



# Standard Index of Methods for Testing Elastomeric and Plastomeric Roofing and Waterproofing Materials<sup>1</sup>

This standard is issued under the fixed designation D 3105; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This index is provided for reference to aid in the selection of procedures and test methods used in the evaluation of Sheet and Liquid Roofing Materials, as appropriate. Composition specifications and analytical methods in general, as well as tests on raw materials, are not included, the scope being limited to procedures used in the evaluation of the materials as received or as finished materials or coatings.

## 2. Significance and Use

2.1 Where more than one test method or testing condition is listed for the same characteristic in this index, selection of the methods and conditions to be followed must be governed by

<sup>1</sup> This index of methods is under the jurisdiction of ASTM Committee D-8 on Roofing, Waterproofing, and Bituminous Materials and is the direct responsibility of Subcommittee D08.18 on Nonbituminous Organic Roof Coverings.

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experience and the requirements in each individual case, together with agreement between the purchaser and seller. The user of this standard must be cautioned that results obtained by different test methods and different conditions of test are not directly comparable.

## 3. Precision

3.1 Precision data for any procedure or test method selected are given in the latest issue of the subject test procedure.

## 4. Categories

4.1 For convenience in selection, the test methods are indexed in three major groups, as follows:

4.1.1 Dimensions and Masses of Sheet Applied Products (Section 5).

4.1.2 Film and Sheet Characteristics (Section 6).

4.1.3 Liquid Applied Systems (Section 7).

TABLE 1 INDEX OF METHODS

PHYSICAL TEST	ASTM TITLE	ASTM DESIGNATION
<b>5. Dimensions and Masses of Sheet Applied Products</b>		
5.1 Length	Test Methods for Coated Fabrics	D 751
5.2 Thickness	Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension (Measuring Thickness)	D 412
	Test Method for Tensile Properties of Plastics (Measuring Thickness)	D 638
	Test Methods of Testing Coated Fabrics (Section 6)	D 751
	Test Methods for Sampling and Testing Modified Bituminous Sheet Material (Section 5)	D 5147
5.3 Mass	Test Methods of Testing Coated Fabrics (Section 7)	D 751
	Test Methods for Sampling and Testing Bitumen-Saturated Felts and Woven Fabrics for Roofing and Waterproofing (Section 5)	D 146
	Test Methods for Asphalt Roll Roofing, Cap Sheets and Shingles (Section 7)	D 228
5.4 Width	Test Methods of Testing Coated Fabrics (Section 5)	D 751
	Test Methods for Sampling and Testing Bitumen-Saturated Felts and Woven Fabrics for Roofing and Waterproofing (8.1)	D 146
	Test Methods for Asphalt Roll Roofing, Cap Sheets and Shingles (7.4)	D 228
<b>6. Film and Sheet Characteristics</b>		
6.1 Abrasion Resistance	Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform Double-Head Abrader)	D 3389
	Test Method for Granule Adhesion to Mineral Surfaced Roofing by Abrasion	D 4977
6.2 Artificial Weathering	Test Method for Rubber Deterioration in Carbon-Arc Weathering Apparatus	D 750
	Practice for Operating Light- and Water-Exposure Apparatus (Carbon-Arc Type) for Exposure of Plastics	D 1499
	Practice for Operating Xenon Arc-Type Light-Exposure Apparatus With and Without Water for Exposure of Plastics	D 2565

**TABLE 1** *Continued*

PHYSICAL TEST	ASTM TITLE	ASTM DESIGNATION
	Test Methods for Sampling and Testing Modified Bituminous Sheet Material (Section 13)	D 5147
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	Practice for Heat Aging of Plastics without Load	D 3045
	Test Method for Accelerated Weathering Test Conditions and Procedures for Bituminous Materials (Carbon-Arc Method)	D 529
	Test Method for Accelerated Weathering Test Conditions and Procedures for Bituminous Materials (Xenon-Arc Method)	D 4798
	Test Method for Accelerated Weathering Test Conditions and Procedures for Bituminous Materials fluorescent UV and Condensation Method	D 4799
6.3 Adhesion:		
6.3.1 Adhesion of Membrane to Substrate	Test Methods for Rubber Property Adhesion to Flexible Substrate	D 413
	Methods of Testing Rubber Cements	D 816
	Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal)	D 1002
6.3.2 Adhesion of Membrane to Membrane (Factory Seam Strength)	Test Methods for Rubber Property Adhesion to Flexible Substrate	D 413
	Test Method for Tensile Properties of Plastics	D 638
	Test Methods of Testing Coated Fabrics (Seam Strength)	D 751
	Methods of Testing Rubber Cements	D 816
	Test Method for Conducting Time to Fail (Creep-Rupture) Tests of Joints Fabricated from Non-Bituminous Organic Roof Membrane Material	D 5405
6.3.3 Adhesion of Polymer to Reinforcement (Ply Laminate Strength)	Test Methods for Rubber Property Adhesion to Flexible Substrate	D 413
	Test Methods of Testing Coated Fabrics (Adhesion of Coating to Fabric)	D 751
6.4 Low Temperature Bend and Brittleness	Test Method for Coated Fabrics (Low Temperature Bend Test)	D 2136
	Test Methods for Rubber Property-Brittleness Point of Flexible Polymers and Coated Fabrics	D 2137
	Test Method for Flexibility of Hot-Melt Adhesives by Mandrel Bend Test Method	D 3111
	Test Methods for Sampling and Testing Modified Bituminous Sheet Material (Section 11)	D 5147
	Test Method for Low Temperature Unrolling of Felt or Sheet Roofing and Waterproofing Materials	D 5636
	Test Method for the Flexibility of Roofing and Waterproofing Materials and Membranes	D 5683
6.5 Impact, Puncture and Bursting Strength	Test Method for Brittleness Temperature of Plastics and Elastomers by Impact	D 746
	Test Methods of Testing Coated Fabrics	D 751
	Test Methods for Impact Resistance of Plastic Film by the Free-Falling Dart Method	D 1709
	Test Method for Brittleness Temperature of Plastic Sheeting by Impact	D 1790
	Test Method for Impact Resistance of Bituminous Roofing Systems	D 3746
	Test Method Static Puncture Resistance of Roofing Membrane Specimens	D 5602
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6.6 Chemical Resistance	Test Method for Rubber Property Effect of Liquids	D 471
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6.7 Creep	Test Method for Apparent Tensile Strength of Ring or Tubular Plastics and Reinforced Plastics by Split Disk Method	D 2290
	Practice for Fabrication of Ring Test Specimens for Glass-Resin Composites	D 2291
	Test Method for Conducting Time to Fail (Creep-Rupture) Tests of Joints Fabricated from Non-Bituminous Organic Roof Membrane Material	D 5405
6.8 Dimensional Stability	Practice for Determination of Weight and Shape Changes of Plastics Under Accelerated Service Conditions	D 756
	Test Method for Linear Dimensional Changes of Plastics Under Accelerated Service Conditions	D 1042
	Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperatures	D 1204
	Test Methods for Sampling and Testing Modified Bituminous Sheet Material (Section 10)	D 5147
6.9 Fatigue Resistance	Test Method for Rubber Deterioration - Dynamic Fatigue	D 430
	Test Method for Evaluating Resistance of Modified, Bituminous Roofing Membranes to Cyclic Joint Displacement	D 5849
6.10 Flammability	Test Methods of Fire Tests of Roof Coverings	E 108
	Test Method for Surface Flammability of Materials using a Radiant Heat Energy Source	E 162
6.11 Fungus Resistance	Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi	G 21
6.12 Hardness	Test Method for Rubber Property - Durometer Hardness	D 2240
6.13 Ozone Resistance	Test Method for Rubber Deterioration - Surface Ozone Cracking in a Chamber	D 1149
6.14 Plasticizer Loss	Test Methods for Volatile Loss From Plastics Using Activated Carbon Methods	D 1203

**TABLE 1** *Continued*

PHYSICAL TEST	ASTM TITLE	ASTM DESIGNATION
6.15 Retention of Properties - Age	Test Method for Rubber-Deterioration in an Air Oven	D 573
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	Test Methods for Sampling and Testing Modified Bituminous Sheet Material (Section 12)	D 5147
6.16 Tear Resist and Strength	Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers	D 624
	Test Methods of Testing Coated Fabrics	D 751
	Test Method for Initial Tear Resistance of Plastic Film and Sheeting	D 1004
	Test Method for Propagation Tear Resistance of Plastic Film and This Sheeting by Pendulum Method	D 1922
	Test Method for Tensile-Tear Strength of Bituminous Roofing Membranes	D 4073
	Test Methods for Sampling and Testing Modified Bituminous Sheet Material (Section 7)	D 5147
6.17 Tensile Strength and Elongation	Test Method for Tearing Resistance of Roofing and Waterproofing Materials and Membranes	D 5601
	Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension	D 412
	Test Method Tensile Properties of Plastics	D 638
	Test Methods of Testing Coated Fabrics (Method A)	D 751
	Test Methods for Tensile Properties of Thin Plastic Sheeting	D 882
	Practice for Testing Load-Strain Properties of Roofing Membranes	D 2523
6.18 Thermal Expansion	Test Methods for Sampling and Testing Modified Bituminous Sheet Material (Section 6)	D 5147
	Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30C and 30C with a Vitreous Silica Dilatometer	D 696
6.19 Water Absorption	Test Method for Rubber Property Effect of Liquids	D 471
	Test Method for Water Absorption of Plastics	D 570
	Test Method for Resistance of Plastic Films to Extraction by Chemicals	D 1239
	Test Methods for Sampling and Testing Modified Bituminous Sheet Material (Section 9)	D 5147
6.20 Water Vapor Transmission	Test Methods for Water Vapor Transmission of Organic Coating Films	D 1653
	Test Methods for Water Vapor Transmission of Materials	E 96
<b>7. Liquid Applied Systems As Received</b>		
7.1 Film formation	Test Methods for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature	D 1640
7.2 Flash Point	Test Method for Flash and Fire Points by Cleveland Open Cup	D 92
	Test Methods for Flash Point by Pensky-Martens Closed Cup Tester	D 93
	Test Method for Flash Point and Fire Point of Liquids by Tag Open-Cup Apparatus	D 1310
	Test Method for Flash Point of Liquids by Small Scale Closed-Cup Apparatus	D 3278
7.3 Solids, Percent	Test Method for Volatile Content of Coatings <sup>A</sup>	D 2369
7.4 Solids, Percent by Volume	Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings	D 2697
	Test Method for Apparent Viscosity of Plasticsols and Organosols at Low Shear Rates by Brookfield Viscometer	D 1824
7.5 Viscosity	Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield) Viscometer	D 2196
	Test Method for Density of Liquid Coatings, Inks, and Related Products	D 1475
7.7 Liquid Applied Film Prep	Test Method of Producing Films of Uniform Thickness of Paint, Varnish, and Related Products on Test Panels	D 823

<sup>A</sup> Not applicable for urethane products with toluene di-isocyanate bearing compounds.

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