

Tentative Methods of

TESTING MOLDED MATERIALS USED FOR ELECTRICAL INSULATION¹



A.S.T.M. Designation: D 48 - 46 T

ISSUED, 1941; REVISED, 1942, 1943, 1945, 1946.²

These Tentative Methods have been approved by the sponsoring committee and accepted by the Society in accordance with established procedures, for use pending adoption as standard. Suggestions for revisions should be addressed to the Society at 1916 Race St., Philadelphia 3, Pa.

Scope

1. These methods cover a compendium of tests which apply to solid electrical insulating materials formed by a molding operation employing pressure with or without heat, and of instructions and recommendations supplementary thereto which apply to these particular materials. Dry-process porcelain is not included. Primarily these methods give instructions for preparing the materials for test and any choices or modifications to be made in general test methods which otherwise are to be followed exactly. The test methods included are listed in Table I. Information on the utility of these tests is given in the Appendix.

MOLDING OF TEST SPECIMENS

Molds

2. Test specimens shall be molded in molds conforming to the Tentative

¹ Under the standardization procedure of the Society, these methods are under the jurisdiction of the A.S.T.M. Committee D-9 on Electrical Insulating Materials.

² Latest revision accepted by the Society at annual meeting, June, 1946.

Prior to their present publication as tentative, these methods were published as tentative from 1917 to 1922, being revised in 1921. They were adopted in 1922, published as standard from 1922 to 1942, being revised in 1924, 1927, 1929, 1930, 1933, 1937, and 1939, but withdrawn as standard in 1942.

TABLE I.

Test	Preparations for Test Described in These Methods in Section No.	A.S.T.M. Designation of Test Method
Acetone Extraction (phenolic materials).....	42	D 494
Arc Resistance (thermosetting materials).....	8, 9	D 495
Brittle Temperature (nonrigid plastics).....	31	D 746
Chemical Resistance.....	41	D 543
Conditioning.....	4-7	D 618
Deformation Under Load (except nonrigid plastics).....	29	D 621
*Dielectric Constant.....	19, 20	D 150
*Dielectric Strength.....	10-15	D 149
Distortion Under Heat (except nonrigid plastics).....	32, 33	D 648
Flammability (except nonrigid plastics).....	36, 37	D 635
Flow Temperature (thermoplastics).....	44	D 569
*Insulation Resistance.....	16-18	D 257
*Loss Factor.....	19, 20	D 150
Mobility (thermosetting materials).....	45	D 731
Molds for Test Specimens.....	2	D 647
Powder Tests.....	43	D 392
*Power Factor.....	19, 20	D 150
Shrinkage.....	46	D 551
Stiffness (nonrigid plastics).....	30	D 747
Strength:		
Compressive (except nonrigid plastics).....	21, 22	D 695
Flexural (except nonrigid plastics).....	23, 24	D 790
*Impact (except nonrigid plastics).....	25, 26	D 256
*Tensile (nonrigid plastics).....	27, 28	D 412
*Tensile (thermoplastic).....	27, 28	D 638
*Tensile (thermosetting and cold-molded).....	27, 28	D 651
Thermal Expansion, Coefficient of		
Linear (except nonrigid plastics).....	34, 35	D 696
*Volume Resistance.....	16-18	D 257
Water Absorption.....	38-40	D 570

* A discussion of the significance of these tests appears in the special publication, "A.S.T.M. Standards on Electrical Insulating Materials," October, 1945, p. 27.