



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

ACE Laboratories
6800 N. Chestnut St., Suite C
Ravenna, OH 44266

Fulfills the requirements of

ISO/IEC 17025:2017

In the field of

TESTING

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

A handwritten signature in black ink, appearing to be 'Jason Stine', is positioned above a horizontal line.

Jason Stine, Vice President

Expiry Date: 11 July 2024

Certificate Number: AT-2601



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
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).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ACE Laboratories

6800 N. Chestnut St., Suite C
Ravenna, OH 44266

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TESTING

Valid to: **July 11, 2024**

Certificate Number: **AT-2601**

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Density	ASTM D297 (16.3 Hydrostatic Density)	Rubber / Plastic	Appropriate Balance
Compression Set / % Deflection	ASTM D395 Method B	Rubber / Plastic	Compression Set Fixtures, Hot Air Ovens
Tensile Stress / Strain	ASTM D412	Rubber / Plastic	Tensile Machine
Effects of Liquid % Volume Change / Tensile Properties, Durometer	ASTM D471	Rubber / Plastic	Appropriate Balance, Tensile Machine
Deterioration in Air Oven, Durometer, Tensile, Weight Loss	ASTM D573	Rubber / Plastic	Balance, tensile machine, hardness gage, hot air oven
Tear Strength Die B, Die C, Die T (Trouser Tear)	ASTM D624	Rubber / Plastic	Tensile Tester, Thickness Gage
Plasticity Recovery	ASTM D926	Silicone Rubber	Plastometer
Standard Conditions for Testing	ASTM D1349	Rubber / Plastic	Environmental Chamber
Mooney Viscosity	ASTM D1646	Rubber	Mooney Viscometer
Durometer testing, Type A, D, and OO	ASTM D2240	Rubber / Plastic	Durometer gage
Mixing and Curing Rubber	ASTM D3182	Rubber	Mixers, Mill, Presses
Preparation of Test Pieces, Dumbbells, Tear samples	ASTM D3183	Rubber / Plastic	Dies, Presses, Clickers

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Measurement of Dimensions	ASTM D3767	Rubber / Plastic	Thickness Gages
MDR	ASTM D5289	Rubber	RPA 2000
Measurement of Unvulcanized Rheological Properties Using Rotorless Shear Rheometer	ASTM D6204 Method A and B	Rubber	RPA 2000
Resilience Rebound Using Schob Type Rebound Pendulum	ASTM D7121	Rubber	Schob pendulum type Rebound Tester
TGA	ASTM D6370	Rubber / Plastic	T/A Instruments TGA
DSC	ASTM D7426	Rubber / Plastic	T/A Instruments DSC
Temperature Retraction	ASTM D1329	Rubber / Plastic	Retraction Tester; dies Traceable timer
Brittleness Point	ASTM D2137 ASTM D746	Rubber / Plastic	Brittleness Tester, die, torque wrench, Traceable timer
Spider Mold Flow	ACE TP-17	Rubber / Plastic	Spider Mold
Extrudability Garvey Die	ASTM D2230	Rubber / Plastic	Extruder and Garvey Die
Measurement of Cure	ASTM D6601	Rubber	Rheometer
Particle Sizing	ACE TP-19	Rubber / Plastics	Sieves
Electrical Resistivity	ASTM D257 ASTM D991	Rubber / Plastics	Resistivity Metter Volume Resistivity Test Fixture
Drum Abrasion	ASTM D5963	Rubber / Plastics	Drum Abrader
Resistance to Ozone Exposure	ASTM D1149	Rubber / Plastics	Ozone Chamber
Flammability	UL 94	Plastics	UL-94 Vertical/Horizontal Flame Tester
Test methods for rubber O-rings	ASTM D1414	Rubber	Appropriate tensile machine, Durometer/hardness gage, balances and ovens.
Dynamic Mechanical Analysis (DMA)	ACE Test Procedure 26 (TP-26)	Rubber/Plastic	DMA Machine
Fourier-Transform Infrared Spectroscopy (FTIR)	ACE Test Procedure 27 (TP-27)	Rubber/Plastic/Chemicals	FTIR Spectrometer

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Rubber Deterioration	ASTM D750	Rubber	Artificial Weathering Apparatus
Ash Content of Compounding Materials	ASTM D4574	Rubber	Oven, Analytical Balance
Determination of Volatile Material	ASTM D4571	Rubber	Heat block
Deterioration by Heating in Air	ASTM D865	Rubber	Oven, hot air oven
Compression load deflection	ASTM D575	Rubber	Tensile Tester
Optical Dispersion	ACE Test Procedure 13 (TP-13)	Rubber	Optical Microscope
Crosslink Density by Solvent Swell (Flory-Rehner Method)	ACE Test Procedure 28 (TP-28)	Rubber	Analytical Balance
Thermal Conductivity and Effusivity (C-Therm Method)	ACE Test Procedure 29 (TP-29)	Rubber	C-Therm TCi
Rubber Property, Staining of Surfaces (Contact, Migration, and Diffusion)	ASTM D925	Rubber	Oven, QUV
Coefficient of Friction	ASTM D1894	Plastic	Tensile machine and attachments
Exposures of Paint and Related Coatings	ASTM D4587	Coatings	QUV
Operating Light and Water Exposure Apparatus (Fluorescent UV-Condensation type) for exposure of Nonmetallic Materials	ASTM G53	Rubber, Plastic	QUV
Test Method for Rubber Property International Hardness (IRHD-m)	ASTM D1415	Rubber	IRHD-m Gage
Adhesion to Flexible Substrate	ASTM D413	Rubber	Tensile Machine
Adhesion to Rigid Substrate	ASTM D429	Rubber	Tensile Machine
Peel or Stripping Strength of Adhesive Bonds	ASTM D903	Adhesives	Tensile Machine
Rubber Deterioration, Surface Ozone Cracking Outdoors (Triangular Specimens)	ASTM D1171	Rubber	Secure fixtures

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Determination of Percent Devulcanization of Crumb Rubber Based on Crosslink Density	ASTM D6814	Rubber	Analytical Balance
Flame Propagation of Dense and Cellular Elastomeric Gaskets and Accessories	ASTM C1166	Rubber	Flame Test Chamber
Rate of Burning and/or Extent of Time Burning of Plastics in a Horizontal Position	ASTM D635	Plastic	Flame Test Chamber
Density and Specific Gravity (Relative Density) of Plastics by Displacement	ASTM D792	Plastic	Densimeter / Analytical Balance
Abrasion Resistance (Rotary Platform Abrader)	ASTM D3389	Rubber	Platform Abrader
Rubber Deterioration (Crack Growth)	ASTM D813	Rubber	Flex / Fatigue tester
Rubber Deterioration Dynamic Fatigue	ASTM D430	Rubber	Flex / Fatigue tester
Determination of Green Strength / Stress Relaxation of raw Rubber or Unvulcanized Compounds	ASTM D6746	Rubber	Tensile Machine
Stiffening at Low Temperature (Flexible Polymers and Coated Fabrics)	ASTM D1053	Rubber	Torsional Stiffness Fixture
Measurement of Unvulcanized Dynamic Strain Softening (Payne Effect)	ASTM D8059	Rubber	RPA 2000
Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials	ASTM E96	Various Coatings and Roofing Products	Environmental Chamber
Standard Test Methods for Water Vapor Transmission of Organic Coating Films	ASTM D1653	Various Coatings and Roofing Products	Environmental Chamber
Standard Specification for Liquid-Applied Acrylic Coating Used in Roofing	ASTM D6083	Roof Coatings	Tensile Tester, Environmental Chamber, Xenon

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Standard Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational Viscometer	ASTM D2196	Coatings	Viscometer
Standard Test Method for Tensile Properties of Organic Coatings	ASTM D2370	Coatings	Tensile Tester
Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings	ASTM D522	Coatings	Mandrel, Freezer
Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material	ASTM D5147	Bituminous Material	Tensile Tester, Oven, Freezer
Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation	ASTM D95	Petroleum Products	D95 Distillation Apparatus
Standard Specification for Liquid-Applied Silicone Coating Used in Spray Polyurethane Foam Roofing Systems	ASTM D6694	Silicone Coatings	Tensile Tester, Environmental Chamber, Xenon
Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer	ASTM C1549	Coatings & Roofing Material	Reflectometer
Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers	ASTM C1371	Coatings & Roofing Material	Emissometer
Standard Practice for Laboratory Soiling and Weathering of Roofing Materials to Simulate Effects of Natural Exposure on Solar Reflectance and Thermal Emittance	ASTM D7897	Coatings & Roofing Material	Soiling Apparatus

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials	ASTM G154	Coatings & Roofing Material	QUV
Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants	ASTM C794	Elastomeric Joint Sealants	Tensile Tester
Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings	ASTM D2697	Coatings	Oven
Standard Test Methods for Nonvolatile Content of Varnishes	ASTM D1644	Coatings	Oven
Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature	ASTM D1204	Thermoplastic	Oven
Standard Practice for Dark Oven Heat Exposure of Roofing and Waterproofing Materials	ASTM D5869	Roofing Material	Oven
Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)	ASTM D36	Asphalt	Softening Point Apparatus
Standard Practice for Identification of Instrumental Methods of Color or Color-Difference Measurement of Materials	ASTM E805	Coatings & Roofing Material	Color Reader
Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces	ASTM E1980	Coatings & Roofing Material	Reflectometer & Emissometer
Standard Test Method for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers	ASTM D1005	Coatings	Thickness Gauge

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Standard Test Method for Penetration of Bituminous Materials	ASTM D5	Asphalt	Penetrometer
Standard Test Method for Ductility of Asphalt Materials	ASTM D113	Asphalt	Ductilometer
Standard Test Method for Elastic Recovery of Asphalt Materials by Ductilometer	ASTM D6084	Asphalt	Ductilometer
Standard Test Methods for Coated Fabrics	ASTM D751	Roofing	Thickness
Standard Test Methods for Sealants and Fillers, Hot-Applied, for Joints and Cracks in Asphalt Pavements and Portland Cement Concrete Pavements	ASTM D5329	Asphalt	MTS/Xenon/Penetrometer/ Freezer
Xenon-Arc Weathering of Bituminous Materials	ASTM D4798	Coatings & Roofing Material	Xenon
Xenon-Arc Exposure of Nonmetallic Materials	ASTM G151	Coatings & Roofing Material	Xenon
Xenon-Arc General Operation	ASTM G155	Coatings & Roofing Material	Xenon
Tile; Wood and Variegated Products	CRRC-1 Test Method #1	Coatings & Roofing Material	Reflectometer & Emissometer
Tile; Wood and Variegated Products	CRRC Aggregate Test Method	Coatings & Roofing Material	Reflectometer & Emissometer
Tile; Wood and Variegated Products	CRRC Tile Template Method	Coatings & Roofing Material	Reflectometer & Emissometer
Tile; Wood and Variegated Products	Thermal Emittance Slide Method	Coatings & Roofing Material	Emissometer
Tile; Wood and Variegated Products	Moore's Aggregate Thermal Emittance Test Method	Coatings & Roofing Material	Emissometer
Test Procedure for Self-Adhered Underlayments for Use in Tile Roof Systems	TAS 103	Roofing Material	Tensile Tester, Oven, Freezer
Test Procedure for Nail-On Underlayment for Use in Tile Roof Systems	TAS 104	Roofing Material	Tensile Tester, Oven, Freezer
Standard Test Requirements for Testing and Approval of Sealants Used in Roofing	TAS 132	Sealants	Tensile Tester, Oven, Freezer



ANSI National Accreditation Board

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection	ASTM D1970	Roofing Material	Tensile Tester, Oven, Freezer
Roof Underlayment for Use in Severe Climate	ICC-ES AC-48	Roofing Material	Tensile Tester, Oven, Freezer
Determination of Tensile Stress-Strain Properties	ISO 37	Rubber/Plastic	Tensile Machine
Determination of Tear Strength	ISO 34	Rubber/Plastic	Tensile Machine
Standard Test Method for Hydrostatic Pressure Resistance of a Liquid-Applied Waterproofing Membrane	ASTM C1306	Roofing Material	PVC Test Apparatus
Flammability of Interior Materials	FMVSS302 (CFR 571.302)	Rubber, Plastic, Fabrics, Composites	UL-94 Vertical/Horizontal Flame Tester
Standard Test Method for Rubber Property – Resilience by Vertical Rebound	ASTM D2632	Rubber	Vertical Rebound Resiliometer
Determination of Burning Behaviour of Interior Materials	ISO 3795	Rubber, Plastic, Fabrics, Composites	UL-94 Vertical/Horizontal Flame Tester
Standard Test Method for Determination of Force Decay (Stress Relaxation) in Compression	ASTM D6147	Rubber/Plastic	Compression Stress Relaxometer
Standard Practice for Testing Load-Strain Properties of Roofing Membranes	ASTM D2523	Coatings & Roofing Material	Tensile Tester
Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements	ASTM D6162	Roofing Material	Tensile Tester, Oven, Freezer

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Standard Specification for Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements	ASTM D6163	Roofing Material	Tensile Tester, Oven, Freezer
Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Materials Using Polyester Reinforcements	ASTM D6164	Roofing Material	Tensile Tester, Oven, Freezer
Compression Set at Low Temperatures	ASTM D1229	Rubber / Plastic	Compression Set Fixtures, Freezer
Rubber Conditioning for Low Temperature Testing	ASTM D832	Rubber / Plastic	Freezer
Standard Specification for Flexible Cellular Materials	ASTM D1056	Sponge Rubber and Expanded Rubber	Tensile Tester, Compression Set Fixtures, Oven, Freezer, Balance, Ozone Chamber, Vertical Rebound Resiliometer
Physical Properties of Roof Membranes, Insulation, Coatings, and Other Roofing Components	TAS 110	Roofing Material	Tensile Tester, Oven, Freezer
Quick Stick of Pressure Sensitive Tapes	PSTC 5	Adhesives	Tensile Tester
Loop Tack	PSTC 16	Adhesives	Tensile Tester
Peel Adhesion of Pressure Sensitive Tape	PSTC 101	Adhesives	Tensile Tester
Shear Adhesion of Pressure Sensitive Tape	PSTC 107	Adhesives	Oven
Dynamic Mechanical Analysis (DMA)	ASTM E1640	Rubber/plastic	DMA Machine



ANSI National Accreditation Board

Chemical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Quantitative Analysis of Solid or Liquid Substances by Gas Chromatography (GC)	ACE TP-35	Various Materials including Polymers, Plastics, Chemicals, Finished Goods and Products	Gas Chromatograph (GC)
Quantification of Cyclic Volatile Methyl Siloxanes by Gas Chromatography (GC)	ACE TP-36	Various Materials including Polymers, Plastics, Chemicals, Finished Goods and Products	Gas Chromatograph (GC)
Elemental Analysis by Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) (Including Sulfur and Lead)	ACE TP-37	Various Materials including Polymers, Plastics, Chemicals, Finished Goods and Products	Inductively Coupled Plasma-Atomic Emission Spectrometer (ICP-AES)
Quantitative Analysis of Solid or Liquid Substances by Gas Chromatography-Mass Spectrometry (GC-MS)	ACE TP-38	Various Materials including Polymers, Plastics, Chemicals, Finished Goods and Products	Gas Chromatograph- Mass Spectrometer (GC-MS)
Extraction of Solids for Phthalate Determination	ACE TP-54	Various Materials including Polymers, Plastics, Chemicals, Finished Goods and Products	Gas Chromatograph- Mass Spectrometer (GC-MS)

Note:

1. This scope is formatted as part of a single document including Certificate of Accreditation No. AT-2601.

Jason Stine, Vice President