 3205; SAE J1351; VDA270; VCS 1027,2729
Peel Strength	ASTM B533, D903; Chrysler LP-463TB-03-01; FLTM BN 151-05; GM 9797P ¹ ; ISO 11644, 8510-2
Perspiration Staining Resistance	Chrysler LP-463KC-21-01; FLTM BI 113-03; GM 9240P ¹ , 9517P ¹ ; GMW 14296, 14334
Plating Thickness	ISO 1463, 2177

<u>Test:</u>	<u>Standard:</u>
Pliability	GM 9151P ¹ , 9664P
Poisson's Ratio	ASTM E132; ISO 527
Quick Thermal Cycle	GMW 14668
Saw Grind Adhesion Test	ASTM B571
Salt Spray Tests	ASTM B117; FLTM BI 103-01; GMW 14458, 3286; ISO 9227
Scratch and Mar Resistance	Chrysler LP-463DD-18-01; FLTM BN 108-13; GM 9150P ¹ ; GMW 14698; GMW 14130, 14688; PV 3952
Scuffing Resistance	FLTM BN 108-04; GM 9150P ¹ ; SAE J365
Shear Test	FLTM BU 101-06
Shrinkage Test	FLTM BN 005-02, BN 105-01; GMW 3262 (Sec. 3.2.6)
Softness	GMW 14134
Solvent Wipe Resistance	Chrysler LP-463PB-31-01; GM 9509P ¹
STEP Test	ASTM B465, B764; GMW 14668
Stretch and Set of Textile and Leather	SAE J855; GMW 3211
Suntan Lotion and Insect Repellant	Ford DVM 0036, DVM 0039; GMW 14445
Temperature Cycle	GMW 14668
Temperature Storage	GMW 14668
Tensile Strength / Tensile Properties	ASTM D412 (Method A, <i>except</i> <i>Secs. 12.2 and 12.3</i>), D638, D882, D1708, D2256; Chrysler LP-463CB-08-01; FLTM BN 150-04; GB 10654-89; GMW 3010; ISO 37, 527, 1798

Test:**Standard:**

Tear Strength / Resistance

ASTM D624 (Die C, *except Appendix*),
D1004, D2261, D5587, D5733;
FLTM BN 150-02;
GM 9149P¹; GMW 14146;
ISO 13937-2

Thermal Shock

FLTM BI 107-05;
GMW 15919

Thermomechanical Analysis

ISO 11359;
ASTM E831

TVOC Test

PV 3341;
GMW 8081;
Q/SQR.04.098;
SMC 30158;
TS-INT-002;
VDA 277

Vibration

ISO 16750-3 (Sec. 4.1);
GMW 3172 (Sec. 9.3.1)

Mechanical Shock

ISO 16750-3 (Sec. 4.2);
GMW 3172 (Sec. 9.3.2)

Water Immersion

FLTM BI 104-01

Water Jet

GM 9531P¹ (Method B);
GMW 16745;
VCS 1029,54719

Water Spotting and Soap Spotting Resistance

Chrysler LP-463KC-03-01;
FLTM AN 101-01;
GM 9133P¹

Water Vapor Permeability

GMW 14140

Wicking Test

SAE J913

Xenon Exposure

AATCC Method 16;
GME 60292; GMW 3414;
ISO 105-B06, condition 5;
PV 1303;
SAE J1885¹, J1960¹, J2412, J2527;
FLTM BI 104-02 Method A;
ISO 105-B06 condition 3;
VDA 75202;
GB 16422;
ISO 16750-4 (Sec. 5.10);
VCS 1027,3379;
VCS 1027,339;
VSC 1027,359;
ASTM D7869

1CM3 Chamber Method

ISO 12219-4;
PV3942;
VCS 1027,2769

Test:**Standard:**

ELV	IEC 62321, IEC 62321-1, IEC 62321-2, IEC 62321-3, IEC 62321-4, IEC 62321-5, IEC 62321-6, IEC 62321-7, QC/T 941, QC/T 942, QC/T 943, QC/T 944
Extensibility	VCS 1024,11419
Moisture Resistance	VCS 1027,33759
Distinctness of Image (DOI)	VCS 1026,52749
Rubber, Vulcanized or Thermoplastic- Determination of Low-Temperature Brittleness	ISO 812
Condensing Humidity	FLTM BI 104-02 Method A
Asphalt Staining of Exterior Plastics	LP-463PB-57-02
Sliding Resistance for Side Window Weatherstrips	GMW 15683
Emissions of Materials	GMW 15634; VDA 278
Micro Chamber	ISO 12219-3
Thermogravimetric Analysis (TGA)	ISO 11358
Road Vehicles — Environmental conditions and testing for electrical and electronic equipment —Part 3: Mechanical loads	ISO16750-3
Road Vehicles — Environmental conditions and testing for electrical and electronic equipment —Part 4: Climatic loads	ISO16750-4 (<i>except Secs. 5.8 & 5.9</i>)
General Specification for Electrical/Electronic Components –Environmental / Durability Mechanical / Climatic part	GMW3172
Thermal Aging	GMW3191 Section 4.4.1
Thermal Shock	GMW3191 Section 4.4.2
Humid Heat Cyclic (HHC)	GMW3191 Section 4.4.3
Humid Heat Constant (HHCO)	GMW3191 Section 4.4.4
Vibration with Thermal Cycling	GMW3191 Section 4.4.8
Locked Connector Disengagement Force	GMW3191 Section 4.2.18
Unlocked Connector Disengagement Force	GMW3191 Section 4.2.19
Connector Polarization (Coding) Feature Effectiveness	GMW3191 Section 4.2.20

Test:

Standard:

Terminal-to-Terminal Engagement Force

GMW3191 Section 4.2.3

Terminal-to-Connector Engagement Force

GMW3191 Section 4.2.4

Terminal-from-Connector Extraction Force

GMW3191 Section 4.2.5

Terminal Bend Resistance

GMW3191 Section 4.2.7

¹NOTE: This laboratory's scope contains withdrawn 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.



Accredited Laboratory

A2LA has accredited

RELIABLE ANALYSIS - SHANGHAI, INC.

Shanghai, People's Republic of China

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 3rd day of October 2017.

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

President and CEO
For the Accreditation Council
Certificate Number 0386.04
Valid to May 31, 2019

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