



Standard Specification for Hot-Application Filling Compounds for Telecommunications Wire and Cable¹

This standard is issued under the fixed designation D 4731; 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 specification covers a variety of petroleum-based and other compounds used for filling the air spaces in telecommunications wires and cables (both electrical and fiber optic) for the purpose of preventing water and other undesirable fluids from entering or migrating through the cable structure. (For related standards see Specifications D 4730 and D 4732).

1.2 A hot-application compound is a material that requires melting in order to be applied as a liquid and its melting point may affect its performance in the finished cable product.

1.3 The values stated in SI units are the standard.

2. Referenced Documents

2.1 ASTM Standards:

- D 6 Test Method for Loss on Heating of Oil and Asphaltic Compounds²
- D 92 Test Method for Flash and Fire Points by Cleveland Open Cup³
- D 97 Test Method for Pour Point of Petroleum Products³
- D 127 Test Method for Drop Melting Point of Petroleum Wax Including Petrolatum³
- D 150 Test Methods for AC Loss Characteristics and Permittivity (Dielectric Constant) of Solid Electrical Insulation⁴
- D 257 Test Methods for DC Resistance or Conductance of Insulating Materials⁴
- D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (the Calculation of Dynamic Viscosity)³
- D 938 Test Method for Congealing Point of Petroleum Waxes, Including Petrolatum³

D 1500 Test Method for ASTM Color of Petroleum Products (ASTM Color Scale)³

D 2161 Practice for Conversion of Kinematic Viscosity to Saybolt Universal Viscosity or to Saybolt Furol Viscosity³

D 3895 Test Method for Oxidative-Induction Time of Polyolefins by Differential Scanning Calorimetry⁵

D 3954 Test Method for Dropping Point of Waxes⁶

D 4565 Test Methods for Physical and Environmental Performance Properties of Insulations and Jackets for Telecommunications Wire and Cable⁷

D 4568 Test Methods for Evaluating Compatibility Between Cable Filling and Flooding Compounds and Polyolefin Wire and Cable Materials⁷

D 4730 Specification for Flooding Compounds for Telecommunications Wire and Cable⁷

D 4732 Specification for Cool-Application Filling Compounds for Telecommunications Wire and Cable⁷

D 4872 Test Method for Dielectric Testing of Wire and Cable Filling Compounds⁷

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *filling material*—any of several materials used to fill the air spaces in the cores of multi-conductor insulated wires and cables, or between buffer tubes covering optical fibers, or within such buffer tubes, or any combination of these configurations and any other cable components, for the purpose of excluding water and other undesirable fluids; especially with regard to telecommunications wire and cable, including optical cable, intended for outside aerial, buried, or underground installations.

3.1.2 *producer*—the primary manufacturer of the material.

3.1.3 *suppliers*—jobbers and distributors as distinct from producers.

¹ This specification is under the jurisdiction of ASTM Committee D09 on Electrical and Electronic Insulating Materials and is the direct responsibility of Subcommittee D09.18 on Solid Insulations, Non-Metallic Shieldings and Coverings for Electrical and Telecommunication Wires and Cables. Subcommittee D02.10 contributed in the development of this standard.

Current edition approved Sept. 10, 2002. Published October 2002. Originally published as D 4731 – 87. Last previous edition D 4731–93 (1998).

² *Annual Book of ASTM Standards*, Vol 04.04.

³ *Annual Book of ASTM Standards*, Vol 05.01.

⁴ *Annual Book of ASTM Standards*, Vol 10.01.

⁵ *Annual Book of ASTM Standards*, Vol 08.02.

⁶ *Annual Book of ASTM Standards*, Vol 15.04.

⁷ *Annual Book of ASTM Standards*, Vol 10.02.