



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, 2012

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, labels, ladders, lubricants, metal, metal alloys, mirrors, oil, packaging, paint, petroleum products, pipe, plastic, platings, polymers, powder metal, rubber, sealants, solutions, tape and wire:

Test Method:

Test Description:

AMS-DTL-23053

Heat Shrink Tubing Testing (Except Cold Impact):
Dimensional Inspection, Inside Diameter, Wall Thickness, Concentricity, Longitudinal Change, Unrestricted Shrinkage, Restricted Shrinkage, Voltage Withstand, Low Temperature Flexibility, Heat Shock, Heat Resistance, Corrosion, Copper Mirror Corrosion, Fluid Resistance, Secant Modulus, Tensile Stress, Tensile Strength, Tensile Elongation, Flammability, Color Stability, Clarity Stability, Extension of Storage Life, Workmanship

ANSI A14.5

Ladder Testing:
Fiberglass Physical and Mechanical Properties: Accelerated Weathering, Flexural Strength, Flexural Modulus, Tensile Strength, Tensile Modulus, Compressive Strength, Compressive Modulus, Density, Water Absorption, Accelerated Weathering

ANSI Z26.1
ASM Handbook

Electrical Properties: AC Dielectric Strength, DC Current Leakage
Labeling Tests: Adhesion, Scratch Resistance, Water Immersion, Oven Aging
Safety Glazing Materials (Abrasion Resistance Only)

ASME B46.1
ASTM A90
ASTM A247
ASTM A370

Failure Analysis and Prevention:
Root Cause Analysis, Failure Mechanism, Fractography, Fracture Examination, Processing Defects, Degradation, Contaminant Identification, Chemical Resistance, Corrosion Analysis, Microstructure, Microstructural Analysis, Material Analysis

ASTM B117
ASTM B214
ASTM B298

Surface Texture: Surface Roughness, Waviness and Lay, Arithmetic Average
Zinc Coating Weight on Steel Articles
Microstructure of Graphite in Iron Castings: Ductile Iron, Cast Iron, Nodularity
Mechanical Testing of Steel Products (Except Impact):
Tension, Bend, Brinell Hardness, Rockwell Hardness
Salt Spray (Fog) Apparatus Operation: Corrosion Resistance, Salt Fog Test
Sieve Analysis of Metal Powders
Continuity of Coating (Continuity Test Only)

Test Method:**Test Description:**

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)
ASTM C297	Flatwise Tensile 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
ASTM D257	DC Resistance or Conductance of Insulating Materials: DC Resistance, Insulation Resistance, Surface Resistance, Surface Resistivity, Volume Resistance, Volume Resistivity
ASTM D374	Thickness of Electrical Insulation (Methods A-C)
ASTM D395	Compression Set (Method B)
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	Mandrel Bend Test of Coatings (Method B)
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
ASTM D575	Rubber Properties in Compression: Compression Deflection
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 D638	Tensile Properties: Modulus of Elasticity, Percent Elongation, Tensile Strength, Poisson's Ratio, Yield Strength, Young's Modulus
ASTM D648	Heat Deflection Temperature (HDT, DTUL) (Method B)
ASTM D695	Compressive Properties: Compressive Strength, Compressive Modulus
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 D877	Dielectric Breakdown Voltage of Insulating Liquids: Dielectric Strength
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 D952	Bond Strength
ASTM D953	Bearing Strength

Test Method:

ASTM D1000
ASTM D1002
ASTM D1003
ASTM D1004
ASTM D1044
ASTM D1308
ASTM D1414

ASTM D1415
ASTM D1525
ASTM D1599
ASTM D1654

ASTM D1708
ASTM D1709
ASTM D1781
ASTM D1876
ASTM D1894
ASTM D2122
ASTM D2197
ASTM D2240
ASTM D2583
ASTM D2671

ASTM D2732
ASTM D2794
ASTM D2857
ASTM D2990

ASTM D3012
ASTM D3039
ASTM D3165
ASTM D3167
ASTM D3354
ASTM D3359
ASTM D3363
ASTM D3574

ASTM D3755
ASTM D3950
ASTM D4060
ASTM D4329
ASTM D4587
ASTM D5420

Test Description:

Tape Adhesion Strength (Strength Only)
Shear Strength by Lap Joint: Lap Shear
Luminous Transmittance and Haze (Procedure B)
Initial Tear Resistance
Surface Abrasion of Transparent Plastics
Effect of Household Chemicals on Organic Finishes: Chemical Resistance
Rubber O-Ring Testing (Except Low Temperature Test, Mold Shrinkage):
Tension Testing, Tension Set, Compression Set, Relative Density, Immersion,
Heat Aging, Hardness, Corrosion
International Hardness (IRHD): Rubber Microhardness
Vicat Softening Temperature (VST): Vicat Softening Point
Pressure Testing of Pipe, Tubing, and Fittings
Evaluation of Painted or Coated Specimens After Corrosive Environments:
Corrosion Creepback, Blistering, Corrosion, Creepage
Tensile Properties by Microtensile Specimens
Impact Resistance of Film: Dart Drop Impact
Climbing Drum Peel: Peel Strength
Peel Resistance: T-Peel Test
Coefficient of Friction: Kinetic Friction, Static Friction
Dimensions of Pipe
Scrape Adhesion
Durometer Hardness (Scales A and D): Shore Hardness, Indentation Hardness
Barcol Hardness
Heat Shrink Tubing (Except Brittleness, Fungus Resistance, Thermal Endurance):
Dimensions, Inside Diameter, Wall Thickness, Concentricity, Length,
Restricted Shrinkage, Dielectric Breakdown Voltage, Heat Shock, Storage Life,
Low Temperature Flexibility, Tensile Strength and Elongation, Heat Resistance,
Color, Color Stability, Fluid Resistance, Flammability, Specific Gravity,
Volume Resistivity, Water Absorption, Secant Modulus, Stress Modulus,
Corrosion Testing, Adhesive Peel Strength, Melting Point
Shrinkage of Plastic Film
Impact Resistance of Coatings
Dilute Solution Viscosity of Plastics
Creep Testing:
Creep-Rupture, Tensile Creep, Flexural Creep, Compressive Creep
Thermal Oxidative Stability: Biaxial Rotator
Tensile Properties of Composites
Lap Shear Strength
Floating Roller Peel
Blocking Load of Film by Parallel Plate Method (Method B)
Measuring Adhesion by Tape Test: Coating Adhesion, Tape Adhesion
Pencil Hardness
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
Dielectric Strength, DC (100 kV maximum): Current Leakage
Nonmetallic Strapping: Breaking Strength, Joint Strength
Abrasion Resistance by Taber Abraser: Taber Abrasion, Wear Index
UV Exposure of Plastics: QUV
UV Exposure of Coatings: QUV
Impact Resistance by Falling Weight: Gardner Impact

Test Method:**Test Description:**

ASTM D6110
 ASTM E3
 ASTM E8

Charpy Impact Resistance of Notched Plastics
 Preparation of Metallographic Specimens: Metallographic Mounts, Cross Sections
 Tension Testing of Metals:
 Percent Elongation, Reduction of Area, Tensile Strength, Tension Testing,
 Yield Strength, Modulus

ASTM E10
 ASTM E18
 ASTM E112
 ASTM E290
 ASTM E384
 ASTM E407
 ASTM E1003
 ASTM E1004
 ASTM E1331

Brinell Hardness
 Rockwell Hardness (Scales A, B, C, E, F, K, L, M, R, 15N, 30N, 15T, 30T)
 Average Grain Size (Comparison Procedure & Intercept Method)
 Bend Testing (Except Guided Bend)
 Microindentation Hardness: Micro-Hardness, Knoop Hardness, Vickers Hardness
 Microetching Metals and Alloys
 Hydrostatic Leak Testing (Except Ultrasonic Test): Pressure Test
 Electrical Conductivity by Electromagnetic (Eddy-Current) Method
 Color by Spectrophotometry Using Hemispherical Geometry:
 Spectrophotometer, Color Matching, CIELAB, Reflectance
 Color by Spectrophotometry Using Hemispherical Geometry:

ASTM E1348

Transmittance

ASTM F88
 ASTM F606, F606M

Seal Strength of Films
 Mechanical Properties of Fasteners, Washers and Rivets
 (Except Single Shear, Cone Proof, Compression Load, and Embrittlement):
 Product Hardness, Proof Load, Axial Tension, Wedge Tension, Embrittlement,
 Decarburization, Carburization

ASTM F2328, F2328M
 ASTM G151
 ASTM G154
 ASTM G195
 Chamber Manual

Decarburization and Carburization in Threaded Fasteners
 UV Exposure: QUV Fluorescent Light Apparatus (General)
 UV Exposure: QUV Fluorescent Light Apparatus, Accelerated Weathering
 Wear Testing by Taber Abrader
 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)

EIA-364-26
 FED-STD-141,
 (Method 6301)

Salt Spray Testing of Connectors
 Wet Tape Adhesion Test

FMVSS 111
 FMVSS 302
 GM 4298P
 ISO 75
 ISO 178
 ISO 179
 ISO 180
 ISO 188
 ISO 306
 ISO 527

Radius of Curvature (49 CFR 571.111)
 Flammability of Interior Materials (49 CFR 571.302): Burn Rate
 Salt Spray Test: Corrosion Resistance
 Temperature of Deflection Under Load (DTUL, HDT)
 Flexural Properties: Flexural Strength, Flexural Modulus, Chord Modulus
 Charpy Impact
 Izod Impact
 Accelerated Aging and Heat Resistance
 Vicat Softening Temperature (VST)
 Tensile Properties: Tensile Strength, Tensile Elongation, Tensile Modulus,
 Poisson's Ratio, Chord Modulus

ISO 3795
 Microscope Manual
 MIL-STD-2223,
 (Method 3005)

Flammability of Interior Materials
 Light Microscopy: Image Analysis, Light Microscope, Optical Microscopy
 Wet Dielectric Strength

SAE J369
 SAE J419
 SAE J423
 SAE J964

Flammability of Interior Materials
 Decarburization
 Measuring Case Depth
 Reflectivity of Mirrors

Test Method:

Test Description:

SAE J1127	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 J1545	Instrumental Color Difference
SEM	Scanning Electron Microscopy (SEM)
Shock	Shock, Mechanical
UL 94	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	Vibration Testing (2 to 6250) Hz, (0 to 214) g Acceleration Sine and Random

This laboratory also uses client/custom specifications directly related to the testing technologies 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 Testing:

Parameter	Range	CMC* (±)	Technique	Standards
Linear	(0.00 to 1.00) in (0.00 to 25.40) mm	0.00010 in 0.003 mm	Micrometer	
	(0.00 to 8.00) in (0.00 to 203.20) mm	0.0008 in 0.02 mm	Caliper	
	(0.00 to 1.00) in (0.00 to 25.40) mm	0.00082 in 0.021 mm	Dial Indicator	
	(0.061 to 1.00) in (1.55 to 25.40) mm	0.001 in 0.03 mm	Plug Gage	
	(0.00 to 24.00) in (0.00 to 609.60) mm	0.010 in 0.25 mm	Pi Tape	
	(0.00 to 36.00) in (0.00 to 914.40) mm	0.01 in 0.2 mm	Steel Rule	
	(0.00 to 2.00) in (0.00 to 50.80) mm	0.00005 in 0.001 mm	Measuring Microscope	

*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.

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: 2374, 2422, 2423, 2431, 2491, 2658, 3195, 3196, 3216, 3218, 3222, 3270, 3274, 3302, 3303, 3320, 3325, 3326, 3327, 3347, 3352, 3356, 3581, 3586, 3608, 3609, 3611, 3612, 3615, 3617, 3628, 3648, 3650, 3651, 3652, 3653, 3656, 3658, 3659, 3660, 3666, 3667, 3669, 3670, 3690, 3711, 3824, 4001, 4025, 4027, 4035, 4082, 4117, 4120, 4500, 4530, 4610, 4650, 4902, 4911, 4928, 4945, 5022, 5024, 5069, 5120, 5121, 5336, 5504, 5510, 5513, 5514, 5516, 5518, 5528, 5529, 5537, 5542, 5544, 5557, 5560, 5561, 5570, 5576, 5581, 5590, 5596, 5599, 5604, 5610, 5613, 5620, 5630, 5639, 5640, 5643, 5645, 5646, 5647, 5648, 5653, 5659, 5662, 5666, 5678, 5687, 5689, 5880, 5906, 6260, 6300, 6415, 6512, 6532, 7259, 7273, 7276, DTL-23053, QQ-A-200, QQ-A-225, QQ-A-250, QQ-S-763, R-83485

ASTM: A29, A108, A109, A167, A176, A203, A204, A240, A242, A276, A278, A307, A313, A314, A322, A463, A473, A479, A480, A484, A505, A506, A513, A564, A568, A569, A580, A582, A635, A653, A666, A792, A838, A848, A946, A980, A1008, A1011, B16, B19, B30, B36, B75, B134, B187, B209, B210, B211, B221, B301, B438, B488, B633, B840, B927, B928, C581, C881, D706, D707, D787, D788, D1201, D1248, 1430, D1562, D1710, D1784, D2000, D2116, D2475, D3159, D3222, D3275, D3294, D3295, D3296, D3307, D3350, D3595, D3679, D3915, D3935, D3950, D3965, D4000, D4020, D4066, D4067, D4101, D4181, D4203, D4216, D4349, D4396, D4441, D4474, D4507, D4549, D4617, D4634, D4673, D4745, D4802, D4894, D4895, D4976, D5021, D5046, D5138, D5203, D5204, D5205, D5260, D5336, D5436, D5476, D5510, D5575, D5593, D5675, D5676, D5857, D5927, D5990, D6098, D6314, D6338, D6339, D6358, D6394, D6456, D6457, D6576, D6585, D6778, D6779, D6835, DS-561, F949, F964, F1216, F1504

Chrysler: MS-DB41, MS-DB100, MS-DB195, PS-5873, PS-8955

Delphi: ES-C836, ES-M2170, ES-M3197

Ford: ES-XU5T-14A099-AA, ESf-MIL56, WSB-M10-P10, WSB-M12P2, WSB-M26G7/G8, WSB-M2D280, WSK-M4D702, WSK-M4D706, WSS-M1P83, WSS-M21P17, WSS-M4D951, WSS-M4D993, WSS-M99P6

GM: 3626M, 4345M, 4350M, 4497M, 6090M, 6121M, 7001M, 7400M, GMP.PA66.008, GMP.PA66.009, GMP.PA66.013, GMP.PE.003, GMP.PE.050, GMP.PE.059, GMP.PE.064, GMP.POM.016, GMP.PP.008, GMP.PP.032, GMP.PP.039, GMP.PP.063, GMP.PP.067, GMP.PP.075, GMP.UP.007, GMW3044, GMW4700

MIL: AS22759, AS81822, FED-L-P-410, MIL-A-8625, MIL-A-25463, MIL-C-5541, MIL-DTL-5541, MIL-DTL-25988, MIL-I-16923, MIL-I-22129, MIL-I-24768, MIL-M-24041, MIL-P-46183, MIL-P-85891, MIL-PRF-6855, MIL-T-10727, QQ-C-533

Other: ISO 2081, ISO 6722, JIS D5705, WEEE, ROHS

SAE: HS-1086, J30, J200, J403, J404, J405, J429, J431, J434, J435, J452, J457, J461, J463, J470, J515, J844, J995, J1127, J1128, J1199, J1639, J2283

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

(A2LA Cert. No. 0326.01) 11/24/2010



Page 7 of 7



The American Association for Laboratory Accreditation

World Class Accreditation

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 24th day of November 2010.



A handwritten signature in black ink, appearing to read "Peter M. Meyer", written over a horizontal line.

President & CEO
For the Accreditation Council
Certificate Number 0326.01
Valid to November 30, 2012

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