



Designation: D 1677 – 86 (Reapproved 1993)^{€1}

Standard Methods for Sampling and Testing Untreated Mica Paper Used for Electrical Insulation¹

This standard is issued under the fixed designation D 1677; 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 (€) indicates an editorial change since the last revision or reapproval.

€¹ NOTE—Editorial changes were made throughout in June 1993.

1. Scope

1.1 These methods cover procedures for sampling and testing untreated mica paper to be used as an electrical insulator or as a constituent of a composite material used for electrical insulating purposes.

1.2 The procedures² appear in the following order:

Procedures	Sections	ASTM Method References
Air Resistance	29-32	D 202, D 726
Apparent Density	12	...
Aqueous Extract Conductivity	36 and 37	D 202
Conditioning	4	D 685
Dielectric Strength	16-19	D 149
Impregnation Time	20-24	D 202
Moisture Content	26-28	D 644
Roll Quality	25	...
Sampling	3	...
Tensile Strength	13-15	D 828
Thickness	6-10	D 374
Weight	11	D 646
Weight Variability	33-35	...

1.3 The values stated in inch-pound units are to be regarded as the standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 149 Test Methods for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies³
- D 202 Test Methods for Sampling and Testing Untreated Paper Used for Electrical Insulation³

¹ These methods are under the jurisdiction of ASTM Committee D-9 on Electrical and Electronic Insulating Materials and are the direct responsibility of Subcommittee D09.19 on Dielectric Sheet and Roll Products.

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² The test methods for other properties will be added in accordance with standard ASTM procedures as their need becomes generally desirable.

³ *Annual Book of ASTM Standards*, Vol 10.01.

D 374 Test Methods for Thickness of Solid Electrical Insulation³

D 644 Test Method for Moisture Content of Paper and Paperboard by Oven Drying⁴

D 646 Test Method for Grammage of Paper and Paperboard (Weight Per Unit Area)⁴

D 685 Practice for Conditioning Paper and Paper Products for Testing⁴

D 726 Test Methods for Resistance of Nonporous Paper to Passage of Air⁴

D 828 Test Method for Tensile Breaking Strength of Paper and Paperboard⁴

D 1711 Terminology Relating to Electrical Insulation³

3. Sampling

3.1 Sample in accordance with the requirements set forth in Test Methods D 202.

3.2 Make the tests for physical properties on each sample insofar as the specimens are of sufficient width.

3.3 Untreated mica papers are, in general, quite fragile and friable. At all times during the operations of sampling, conditioning, specimen preparation, and testing, great care must be taken to prevent flexing and tearing, and to minimize abrasion of particles from the surfaces. The test values may be significantly and adversely affected if these precautions are not taken.

4. Conditioning

4.1 Condition samples in accordance with Practice D 685, except that samples should remain in the conditioned air for not less than 16 h prior to the tests.

4.2 The following physical tests shall be made in the conditioned atmosphere: thickness, weight, tensile strength, dielectric strength, and impregnation.

5. Precision and Bias

5.1 Due to the range of types and grades, and nonuniform nature of commercially available mica papers, no statement can be made about the precision of these methods when used on these materials. Neither can a statement about bias be made because of the unavailability of standard reference materials.

⁴ *Annual Book of ASTM Standards*, Vol 15.09.