



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

RELIABLE ANALYSIS – SHANGHAI, INC.  
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MECHANICAL

Valid To: May 31, 2023

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:

<u>Test:</u>	<u>Test Standard(s)<sup>1,2:</sup></u>
Abrasion Resistance / Wear Resistance Taber	ASTM D3884, D4060; Chrysler LP-463KB-21-01; FLTM BN 108-02; GM 9515P <sup>1</sup> ; GMW 3208, 15487
Schopper	GMW 3283
Wyzenbeek	Chrysler LP-463KB-06-01; GM 9082P <sup>1</sup> ; SAE J948, J1530; ASTM D4157
Martindale	ISO 12947-1/2/3/4; ISO 5470-2
Asbestos	ISO 22262-1, ISO 22262-2; GB/T 23263; Q/JLY J7110808B
Acid Spotting Resistance	FLTM BI 113-02
Adhesion Test	ASTM D3359; FLTM BI 106-01, -02; GM 9071P <sup>1</sup> , 9502P <sup>1</sup> ; GMW 14829; VCS 1029,54739; VCS 1029,54729; ISO 2409; GB/T9286

<u>Test:</u>	<u>Test Standard(s)<sup>1,2:</sup></u>
Adhesive Strength	FLTM BN 151-01; GMW14892
Aldehyde and Ketonic Emission Test	GMW 14236, 15635; PV 3925; SMC 30155; VDA 275; VCS 1027, 2739
Ash Content	ASTM D2584; ISO 3451-1 (Method A)
Bleeding, Perspiration, and Water Spotting	FLTM AN 101-01; GMW14102
Blocking Resistance	GMW 14132
Bond Strength	Chrysler LP-463LB-10-01 ( <i>except Proc. C</i> ); FLTM BN 121-01; GMW 3220; ISO 11339
Breaking Strength, Grab Method	ASTM D2208, D5034
Breaking Strength and Elongation	ASTM D5035 (Strip Method)
Brittleness by Means of a Mandrel	GM 9503P <sup>1</sup>
CASS Corrosion	ASTM B368; FLTM BQ 105-01; GMW14458; ISO 9227
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; GMW14334; GMW3402, 14333, 14701
Chip Resistance (Gravelometer)	SAE J400; GMW 14668, 14700; DIN 55996; ISO 20567; D24 1312; VCS 1024, 7136; FLTM BI 157-06; TPJLR.52.599
1M <sup>3</sup> Chamber Method	ISO 12219-4; PV3942; VCS 1027,2769
Cleanability	GMW3402

<b><u>Test:</u></b>	<b><u>Test Standard(s)<sup>1,2:</sup></u></b>
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 <sup>1</sup> ; ISO 105-X12, 20433, 11640; PV 3906
Colorfastness to Water	AATCC Method 107
Compression Load Deflection	ISO 3386
Compression Set	ASTM D3574 (Method D); ISO 1856, 3386-1; ISO 815-1
Condensing Humidity	FLTM BI 104-02 Method A
Crazing of Vinyl Material	GM 9143P <sup>1</sup>
Croaking	FLTM BN 107-02
Crock Mar Resistance	Chrysler LP-463PB-54-01; FLTM BN 107-01; SAE J861
Cure Test	GM 9509P <sup>1</sup> ; GMW 14867, 15891
Cyclic Corrosion Test	GMW 14872; ISO 16750, (Sec. 5.5); VCS 1027,1449; CETP:00.00-L-467; CORWHEEL; 7734COR; CORMUD
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 11357-1/-2/-3

<u>Test:</u>	<u>Test Standard(s)<sup>1,2:</sup></u>
Dime Scrape	GM 9506P <sup>1</sup>
Dimensional Stability	GMW 4217, 14444 (Sec. 3.4.11) ; ISO 17130
Distinctness of Image (DOI)	VCS 1026, 52749
Determination of Crack and Pore Number	ASTM B456, B604
Dust Test	ISO 16750-4 (Sec. 5.10)
Effect Amines	GMW 14131; VDA 230-223
ELV	IEC 62321, IEC 62321-1, IEC 62321-2, IEC 62321-3, IEC 62321-4, IEC 62321-5, IEC 62321-6, IEC 62321-7-1, IEC 62321-7-2; QC/T 941, QC/T 942, QC/T 943, QC/T 944
Emission of Parts-Bag Method	TS-BD-003,PES11081; SMTC 5 400 018; ISO 12219-2; FLTM BZ-108-01; 01.12-L-10661; ENG-010-001,QS-130-001
Emissions of Materials	GMW 15634; VDA 278
Environmental Cycle	Chrysler LP-463LB-12-01; FLTM BQ 104-07; GM 9200P <sup>1</sup> ; GMW 3286, 14124, 14729; ISO 188; ISO 4577; ASTM D3012; ISO15512 (Method A); ISO 16750-4, Secs. 5.1, 5.2, 5.3, 5.4, 5.6, 5.7; PV2005
Extensibility	VCS 1024,11419
Fabrics	
Test Methods, Coated Fabrics	ASTM D751 ( <i>except Secs. 22-25, 41-49, 54-63, 65-70, 89-98</i> ); GMW 14122
Fabric Count	ASTM D3775
Mass	ASTM D3776 (Option C)
Bow and Skew	ASTM D3882
Weight Loss	GM 9337P
Fiber Deterioration	GM 9771P <sup>1</sup> ; GMW 3387
Filiform Resistance	GMW15287; SAE J2635
Film Thickness	ISO 2808; ASTM B487; GB/T6462; ISO 1463

<u>Test:</u>	<u>Test Standard(s)<sup>1,2:</sup></u>
Flammability Horizontal Flame Test	FMVSS 302; GB 8410; GMW 3232; ISO 3795; SAE J369; VCS 5031,19; TL 1010
Vertically Burning Test	UL94; TL 1011
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 <sup>1</sup> ; GMW 3235; PV 3015; SAE J1756; SMC 30157; DIN75201; VCS 1027, 2719
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
Heat Deflection Temperature (HDT) / Vicat Softening	ISO 75-1, -2, 306; ASTM D1525
Hardness	ISO 48(M)
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 <sup>1</sup> ; GMW 14093, 14127
Impact - Free Fall	ISO 16750-3 (Sec. 4.3)
Izod Impact	ASTM D256; ISO 180

<b><u>Test:</u></b>	<b><u>Test Standard(s)<sup>1,2:</sup></u></b>
Lint Retention	GMW 3347
Loop Pullout	GMW14148
Mass and Thickness Determination	GMW 3182; ISO 2589, 5084; SAE J860 (Mass), J882 (Thickness); ISO 2286-2 (Method A)
Melt Mass Flow and Melt Volume Flow (MFR & MVR)	ISO 1133-1, -2
Mechanical Shock	ISO 16750-3 (Sec. 4.2); GMW 3172 (Sec. 9.3.2)
Mildew	GMW 3259
Micro Chamber	ISO 12219-3; TPJLR.52.104
Mold Shrinkage	ISO 294, 2577
Moisture Resistance	VCS 1027, 33759; ISO 6270-2
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; PV3900; PES11082
Peel Strength	ASTM B533, D903; Chrysler LP-463TB-03-01; FLTM BN 151-05; GM 9797P <sup>1</sup> ; ISO 11644, 8510-2
Perspiration Staining Resistance	Chrysler LP-463KC-21-01; FLTM BI 113-03; GM 9240P <sup>1</sup> , 9517P <sup>1</sup> ; GMW 14296, 14334
Plating Thickness	ISO 1463, 2177; GB/T4955
Pliability	GM 9151P <sup>1</sup> , 9664P
Poisson's Ratio	ASTM E132; ISO 527
Polycyclic Aromatic Hydrocarbons (PAHs)	AfPS GS 2019:01 PAK

<b><u>Test:</u></b>	<b><u>Test Standard(s)<sup>1,2:</sup></u></b>
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; FLTM BO 162-01; GM 9150P <sup>1</sup> ; GMW14698; GMW 14130, 14688; PV 3952
Scuffing Resistance	FLTM BN 108-04; GM 9150P <sup>1</sup> ; SAE J365
Seam Strength	ISO 13935-1
Seam Fatigue	GMW3405; FLTM BN 106-02
Shear Test	FLTM BU 101-06; FLTM BV 154-03
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 <sup>1</sup>
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 Secs. 12.2 and 12.3</i> ), D638, D882, D1708, D2256; Chrysler LP-463CB-08-01; FLTM BN 150-04; GB 10654; GMW 3010; ISO 37, 527, 1798; ISO 1421

**Test:****Test Standard(s)<sup>1,2:</sup>**

Tear Strength / Resistance

ASTM D624 (Die C, *except Appendix*),  
D1004, D2261, D5587, D5733;  
FLTM BN 150-02;  
GM 9149P<sup>1</sup>; GMW 14146; GMW3326;  
ISO 13937-2, ISO 4674-1 (Method B),  
ISO 23910, ISO 34-1

Thermal Shock

FLTM BI 107-05;  
GMW 15919

Thermomechanical Analysis

ISO 11359;  
ASTM E831

TVOC Test

PV 3341;  
GMW8081;  
Q/SQR.04.098;  
SMC 30158;  
TS-INT-002;  
VDA 277;  
VCS 1027, 2749;  
VCS 1027, 2759

Vibration

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

Water Immersion

FLTM BI 104-01

Water Jet

GM 9531P<sup>1</sup> (Method B);  
GMW 16745;  
VCS 1029,54719;  
FLTM BO 160-04

Water Spotting and Soap Spotting Resistance

Chrysler LP-463KC-03-01;  
FLTM AN 101-01;  
GM 9133P<sup>1</sup>

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 J1885<sup>1</sup>, J1960<sup>1</sup>, J2412, J2527;  
FLTM BI 104-02 Method A;  
FLTM BO 116-01;  
ISO 105-B06 condition 3;  
VDA 75202;  
GB16422;  
ISO 16750-4 (Sec. 5.10);  
VCS 1027,3379;  
VCS 1027,339;  
VCS 1027,359;  
STD 1026,8242;  
ASTM D7869;  
CC080008-C



<b><u>Test:</u></b>	<b><u>Test Standard(s)<sup>1,2:</sup></u></b>
Rubber, Vulcanized or Thermoplastic- Determination of Low-Temperature Brittleness	ISO 812
Sliding Resistance for Side Window Weatherstrips	GMW 15683
Thermogravimetric Analysis (TGA)	ISO 11358-1/-2
Ozone	ISO 1431-1
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 &amp; 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
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
Road vehicles - Degrees of protection (IP code) - Protection of electrical equipment against foreign objects, water and access	ISO 20653
Environmental testing - Part 2-1: Tests - Test A: Cold	IEC 60068-2-1

<b><u>Test:</u></b>	<b><u>Test Standard(s)<sup>1,2:</sup></u></b>
Environmental testing - Part 2-2: Tests - Test B: Dry heat	IEC 60068-2-2
Basic environmental testing procedures - Part 2-11: Tests - Test Ka: Salt mist	IEC 60068-2-11
Environmental testing – Part 2-14: Tests – Test N: Change of temperature (Except NC)	IEC 60068-2-14
Environmental testing – Part 2-38: Tests – Test Z/AD: Composite temperature/humidity cyclic test	IEC 60068-2-38
Environmental testing - Part 2-52: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution)	IEC 60068-2-52
Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state	IEC 60068-2-78

<sup>1</sup> NOTE: 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.

<sup>2</sup> When the date, edition, version, etc. is not identified in the scope of accreditation, laboratories may use the version that immediately precedes the current version for a period of one year from the date of publication of the standard measurement method, per part C., Section 1 of A2LA *R101 - General Requirements- Accreditation of ISO-IEC 17025 Laboratories*.



## 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 17025:2017 *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 26<sup>th</sup> day of May 2021.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 0386.04  
Valid to May 31, 2023

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