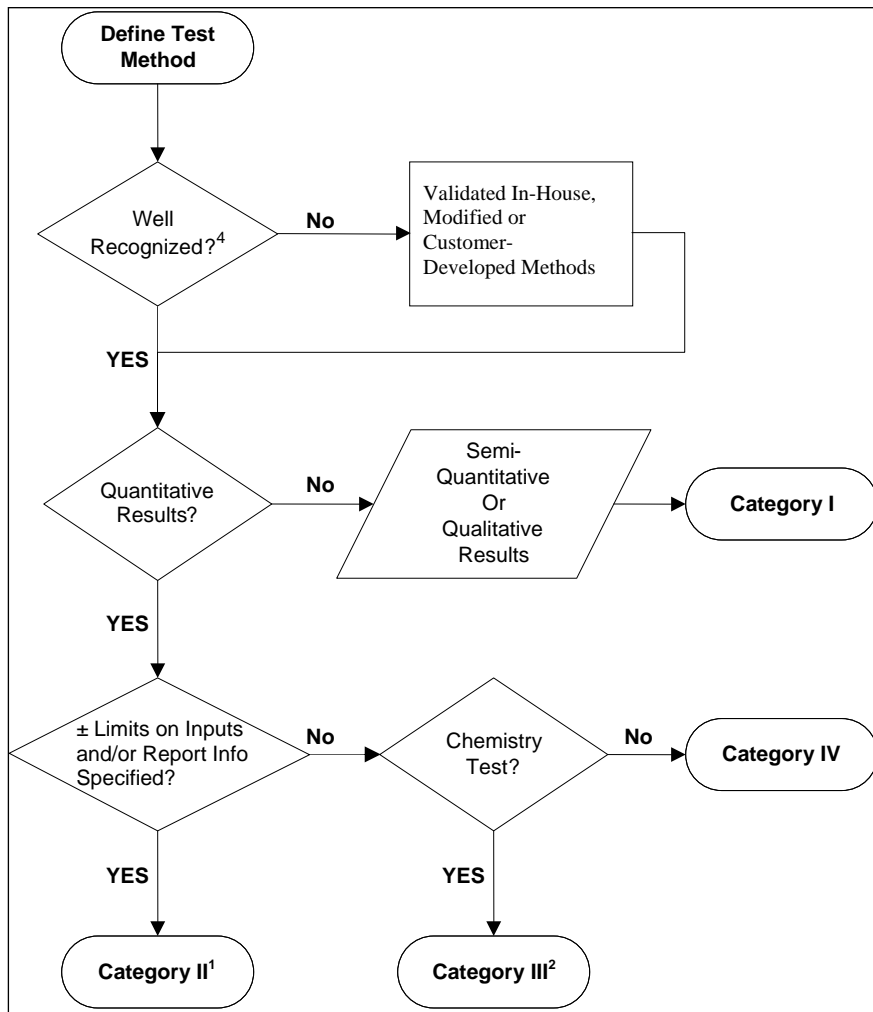





During the past year, A2LA has compiled information regarding the classification of common test methods according to the A2LA Policy on Measurement Uncertainty for Testing Laboratories. Following is a list of example classifications, which has been reviewed by the A2LA Materials Testing Technical Advisory Committee.

A laboratory shall have a procedure for the determination of uncertainty for test methods regardless of its applicability. For tests covered under ISO/IEC 17025, Note 2 of 5.4.6.2, as well as for qualitative test results, assessing the capability of the laboratory to evaluate measurement uncertainty of those test results is not required. The following decision tree provides criteria for the evaluation of a test method.



It is imperative to note that the A2LA Policy is intended as a means to facilitate transition to compliance with ISO/IEC 17025, and is subject to change, as additional guidance is made available internationally. In addition, the list below is intended to provide examples of how the listed methods were typically categorized. **These classifications are dependent on the particular circumstances in a laboratory, and may not apply in all cases.** The fact that a method is listed below in Category I or II

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does not absolve a laboratory from compliance with 5.4.6.2 of ISO/IEC 17025 or the need to address measurement uncertainty.

The list is organized by test area. Within each area, the methods are ordered first by Category (as defined in the Measurement Uncertainty Policy), then by method designation. In some disciplines, specific method numbers are not listed. This list will be updated periodically as more information is made available. Such updates may include changes in categories. Following is a list of the test areas currently covered:

- [General Automotive](#)
- [Metals](#)
- [Plastics and Rubber](#)
- [Nondestructive](#)

General Automotive

Test Method	Standard(s)	Category (I through V)
Durability Cycling of Vehicle Components		I
Vibration - Stress		I
Dimensional Testing Measurements ³		
CMM		IV ³
Micrometer- Inside		IV ³
Micrometer- Outside		IV ³
Depth		IV ³
Caliper Inside/Out/Depth		IV ³
Comparators Linear/Angle		IV ³
Indicators		IV ³
Go/No-Go gages (and other 'qualitative' measurements)		I
Colorfastness to Crocking; AATCC Crockmeter Method	AATCC 8	I
Colorfastness to Perspiration	AATCC 15	I
Colorfastness to Light	AATCC 16	I
Fiber Analysis: Qualitative	AATCC 20	I
Quantitative Fiber Analysis	AATCC 20A	II
Water Repellency: Spray Test	AATCC 22	I
Colorfastness to Burnt Gas Fumes	AATCC 23	I
Water Resistance: Rain Test	AATCC 35	I
Water Resistance: Impact Penetration Test	AATCC 42	I
Colorfastness to Laundering, Home and Commercial: Accelerated	AATCC 61	I
Wrinkle Recovery of Fabrics: Recovery Angle Method	AATCC 66	I
pH of Water-Extract	AATCC 81	II



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Test Method	Standard(s)	Category (I through V)
Appearance of Fabrics in Wash/Wear	AATCC 88A	I
Appearance of Seams in Durable Press Items after Repeated Home Laundering	AATCC 88B	I
Appearance: Retention of Creases in Fabric after Repeated Home Laundering	AATCC 88C	I
Dimensional Changes in Commercial Laundry	AATCC 96	II
Extractable Content in Textiles	AATCC 97	II
Colorfastness to Water Spotting	AATCC 104	I
Colorfastness to Water	AATCC 107	I
Colorfastness to Crocking: Rotary Vertical Crockmeter Method	AATCC 116	I
Oil Repellency – Hydrocarbon Resistance Test	AATCC 118	I
Appearance of Fabrics After Repeated Home Laundering	AATCC 124	I
Water Resistance: Hydrostatic Pressure Test	AATCC 127	I
Wrinkle Recovery of Fabrics: Appearance Method	AATCC 128	I
Dimensional Change in Home Laundry	AATCC 135	II
Dimensional Change in Home Laundry	AATCC 150	II
Weather Resistance: Xenon Lamp Exposure	AATCC 169	I
Skewness Changes in Fabric	AATCC 179	II
Microstructure of Graphite	ASTM A247	I
Salt Spray	ASTM B117, GM 4298	I
Coating Thickness	ASTM B487	II
Adhesion of Metallic Coating	ASTM B571	I
Slippage of Yarn in Seam	ASTM D434	II
Quantitative Analysis of Textiles	ASTM D629	II
Degree of Cracking of Exterior Paints	ASTM D661	I
Degree of Blistering of Paints	ASTM D714	I
Air Permeability of Fabrics	ASTM D737	II
Testing Tire Cord and Fabric	ASTM D885	II
Testing Nonwoven Fabrics	ASTM D1117	II
Flammability of Apparel Textiles	ASTM D1230	II
Effects of Household chemicals on Organic Finishes	ASTM D1308	I
Stiffness of Fabric, Cantilever	ASTM D1388	II
Twist in Single Yarn Untwist-Retwist	ASTM D1422	II
Twist in Yarn by Direct Counting	ASTM D1423	II
Tear Resistance Elmendorf Method	ASTM D1424	II
Breaking Strength Yarn, Skein Method	ASTM D1578	II
Visual Appraisal of Color (MacBeth)	ASTM D1729, AATCC 16	I
Conditioning Textiles for Testing	ASTM D1776	I
Thickness of Textiles	ASTM D1777	II
Yarn Number by Skein Method	ASTM D1907	II
Adhesion Between Steel Tire Cord	ASTM D2229	II
Water Fog Humidity Test	ASTM D2247,	I



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Test Method	Standard(s)	Category (I through V)
	GM 4465P	
Grading Spun Yarns for Appearance	ASTM D2255	I
Tensile Properties of Yarn Single Strand	ASTM D2256	II
Extractable Matter in Textiles	ASTM D2257	II
Shrinkage of Yarn (Boiling Water)	ASTM D2259	II
Tear Strength Fabrics Tongue Method	ASTM D2261	II
Tape Adhesion	ASTM D3359, GM 9071	I
Pencil Hardness	ASTM D3363	I
Pilling Resistance, Brush Method	ASTM D3511	I
Pilling Resistance, Random Tumble	ASTM D3512	I
Length of Woven Fabric	ASTM D3773	II
Width of Woven Fabric	ASTM D3774	II
Fabric Count of Woven Fabric	ASTM D3775	II
Mass per Unit Area (Weight) Woven Fabric	ASTM D3776	II
Bow and Skewness in Woven and Knitted Fabric	ASTM D3882	II
Yarn Crimp/Take-up in Woven Fabric	ASTM D3883	II
Abrasion Resistance, Flex	ASTM D3885	I
Abrasion Resistance, Inflated Diaphragm	ASTM D3886	I
Snagging Resistance Mace Method	ASTM D3939	I
Bulk Properties of Textured Yarn	ASTM D4031	II
Stiffness by Circular Bend	ASTM D4032	II
Abrasion Resistance, Uniform	ASTM D4158	I
Degree of Chalking	ASTM D4214	I
Filament Yarn Entanglement by Needle Insertion	ASTM D4724	II
Surface Water Absorption of Terry Fabrics	ASTM D4772	II
Adhesion of Tire Cord to Rubber	ASTM D4776	II
Tension and Elongation of Elastic Fabrics	ASTM D4964	II
Abrasion Resistance, Martindale	ASTM D4966	I
Strength/Elongation Grab Method	ASTM D5034	II
Strength/Elongation Strip Method	ASTM D5035	II
Extension Force of Partially Oriented Yarn	ASTM D5344	II
Visual Inspection of Inflatable Restraint Fabric	ASTM D5426	I
Accelerated Aging of Inflatable Restraint Fabric	ASTM D5427	I
Visually Inspecting and Grading Fabric	ASTM D5430	II
Physical Properties of Fabrics and Yarns Used in Inflatable Restraints	ASTM D5446	II
Tear Strength Trapezoid Method	ASTM D5587	II
Thermal Shrinkage of Yarn (Testrите)	ASTM D5591	II
Thickness of Nonwoven Fabric	ASTM D5729	II
Stiffness of Nonwoven Fabric, Cantilever	ASTM D5732	II
Tear Strength Nonwoven, Trapezoid	ASTM D5733	II
Tear Strength Nonwoven, Elmendorf	ASTM D5734	II
Thickness of Highloft Nonwoven Fabric	ASTM D5736	II
Seam Strength in Inflatable Restraint Cushions	ASTM D5822	II



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Test Method	Standard(s)	Category (I through V)
Mass/Unit Area Nonwoven	ASTM D6242	II
Flame Resistance of Textiles (Vertical Test)	ASTM D6413	II
X-Ray Emission Spectrometric Analysis of Low-Alloy Steels and Cast Irons	ASTM E322	II
Optical Emission Vacuum Spectrometric Analysis of Carbon and Low-Alloy Steel	ASTM E415	II
Determination of Carbon, Sulfur, Nitrogen, and Oxygen in Steel and in Iron, Nickel, and Cobalt Alloys	ASTM E1019	II
Optical Emission Vacuum Spectrometric Analysis of Stainless Steel by the Point-to-Plane Excitation Tech.	ASTM E1086	II
Analysis of Aluminum and Aluminum Alloys by Atomic Emission Spectrometry	ASTM E1251	II
Determination of Oxygen in Titanium and Titanium Alloys by the Inert Gas Fusion Technique	ASTM E1409	II
Determination of Hydrogen in Titanium and Titanium Alloys by the Inert Gas Fusion Thermal Conductivity Method	ASTM E1447	II
H/R Rearward Displacement	ECE-17 Para. 6.4	II
H/R Energy Dissipation	ECE-17 Para. 6.8	II
Seat Belt Durability	FMVSS 209	I
Automotive fogging	Ford BO 166-03 & SAE J1756	II
Federal Motor Vehicle Safety Standard: Flammability of Interior Materials	FMVSS 302	I or IV
Adhesion Compatibility of Lubricants	GM 3623M	IV
Cup Ductility Test for Sheet and Strip Metal	GM 4471P	IV
Solid Content of Adhesives and Sealers	GM 9010P	IV
Settling Characteristics of Adhesives	GM 9022P	IV
Impact Strength of Plastics	GM 9032P	IV
Volatility of Lubricants (Pan Method)	GM 9044P	IV
Gasoline Extractables in Hose	GM 9067P	IV
Hydrogen Sulfide Staining	GM 9069P	I
Flammability of Materials	GM 9070P	I or IV
Glass Content of Glass Reinforced Plastics	GM 9077P	IV
Wyzenbeek Wear Resistance	GM 9082P	I
Corrosion Creepback	GM 9102P	IV
Stitch Tear Resistance of Vinyl Coated Leather	GM 9149P	IV
Resistance to Marring & Scuffing	GM 9150P	I
Fastening Strength of Hook-and-Loop Tape	GM 9207P	IV
Cycle Life of Hook-and-Loop Tape	GM 9208P	IV
Ash Content of Plastics	GM 9306P	IV
Fiber Weight Loss and Wear on Carpet	GM 9337P	IV
Warpage	GM 9451P	IV
Dimensional Stability	GM 9452P	IV
Automotive Environmental Cycles	GM 9505P	I
Dime Scrape	GM 9506P	I



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Test Method	Standard(s)	Category (I through V)
Accelerated Corrosion	GM 9507P	I
Thumbnail Hardness	GM 9507P	I
Scab Corrosion Creepback of Paint Systems on Metal Substrates	GM 9511P	IV
Paint Thickness of Flexible Plastic parts	GM 9518P	IV
Shear Adhesion for Adhesives Used in Glass Bonding	GM 9521P	IV
Knife Quick Adhesion for Stationary Glass Bonding materials to Paint	GM 9522P	IV
Thermal Shock for Paint Adhesion	GM 9525P	IV
Throw Power of Electrodeposition Primers	GM 9535P	IV
Accelerated Corrosion	GM 9540P	IV
Pump Shear - ELPO	GM 9626P	IV
Filiform Corrosion for Painted Aluminum Wheels and trim	GM 9682P	IV
Coating Weight on Phosphated Panels	GM 9733P	IV
Side Impact	GM 9751P	IV
Cleavage Peel	GM 9797P	IV
Interior Trim Hand Peel Strength	GM 9907P	IV
Xenon Arc Exposure	SAE J1885, J1960	I
Flammability of Polymeric Interior Materials-- Horizontal Test Method	SAE J369	I or IV
Chip resistance (gravelometer)	SAE J400	I
Test Method for Measuring Thickness of Automotive Textiles and Plastics	SAE J882	IV
Test Method for Determining Dimensional Stability of Automotive Textile Materials	SAE J883	IV
Test Method for Determining Stiffness (Modulus of Bending) of Interior Trim Materials and Substrates	SAE J949	IV

Metals

Test Method	Standard(s)	Category (I through V)
Surface Roughness	ANSI B46.1	II
Embrittlement	ASTM A194	I
Hardenability of Steel (Jominy test)	ASTM A255	II
Intergranular Corrosion	ASTM A262	I
Magnetic Permeability	ASTM A342	I
Impact U & V	ASTM A370	II
Tension & Proof	ASTM A370, A574	II
N value testing	ASTM A646	II
Coating Weight on Steel by XRF	ASTM A754	IV



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Test Method	Standard(s)	Category (I through V)
Salt Spray	ASTM B117	I
Plating thickness	ASTM B499	II
Shear	ASTM B565, B769	II
Coating Weight by X-Ray Spectrometry	ASTM B568	II
Tension & Proof	ASTM E8, E8M	II
Compression	ASTM E9	II
Hardness, Brinell	ASTM E10	II
Hardness, Rockwell	ASTM E18	II
Impact Testing	ASTM E23	II
Inclusion Content	ASTM E45	I
Weight of coating on iron and steel articles with zinc or zinc alloys (mass/length)	ASTM A90	II
Hardness, Vickers	ASTM E92	II
Grain Size	ASTM E112	I
Grain Size	ASTM E112 (comparison)	IV
Stress Rupture	ASTM E139	II
Microetching and Macroetching	ASTM E340, E407	I
Hardness, Vickers	ASTM E384	II
Hardness, Knoop	ASTM E384	II
R value testing	ASTM E517	II
General Alloy Sorting	ASTM E977	I
Depth of Decarburization	ASTM E1077	II
Degree of Banding or Orientation of Microstructures	ASTM E1268	I
General Alloy Sorting	ASTM E1476	I
Compression	ASTM F606	I
Cone Stripping	ASTM F606	I
Embrittlement	ASTM F606	I
Tension & Proof	ASTM F606, ASTM F606M	II
Surface Discontinuities of Fasteners	ASTM F788, F812	I
Bend	AWS D1.1,2&5; ASME Sec IX	I
Shear	Mil-P-10971	II
Surface Mercury Contamination	Mil-Std-767	I
Plating thickness	NASM 1312-2	II
Embrittlement	NASM 1312-5	I
Tension & Proof	NASM 1312-8	II
Embrittlement	NASM 1312-14	I
Embrittlement	NASM 1312-105	I
Carburization/Decarburization	SAE J121	I
Carburization/Decarburization	SAE J423	II
Tension & Proof	SAE J429	II



Test Method	Standard(s)	Category (I through V)
Shear	SAE J496	II

Plastics and Rubber

Test Method	Standard(s)	Category (I through V)
Izod Pendulum Impact Resistance of Notched Specimens of Plastic	ASTM D256	II
Density (Rubber)	ASTM D297, Para. 16.3	IV
Compression Set	ASTM D395	II
Tensile (Rubber)	ASTM D412	II
Effects of Liquids	ASTM D471	II
Chemical Resistance	ASTM D543	I
Water Absorption	ASTM D570	II
Rubber- Deterioration in an Air Oven (Heat Aging)	ASTM D573	I
Tear Strength	ASTM D624	II
Tensile (Plastics)	ASTM D638	II
Deflection Temperature of Plastics Under Flexural Load (HDT)	ASTM D648	II
Shear Strength	ASTM D732	II
Rockwell Hardness (Plastics)	ASTM D785	II
Relative Viscosity, Melting Point, Moisture Content	ASTM D789	II
Flexural Properties	ASTM D790	II
Density and Specific Gravity	ASTM D792	II
Rubber- Deterioration by Heating in Air (Test Tube)	ASTM D865	I
Tear Resistance	ASTM D1004	II
Melt Flow	ASTM D1238	II
Vicat Softening Temperature	ASTM D1525	II
Mooney Viscosity	ASTM D1646	II
Apparent Density, Bulk Factor, Pourability	ASTM D1895	II
Vulcanization Using Oscillating Disk Cure Meter (ODR)	ASTM D2084	II
Rheological Properties by Rotational (Brookfield) Viscometer	ASTM D2196	II
Durometer Hardness	ASTM D2240	II
Transition Temperatures of Polymers by Thermal Analysis (DSC)	ASTM D3418	II
Particle Size Distribution	ASTM D3451	II
Instrumented Impact	ASTM D3763	I or II
Moisture Content	ASTM D4019	II
Impact Resistance	ASTM D4226	II
Dynamic Mechanical Properties	ASTM D5024	II



Test Method	Standard(s)	Category (I through V)
Gardner Impact	ASTM D5420; Chrysler LP- 463DB-14-01	I or II
Yellowness Index	ASTM E313	II
Fogging	SAE J1756	II
Xenon Arc	SAE JI885	I

Nondestructive

Test Method	Standard(s)	Category (I through V)
Weight and composition of coating on terne sheet by triple-spot	ASTM A309	IV
Weight of coating on aluminum-coated iron or steel articles	ASTM A428	II
Eddy current plating thickness	ASTM B244	IV
Density, oil content and porosity of metal structural parts and oil-impregnated bearings	ASTM B328	II
Coating thickness by Beta backscatter	ASTM B567	II
Thickness and electrode potential of individual layers in multilayer nickel deposit (STEP)	ASTM B764	IV
Mass per unit area of electrodeposited and related coatings by gravimetric and other chemical analysis	ASTM B767	IV
Radiography	ASTM E94	I
Ultrasonic	ASTM E114	I for flaw detection, II for thickness measurements
Ultrasonic	ASTM E127	II
Radiography	ASTM E142	I
Ultrasonic	ASTM E164	I
Liquid Penetrant	ASTM E165	I
Ultrasonic	ASTM E213	I
Ultrasonic	ASTM E214	I
Electromagnetic (Eddy-Current)	ASTM E243	I
Ultrasonic	ASTM E273	I
Electromagnetic (Eddy-Current)	ASTM E309	I
Coating thickness by magnetic-field or eddy-current	ASTM E376	IV
Electromagnetic (Eddy-Current)	ASTM E376	II
Electromagnetic (Eddy-Current)	ASTM E426	I
Leak Testing	ASTM E427	II
Ultrasonic	ASTM E494	IV
Leak Testing	ASTM E498	I
Leak Testing	ASTM E499	I
Leak Testing	ASTM E515	I



Test Method	Standard(s)	Category (I through V)
Metals Sorting and Identification	ASTM E566	I
Electromagnetic (Eddy-Current)	ASTM E571	I
Electromagnetic (Eddy-Current)	ASTM E690	I
Magnetic Particle	ASTM E709	I
Acoustic Emission	ASTM E751	I
Ultrasonic	ASTM E797	II
Metals Sorting and Identification	ASTM E977	I
Ultrasonic	ASTM E1001	I
Leak Testing	ASTM E1003	I
Radiography	ASTM E1030	I
Radiography	ASTM E1032	I
Estimating the depth of decarburization of steel	ASTM E1077	II
Liquid Penetrant	ASTM E1208	I
Liquid Penetrant	ASTM E1209	I
Liquid Penetrant	ASTM E1210	I
Liquid Penetrant	ASTM E1219	I
Liquid Penetrant	ASTM E1220	I
Radiography	ASTM E1255	I
Radiography	ASTM E1416	I
Liquid Penetrant	ASTM E1417	I
Liquid Penetrant	ASTM E1418	I
Radiography	ASTM E1441	II
Magnetic Particle	ASTM E1444	I
Radiography	ASTM E1734	I
Radiography	ASTM E1742	I

¹Note: Category II test(s) may include Chemistry tests if limits (+/-) on inputs and report information is specified.

²Note: Category III test(s) may include non-Chemistry tests.

³Note: If the dimensional testing measurement serves as a link in a traceability chain and the laboratory has been assessed to the A2LA Calibration Program Requirements, the dimensional test will be classified as a Category V test. All other 'quantitative' dimensional tests will be considered a Category IV test, and all 'qualitative' dimensional tests will be considered a Category I test.

⁴Note: Please reference ISO/IEC 17025:2005, section 5.4.6.2, note 2, for further information regarding well-recognized test methods.

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