



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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MECHANICAL

Valid To: January 31, 2020

Certificate Number: 1888.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following mechanical, metallurgical and environmental simulation tests on metallic and polymeric materials.<sup>1</sup>

Test

Specification

Tensile Testing	ASTM E8, A370, B557, EN895, EN ISO 4136, ISO 6892
Brinell Hardness of Metallic Materials (10mm-3000kg, 1500kg, 1000kg, 500kg)	ASTM E10, A370, ISO 6506-1
Image Analysis	ASTM E1245, E562
Rockwell Hardness of Metallic Materials (15N, 30N, 45N, 15T, 30T, 45T, A, B, C)	ASTM E18, A370
Microhardness of Materials (HK-500g, 100g)(HV 1000g, 500g, 100g)	ASTM E384, E92, EN 1043-2, ISO 6507-2, EN ISO 9015-2
Macrohardness of Materials (HV-5000g, 10,000g)	ASTM E384, E92, EN 1043-1, ISO 6507-1, EN ISO 9015-1
Leeb Hardness	ASTM A956
Notched Bar (Charpy) Impact	ASTM E23, A370, EN 10045-1, ISO 148-1, EN ISO 9016
Bend Testing	ASTM E290, A370, EN910, EN ISO 5173
Fastener Testing, Tensile (Axial/Wedge), Proof	ASTM F606/F606M, SAE J429
Macroscopic and Microscopic Examination of Welds	EN 1321
Inclusion Evaluation	ASTM E45, E3
Microstructure of Graphite in Iron	ASTM A247
Grain Size	ASTM E112
IGA Susceptibility	ASTM A262
Metal and Oxide Coating Thickness	ASTM B487, B748 (SEM)
Coating Weight	ASTM A90
Anodizing Coating Weight	ASTM B137
Decarb Depth	ASTM E1077
Hydrogen Embrittlement	SAE J81, ASTM F519
Tape Adhesion	ASTM D3359, FLTM BI 106, GM 9502P <sup>3</sup> , ISO 2409
Specular Gloss	ASTM D523, ISO 2813
Color	ASTM D2244, ISO 7724

**Test****Specification**

Pencil Hardness	ASTM D3363
Case Depth	ASM HBK, Vol 9(9 <sup>th</sup> edition), Vol 7 (8 <sup>th</sup> edition)
SEM/EDS	ATS 914, 915, ASTM E1508
Xenon Exposure of paint and related coatings	ASTM D6695
Standard Practice for Fluorescent UV- Condensation Exposures of Paint and Related Coatings	ASTM D4587
Standard Practice for Xenon-Arc Exposure of Plastics Intended for Outdoor Applications	ASTM D2565
Standard Practice for Fluorescent Ultraviolet (UV) Lamp Apparatus Exposure of Plastics	ASTM D4329
Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus	ASTM D4355
Standard Practice for Xenon-Arc Exposure of Plastics Intended for Indoor Applications	ASTM D4459
Standard Practice for Fluorescent UV- Condensation Exposures of Paint and Related Coatings	ASTM D4587
Standard Practice for Accelerated Testing for Color Stability of Plastics Exposed to Indoor Office Environments	ASTM D4674
Standard Practice for Exposure of Photodegradable Plastics in a Xenon Arc Apparatus	ASTM D5071
Standard Practice for Cyclic Salt Fog/UV Exposure of Painted Metal, (Alternating Exposures in a Fog/Dry Cabinet and a UV/Condensation Cabinet)	ASTM D5894
Standard Practice for Xenon Arc Exposure Test with Enhanced Light and Water Exposure for Transportation Coatings	ASTM D7869
Resistance to artificial weathering	FLTM BO 101-01
Measurement of Gloss of Painted Panels	FLTM BI 110-01
Exposure of interior Trim Materials in a Controlled Irradiance Water-Cooled Xenon Accelerated Corrosion Test	FLTM BO 116-01
	GM9540P
Artificial Weathering of Automotive Interior Trim Materials	GMW3414
Colorfastness to Artificial Weathering	GMW14162
Material related interior part performance Section 4.4.2	GMW14444
Cyclic Corrosion Lab Test	GMW14872
Colorfastness to Artificial	ISO 105-B02
Colorfastness to Artificial Weathering	ISO 105-B04
Colorfastness to artificial light at high temperatures	ISO 105-B06
Exposure to lab light sources - Xenon Lamps	ISO 4892-2

<u>Test</u>	<u>Specification</u>
Exposure to lab light sources - Fluorescent UV lamps	ISO 4892-3
Procedure for exposing test specimens in condensation = water atmospheres	ISO 6270-2
Corrosion Test in Artificial Atmospheres- Salt spray tests	DIN EN ISO 9227
Coating for automotive industry - pressure-water jetting	DIN 55662
Flexible and rigid cellular polymeric materials -- Accelerated ageing tests	ISO 2440
Paints and varnishes -- Visual comparison of colour of paints	ISO 3668
Paints and varnishes -- Evaluation of degradation of coatings -- Designation of quantity and size of defects, and of intensity of uniform changes in appearance –	ISO 4628
Part 1: General introduction and designation system	
Part 2: Assessment of degree of blistering	
Part 3: Assessment of degree of rusting	
Part 4: Assessment of degree of cracking	
Part 8: Assessment of degree of delamination and corrosion around a scribe or other artificial defect	
Paints and varnishes -- Determination of resistance to cyclic corrosion conditions -- Part 2: Wet (salt fog)/dry/humidity/UV light	ISO 11997
Paint test methods	MBN 10494
Part 5 Technical Mechanical Tests - 5.1.1 Manual Scratch Test	
Part 6 – Climatic Tests – 5.5.1 Filiform Test	
Weatherability for Automotive Parts Sections 1-6, 7.1, 7.2, 7.3, 7.4, 7.6, 7.7, 7.8, 7.9, 7.10, 8-9	JIS D 0205
Accelerated Exposure of Automotive exterior materials using a Fluorescent UV condensation apparatus	SAE J2020
Exposure Test of Passenger Compartment components	PV 1303
Florida Exposure	PV3929
Kalahari Exposure	PV3930

## Test

Color fastness test and aging behavior test against light in the case of extreme temperatures – Xenon Arc lamp

Immersion in Liquids (Paints & Varnishes)  
Salt Spray

Paints and Varnishes – Determination of the Resistance of Coating to Pressure Water-Jetting

Coating Thickness  
Coating Impact (Gardner)  
CASS  
Filiform Corrosion  
Humidity (Condensing)  
Water Fog  
Xenon Arc Weathering  
U.V Fluorescent  
Cyclic Salt Fog

Gravelometer  
Taber Abrasion  
Conical Mandrel  
Flammability of Interior Materials  
Fogging  
Flammability of Clothing Textiles  
Toy Safety: Flammability  
Flammability of Plastic Materials  
Temperature/Humidity Cycling  
Failure Investigation

Izod Impact (Method A)  
Rockwell Hardness, Plastics (HRR, HRM)  
Flexural Properties  
Vicat Softening Temperature  
Compressive Properties  
Compression Set  
Tear Resistance  
Heat Deflection Temperature  
Tensile Properties of Plastics  
Durometer (Shore A & D)  
Melt Flow  
Coating Thickness (XRF method)  
Acid Dissolution Testing of Anodic Coatings  
Conductivity Measurement  
Pacifier Testing  
Rattle Testing

## Specification

VDA 75202

ISO 2812-1, -2, -3, -4, -5  
ASTM B117, FLTM BI 103, GM 4298P<sup>3</sup>,  
DIN 50021, ISO 7253

DIN EN ISO 16925

ASTM D7091  
ASTM D2794, ISO 6272-1  
ASTM B368  
ISO 3665, ASTM D2803  
ASTM D2247, D4585  
ASTM D1735, GM 4465P<sup>3</sup>  
ASTM G155, SAE J2527, J1885, J2412  
ASTM G154, ISO 11507  
ASTM G85 appendix 1,2,3,5, GM 9540P<sup>2</sup>, SAE  
J1563, GMW 14872  
ASTM D3170, SAE J400  
ASTM D4060  
ASTM D522, ISO 6860, ISO 1519  
FMVSS 302  
DIN 75201, PV 3015  
16 CFR 1610, ASTM D1230  
EN-71: Part 2, ASTM F963-16-Section A5  
UL 94  
GM 9505P<sup>2</sup>, IEC 68-2-30, BMW TS 308, PrV303  
ATS Proc. 931, ATS 949, ATS 959, ASM HBK  
Vol.11  
ASTM D256  
ASTM D785; ISO 2039-2  
ASTM D790; ISO 178  
ASTM D1525; ISO 306  
ASTM D695  
ASTM D395, method B  
ASTM D624, method B,C  
ASTM D648; ISO 75-1  
ASTM D412, D638; ISO 527-1; DIN 53504  
ASTM D2240; DIN 53505  
ASTM D1238  
ASTM B568  
ASTM B680  
ASTM E1004  
16 CFR 1511  
16 CFR 1510

**Test****Specification**

Small Parts Testing Toy Chests	16 CFR 1500, 16 CFR 1501 ASTM F834-08, , ASTM F963-16 Section 4.41, 8.27
Toy Chest Lids and Closures Sound Producing Toys Small Objects Accessible Edges	ASTM F963-16 Section 8.27.1 ASTM F963-16 Section 4.5, 8.19 ASTM F963-16 Section 4.6 ASTM F963-16 Section 4.7, 16 CFR 1500.49
Projections Accessible Points	ASTM F963-16 Section 4.8 ASTM F963-16 Section 4.9, 16 CFR 1500.48
Wires or Rods	ASTM F963-16 Section 4.10, 8.12
Nails and Fasteners	ASTM F963-16 Section 4.11
Small Parts Testing (cont.) Folding Mechanisms and Hinges	ASTM F963-16 Section 4.13,
Cords, Straps, and Elastics	ASTM F963-16 Section 4.14, 8.22
Stability and Overload Requirements	ASTM F963-16 Section 4.15, 8.15, 8.26
Confined Spaces Wheels, Tires, and Axles	ASTM F963-16 Section 4.16 ASTM F963-16 Section 4.17, 8.11
Holes, Clearances, and Accessibility of Mechanisms Simulated Protective Devices Pacifiers Toy Pacifiers	ASTM F963-16 Section 4.18 ASTM F963-16 Section 4.19 ASTM F963-16 Section 4.20 ASTM F963-16 Section 4.20.2
Projectile Toys	ASTM F963-16 Sections 4.21.2.3, 4.21.2.6, 4.21.3.3, 4.21.4
Teethers and Teething Toys Rattles Squeeze Toys Battery Operated Toys	ASTM F963-16 Section 4.22 ASTM F963-16 Section 4.23 ASTM F963-16 Section 4.24 ASTM F963-16 Section 4.25, 8.17, 8.18, 8.19
Toys Intended to be Attached to a Crib or Playpen Stuffed and Beanbag-Type Toys	ASTM F963-16 Section 4.26 ASTM F963-16 Section 4.27, 8.9.1
Toy Gun Marking Certain Toys with Spherical Ends Pompoms	ASTM F963-16 Section 4.30 ASTM F963-16 Section 4.32 ASTM F963-16 Section 4.35, 8.16
Hemispherical-Shaped Objects Yo-Yo Elastic Tether Toys	ASTM F963-16 Section 4.36 ASTM F963-16 Section 4.37, 8.23
Magnets	ASTM F963-16 Section 4.38, 8.24, 8.25
Jaw Entrapment in Handles and Steering Wheels Overload of Ride-On Toys and Toy Seats Toy Safety: Mechanical and Physical Properties	ASTM F963-16 Section 4.39 ASTM-F963-16 Section 8.28 EN-71: Part 1 § 8.2–8.14, 8.16–8.20, 8.23, 8.24, 8.27, 8.28 (excluding earphones), 8.29–8.35

**Test**

Small Balls and Marbles

Shock & Vibration<sup>1</sup>

Single Axis, with Slip Table

20 000 lbf shock

12 000 lbf

(5 to 2000) Hz

Sine and Random

2 in peak to peak

Mechanical Testing of Bicycle Helmets

Seismic Testing

Fatigue

Fractured Toughness

Altitude Testing

Weld and Braze Evaluation and Qualification

Standard Atmospheres for Conditioning and Testing  
Organic Emissions of Non-Metallic Materials for  
Automobile (Marks Instrumentation)

**Electrical Testing**

**Test**

Dielectric Strength

Insulation Resistance

Contact Resistance

**Specification**

ASTM F963-16 (Sections 4.33,  
4.34), 16 CFR Part 1500.19

Customer Profiles

MIL-STD-810; IEC 60068-2-27;

IEC 60068-2-31; 60068-2-64

16 CFR 1203,

IEEE 344, GR-63-CORE, AC-156

ASTM E466

ASTM E1290, E1820, E399

MIL-STD-810, RTCA D0160

AMS-STD-1595; API 1104;

ASME Sec. III, VIII, IX;

AWS B2.1/B2.1M, B2.2/B2.2M, D1.1/D1.1M,

D1.2/D1.2M, D1.3/D1.3M, D1.4/D1.4M, AASHTO

AWS D1.5/D1.5M, D1.6/D1.6M, D1.9/D1.9M,

D9.1/D9.1M, D14.1/D14.1M, D14.3/D14.3M,

D14.4/D14.4M, D14.6/D14.6M, D15.1/D15.1M,

D17.1/D17.1M, D17.2/D17.2M, D17.3/D17.3M,

D3.6, D18.1/D18.1M; ISO 15614-1; BS EN287-1,

BS EN 288-8, BS EN 1418, BS EN 287-2

(Canceled 12/17/04)<sup>3</sup>, DIN-EN 15085-2, EN ISO

15613, EN ISO 15614-2, EN ISO 15614-8, EN ISO

15614-11, EN ISO 9606-1, EN ISO 9606-2, EN

ISO 9606-3, EN ISO 9606-4; MIL-STD-248D,

MIL-STD-1595A, MIL-STD-2219,

NAVSEA S9074-AQ-GIB-010/248;

NACE MR0175/ISO15156-1, 15156-2, 15156-3;

NACE MR0103; NACE SP0472

ISO 291

VDA 278

**Specification**

MIL-STD-202G Method 301

MIL-STD-202G Method 302

MIL-STD-1344A Method 3004.1

<sup>1</sup>The Consumer Product Safety Improvement Act (CPSIA) requires that every children's product subject to a federal consumer product safety requirement be tested by a Consumer Product Safety Commission (CPSC) accepted laboratory for compliance with the applicable federal children's product safety requirements. Accreditation by A2LA does not infer acceptance by the CPSC. Please verify this organization's acceptance status by using the CPSC's searchable database, located at <http://www.cpsc.gov/cgi-bin/labsearch/>.

<sup>2</sup>Tests also performed in accordance with customer and industry standards directly related to the above listed testing parameters.

<sup>3</sup> 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

**APPLIED TECHNICAL SERVICES, INC.**

*Marietta, GA*

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 9<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 1888.01  
Valid to January 31, 2020

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