



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

ADVANCED PLASTIC AND MATERIAL TESTING, INC.
42 Dutch Mill Road - Warren Road Business Park
Ithaca, NY 14850
Joshua Wanagel Phone: 607 257 8378
Fax: 607 257 1586

MECHANICAL

Valid To: November 30, 2018

Certificate Number: 0326.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following types of tests on adhesives, air bags, automotive products, cable, circuit boards, coatings, composites, contaminants, fasteners, films, fluid, foam, fuel, gaskets, jewelry, labels, ladders, lubricants, metal, metal alloys, mirrors, oil, packaging, paint, petroleum products, pipe, plastic, platings, polymers, powder metal, pultrusions, rubber, sealants, siding, solutions, tape, and wire:

Test Method:

Test Description:

ANSI A14.5	Ladders, Fiberglass Rail Material (Section 7 Only) Cure, Mechanical, & Electrical Properties
ASM Handbook, Vol. 11	Failure Analysis and Prevention (Using methods listed on this Scope of Accreditation): Root Cause Analysis, Failure Mechanism, Fractography, Fracture Examination, Processing Defects, Degradation, Contaminant Identification, Chemical Resistance, Corrosion Analysis, Microstructure, Microstructural Analysis, Material Analysis
ASME B46.1	Surface Texture: Surface Roughness, Waviness and Lay, Arithmetic Average
ASTM A247	Microstructure of Graphite in Iron Castings: Ductile Iron, Cast Iron, Nodularity
ASTM A370	Mechanical Testing of Steel Products (<i>Except Impact</i>): Tension, Bend, Brinell Hardness, Rockwell Hardness
ASTM B117	Salt Spray (Fog) Apparatus Operation: Corrosion Resistance, Salt Fog Test
ASTM B298	Continuity of Coating (Continuity Test Only)
ASTM B487	Coating Thickness by Microscopical Examination of a Cross Section: Plating Thickness, Coating Thickness, Paint Thickness
ASTM B557	Tensile Properties of Aluminum and Magnesium Alloys
ASTM B568	Coating Thickness by X-Ray Fluorescence (XRF): Plating Thickness
ASTM B571	Qualitative Adhesion Testing of Metallic Coatings (Except Draw Test): Bend, Burnishing, Chisel-Knife, File, Grind-Saw, Heat-Quench, Impact, Peel, Push, Scribe-Grid
ASTM B578	Microhardness of Coatings: Knoop, Vickers
ASTM B678	Solderability of Coated Products
ASTM B748	Coating Thickness by Scanning Electron Microscope (SEM) in Cross Section
ASTM C1147	Tensile Weld Strength
ASTM D115	Solvent Containing Varnishes (Dielectric Strength Only)
ASTM D149	Dielectric Breakdown Voltage and Dielectric Strength (100 kV Maximum)
ASTM D256	Izod Pendulum Impact Resistance: Impact Resistance, Izod Impact, Reverse Notch Impact

Test Method:**Test Description:**

ASTM D257	DC Resistance or Conductance of Insulating Materials: DC Resistance, Insulation Resistance, Surface Resistance, Surface Resistivity, Volume Resistance, Volume Resistivity
ASTM D374, Methods A-C	Thickness of Electrical Insulation
ASTM D380	Rubber Hose (Pressure Tests Only): Burst, Hydrostatic
ASTM D395, Method B	Compression Set
ASTM D412	Tension Test Methods: Elongation, Tensile Properties, Tensile Set, Tensile Strength, Tensile Stress, Yield Point
ASTM D471	Effect of Liquids: Fluid Immersion, Fluid Resistance, Volume Change
ASTM D522/D522M, Method B	Mandrel Bend Test of Coatings
ASTM D523	Specular Gloss (20°, 60°, 85°)
ASTM D542	Index of Refraction: Refractive Index, Refractometer
ASTM D543	Chemical Resistance of Plastics: Environmental Stress Cracking (ESCR)
ASTM D573	Air Oven Deterioration: Heat Aging, Heat Resistance, Oxidative Aging, Accelerated Aging, Thermal Aging, Oven Aging
ASTM D610	Evaluating Degree of Rusting on Painted Steel Surfaces
ASTM D618	Conditioning Plastics
ASTM D621 (1994)*	Deformation Under Load
ASTM D624	Tear Strength: Tear Resistance
ASTM D635	Flammability of Plastics in a Horizontal Position
ASTM D638	Tensile Properties: Modulus of Elasticity, Percent Elongation, Tensile Strength, Poisson's Ratio, Yield Strength, Young's Modulus
ASTM D648, Method B	Heat Deflection Temperature (HDT, DTUL)
ASTM D695	Compressive Properties: Compressive Strength, Compressive Modulus
ASTM D714	Evaluating Degree of Blistering of Paints
ASTM D732	Shear Strength by Punch Tool
ASTM D785	Rockwell Hardness of Plastics (Scales: R, L, M, E, K)
ASTM D790	Flexural Properties: Flexural Strength, Flexural Modulus, Secant Modulus
ASTM D865	Deterioration by Heating in Air: Heat Aging, Heat Resistance
ASTM D882	Tensile Properties of Thin Sheet: Modulus of Elasticity, Tensile Strength, Toughness, Yield Stress, Breaking Factor, Secant Modulus
ASTM D897	Tensile Properties of Adhesive Bonds
ASTM D903	Peel Strength: 180° Peel, Adhesive Bonding, Stripping Strength
ASTM D953	Bearing Strength
ASTM D968	Abrasion Resistance by Falling Abrasive: Falling Sand Abrasion
ASTM D1002	Shear Strength by Lap Joint: Lap Shear Strength
ASTM D1003, Procedure B	Luminous Transmittance and Haze
ASTM D1044	Surface Abrasion of Transparent Plastics
ASTM D1056	Cellular Materials – Foam Density & Compression Deflection Only
ASTM D1151	Conditioning of Adhesives: Effect of Moisture, Humidity Resistance
ASTM D1414	Rubber O-Ring Testing (<i>Except Low Temperature Test, Mold Shrinkage</i>): Tension Testing, Tension Set, Compression Set, Relative Density, Immersion, Heat Aging, Hardness, Corrosion
ASTM D1415	International Hardness (IRHD): Rubber Microhardness
ASTM D1525	Vicat Softening Temperature (VST): Vicat Softening Point
ASTM D1599	Pressure Testing of Pipe, Tubing, and Fittings: Hydrostatic Testing

Test Method:**Test Description:**

ASTM D1622/D1622M	Density of Cellular Plastics: Foam Density
ASTM D1654	Evaluation of Painted or Coated Specimens After Corrosive Environments: Corrosion Creepback, Blistering, Corrosion, Creepage
ASTM D1708	Tensile Properties by Microtensile Specimens
ASTM D1709	Impact Resistance of Film: Dart Drop Impact
ASTM D1710	Dimensional Stability of PTFE
ASTM D1781	Climbing Drum Peel: Peel Strength
ASTM D1876	Peel Resistance: T-Peel Test
ASTM D1894	Coefficient of Friction: Kinetic Friction, Static Friction
ASTM D1922	Propagation Tear Resistance of Film: Elmendorf Tear Resistance
ASTM D2197	Scrape Adhesion
ASTM D2240	Durometer Hardness (Scales A and D): Shore Hardness, Indentation Hardness
ASTM D2244	Color Difference by Instrumental Analysis: CIELAB
ASTM D2344/D2344M	Short Beam Shear Strength
ASTM D2583	Barcol Hardness
ASTM D2794	Impact Resistance of Coatings
ASTM D2990	Creep Testing: Creep-Rupture, Tensile Creep, Flexural Creep, Compressive Creep
ASTM D3012	Thermal Oxidative Stability: Biaxial Rotator
ASTM D3039/D3039M	Tensile Properties of Composites
ASTM D3167	Floating Roller Peel
ASTM D3354, Method B	Blocking Load of Film by Parallel Plate Method
ASTM D3359	Measuring Adhesion by Tape Test: Coating Adhesion, Tape Adhesion
ASTM D3363	Pencil Hardness
ASTM D3479/D3479M	Tension – Tension Fatigue of Composite Materials: S-N Curves
ASTM D3574	Flexible Cellular Materials, Urethane Foam (Tests A, B1, C-F, I1, K, L): Density, Indentation Force Deflection (IFD), Compression Force Deflection, Compression Set, Tear Resistance, Static Force Loss, Dry Heat Aging, Wet Heat Aging
ASTM D3801	Flammability of Plastics in a Vertical Position
ASTM D3950	Breaking and Joint Strength of Strapping
ASTM D4039	Reflection Haze of High Gloss Surfaces
ASTM D4060	Abrasion Resistance by Taber Abraser: Taber Abrasion, Wear Index
ASTM D4226	Impact Resistance of PVC Building Products: Impact of Siding
ASTM D4329	UV Exposure of Plastics: QUV
ASTM D4475	Horizontal Shear Strength of Rod: Short Beam Shear of Pultruded Rod
ASTM D4587	UV Exposure of Coatings: QUV
ASTM D4804	Flammability of Films
ASTM D4812	Unnotched Cantilever Beam Impact Resistance of Plastics
ASTM D5178	Mar Resistance of Coatings
ASTM D5420	Impact Resistance by Falling Weight: Gardner Impact
ASTM D7774	Flexural Fatigue Properties of Plastics
ASTM D7791	Uniaxial Fatigue Properties of Plastics: Tensile Fatigue of Plastics
ASTM E3	Preparation of Metallographic Specimens: Metallographic Mounts, Cross Sections
ASTM E8/E8M	Tension Testing of Metals: Percent Elongation, Reduction of Area, Tensile Strength, Tension Testing, Yield Strength, Modulus
ASTM E10	Brinell Hardness (Scales 500, 1500, 3000 kgf)
ASTM E18	Rockwell Hardness (Scales A, B, C, F, 15N, 30N, 15T, 30T)
ASTM E112	Average Grain Size (Comparison Procedure & Intercept Method)
ASTM E290	Bend Testing (<i>Except Guided Bend</i>)
ASTM E313	Yellowness Index
ASTM E340	Macroetching Metals and Alloys: Macrostructure

Test Method:

Test Description:

ASTM E384	Microindentation Hardness: Micro-Hardness (Scales Knoop & Vickers 25 to 500g)
ASTM E407	Microetching Metals and Alloys
ASTM E466, E468	Fatigue Testing, Force Controlled and Presentation of Test Results
ASTM E606/E606M	Fatigue Testing, Strain Controlled
ASTM E1004	Electrical Conductivity by Electromagnetic (Eddy-Current) Method Conductivity of Solids (%IACS)
ASTM E1331	Color by Spectrophotometry Using Hemispherical Geometry: Spectrophotometer, Color Matching, CIELAB, Reflectance
ASTM E1348	Color by Spectrophotometry Using Hemispherical Geometry: Transmittance
ASTM F606/F606M	Mechanical Properties of Fasteners, Washers and Rivets (<i>Except Single Shear, Cone Proof, Compression Load, and Embrittlement</i>): Product Hardness, Proof Load, Axial Tension, Wedge Tension, Embrittlement, Decarburization, Carburization
ASTM F2111	Intergranular Attack (IGA) and End Grain Pitting
ASTM G151	UV Exposure: QUV Fluorescent Light Apparatus (General)
ASTM G154	UV Exposure: QUV Fluorescent Light Apparatus, Accelerated Weathering
ASTM G195	Wear Testing by Taber Abrader
Chamber Manual	Environmental Simulation: Thermal Shock, Temperature and Humidity Cycling Best Range: (-73 to 1100) °C / (-100 to 2000) °F Best Control: ± 0.01 °C, ± 1% Humidity (not available for all ranges)
FED-STD-141, (Method 6301)	Wet Tape Adhesion Test
FMVSS 206	Door Latch Testing (<i>Except Inertial Force Test</i>): Door Locks
FMVSS 302	Flammability of Automotive Interior Materials (49 CFR 571.302): Burn Rate
GMW3232	Flammability: Horizontal Burn Rate of Automotive Materials
IPC-A-600	Acceptability of Printed Circuit Boards (All Sections) Solder Coatings: Solder Thickness Holes: Nodules, Voids, Lifted Lands, Surface Plating Solder Mask: Registration, Ball Grid Array (BGA), Adhesion Pattern Definition: Conductor Width, Conductor Spacing, Annular Ring Dielectric Materials: Dielectric Thickness, Etchback, Delamination, Blister Conductive Patterns: Surface Conductor Thickness, Foil Thickness Plated Through Holes (PTH): Copper Plating Thickness, Wicking, Vias, Cracks, Inner Layer Separation (IP Separation), Hole Wall Thickness Solderability: Thermal Stress, Solder Shock
ISO 37	Tensile Properties of Rubber
ISO 48	International Hardness (IRHD): Rubber Microhardness (Type M)
ISO 75-1, -2, -3	Temperature of Deflection Under Load (DTUL, HDT)
ISO 178	Flexural Properties: Flexural Strength, Flexural Modulus, Chord Modulus
ISO 179-1	Charpy Impact Resistance
ISO 180	Izod Impact
ISO 188	Accelerated Aging and Heat Resistance
ISO 306	Vicat Softening Temperature (VST)
ISO 489	Refractive Index: Index of Refraction
ISO 527	Tensile Properties: Tensile Strength, Tensile Elongation, Tensile Modulus, Poisson's Ratio, Chord Modulus
ISO 868	Durometer Hardness (Scales A & D)
ISO 1817	Effects of Liquids: Fluid Resistance
ISO 2039-2	Rockwell Hardness (Scales L, R, M)
ISO 3795	Flammability of Interior Materials
Microscope Manual	Light Microscopy: Image Analysis, Light Microscope, Optical Microscopy
SAE J419	Decarburization



Test Method:

Test Description:

SAE J423
SAE J1127

Measuring Case Depth
Battery Cable Testing (*Except Ozone*):
Outside Diameter, Wall Thickness, Winding, Strand Coating, Solderability,
Mechanical Properties, Dielectric, Cold Bend, Resistance to Flame Propagation,
Fluid Compatibility, Resistance to Hot Water, Insulation Volume Resistivity,
Temperature and Humidity Cycling

SAE J1128

Primary Cable Testing (*Except Ozone*):
Outside Diameter, Wall Thickness, Winding, Strand Coating, Solderability,
Mechanical Properties, Dielectric, Cold Bend, Resistance to Flame Propagation,
Fluid Compatibility, Resistance to Pinch, Resistance to Sandpaper Abrasion,
Cross-linking, Strip Force, Resistance to Hot Water,
Insulation Volume Resistivity, Temperature and Humidity Cycling

SAE J2283
SEM Manual
Shock Manual
UL 94

Wheel Nut Proof Test
Scanning Electron Microscopy (SEM)
Shock, Mechanical
Flammability (*Except HBF Test*):
Horizontal Burning Test (HB), 20 mm Vertical Burning Test (V-0, V-1, V-2),
500 w (125 mm) Vertical Burning Test (5VA, 5VB),
Thin Material Vertical Burning Test (VTM-0, VTM-1, VTM-2)

Vibration Manual

Vibration Testing
(2 to 6250) Hz, (0 to 214) g Acceleration
Sine and Random

Also using client/custom test methods directly related to the test methods and parameters listed above.

**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.*

Dimensional Testing¹:

Parameter/Equipment	Range	CMC ² (±)	Comments
Linear ³ — Work Piece Measurement	Up to 1.00 in	0.00022 in	Micrometer
	Up to 25.40 mm	0.0055 mm	
	Up to 12.00 in	0.00021 in	Caliper
	Up to 304.80 mm	0.053 mm	
	Up to 1.00 in	0.0010 in	Indicator
	Up to 25.40 mm	0.026 mm	

Parameter	Range	CMC ² (±)	Comments
Linear ³ — Work Piece Measurement (cont)	(0.061 to 1.00) in (1.55 to 25.40) mm	0.001 in 0.03 mm	Plug gage
	Up to 36.00 in Up to 914.40 mm	0.02 in 0.5 mm	Steel rule
	Up to 2.00 in Up to 50.80 mm	0.00033 in 0.0084 mm	Microscope

¹ This laboratory offers commercial dimensional testing service only.

² Calibration and Measurement Capability (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine measurements of nearly ideal measurement standards or nearly ideal measuring equipment. Calibration and Measurement Capabilities represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific measurement performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific measurement.

³ This test is not equivalent to that of a calibration.

The laboratory is accredited for the test methods listed above. The accredited test methods are used in determining compliance with the material specifications listed below; however, the inclusion of these material specifications on this Scope does not confer laboratory accreditation to the material specifications. Inclusion of these material specifications on this Scope also does not confer accreditation for every method embedded within the specification. Only the methods listed above on this Scope are accredited.

AMS: 2431, 2438, 2444, 2474, 2491, 2515, 2658, 2759, 3195, 3216, 3242, 3270, 3274, 3276, 3301, 3302, 3303, 3305, 3315, 3327, 3347, 3612, 3617, 3650, 3652, 3653, 3654, 3656, 3657, 3658, 3659, 3660, 3661, 3667, 3669, 3670, 3678, 4082, 4117, 4120, 4121, 4150, 4312, 4911, 5121, 5132, 5507, 5510, 5511, 5513, 5518, 5525, 5544, 5548, 5570, 5610, 5613, 5618, 5622, 5637, 5639, 5640, 5643, 5645, 5646, 5647, 5648, 5653, 5659, 5678, 5680, 5880, 5922, 6260, 6304, 6378, 6382, 6415, 7257, 7259, 7276, DTL-23053, QQ-A-200, QQ-A-225, QQ-A-250, QQ-S-763, R-83485

ASTM: A29, A108, A194, A240, A269, A276, A320, A322, A333, A351, A354, A479, A513, A564, A582, A653, A666, A681, A838, A967, A1011, B6, B16, B33, B36, B75, B103, B152, B160, B187, B194, B196, B209, B210, B211, B221, B333, B335, B339, B488, B574, B575, B584, B591, B618, B633, B733, B888, D178, D710, D1056, D1248, D1430, D1710, D1784, D2000, D2116, D2287, D2475, D3159, D3294, D3307, D3308, D3350, D3950, D4066, D4067, D4101, D4397, D4673, D4745, D4894, D4895, D4976, D5204, D5205, D5948, D5989, D6100, D6263, D6394, D6456, D6576, D6778, D6779, D7293, E1652, E2203, F15, F30, F136, F568, F1216, F1281



Chrysler: MS-DB41, MS-DB50, MS-DB91, MS-DB500, MS-DC543, PS-8955

Ford: ESB-M4D483, WSB-M2D280, WSB-M4D638, WSKM4D827, WSS-M21P17, WSS-M2D476, WSS-M4D483, WSS-M99P6

GM: GMW15702, GMW16607

IPC: IPC-6011, IPC-6012, IPC-6013

MIL: AS8660, AS22759, AS81822, FED-L-P-410, MIL-A-8625, MIL-A-25463, MIL-C-5541, MIL-DTL-5541, MIL-DTL-25988, MIL-DTL-45204, MIL-E-22118, MIL-I-16923, MIL-I-24768, MIL-M-24041, MIL-P-17549, MIL-P-46183, MIL-P-85891, MIL-PRF-1149, MIL-PRF-6855, MIL-PRF-81733, MIL-R-46198, MIL-R-9299, MIL-T-10727, MIL-W-22759

Other: AWWA C213, AWWA D121, Fed-L-P-410, ISO 2081, ISO 6722, ISO 8257, WEEE, ROHS

SAE: J30, J188, J200, J207, J429, J431, J995, J1102, J1127, J1128, J1199, J2045, J2283, J2582

UL: 746A, 746B, 746C

UNS: A01001 to A98280, C10100 to C99750, D40450 to D61440, F10001 to F47006, G10050 to G98500, H10380 to H94301, J01700 to J95705, K00040 to K95100, N01001 to N99810, S13800 to S70003, T11301 to T91907

USPS: USPS-T-3204



Accredited Laboratory

A2LA has accredited

ADVANCED PLASTIC AND MATERIAL TESTING, INC.

Ithaca, NY

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 16th day of November 2016.

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

President and CEO
For the Accreditation Council
Certificate Number 0326.01
Valid to November 30, 2018

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