



Standard Test Methods for Evaluating Compatibility Between Cable Filling and Flooding Compounds And Polyolefin Wire and Cable Materials¹

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1. Scope

1.1 These test methods evaluate the compatibility between cable filling or cable flooding compounds, or both, and polyolefin materials used in the manufacture of wire and cable that are usually in intimate contact with the filler or floodant, or both.

1.2 These test methods are useful to ensure compatibility and to verify that new formulations of filling or flooding compounds will have no deleterious effect upon the other polyolefin materials being used or, conversely, use these methods to ensure that other polyolefin wire and cable materials are evaluated for possible use not degraded by contact with fillers or floodants already in use.

1.3 Whenever two sets of values are presented, in different units, the values in the first set are the standard, while those in parentheses are for information only.

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 the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 1711 Terminology Relating to Electrical Insulation²
- D 1928 Practice for Preparation of Compression-Molded Polyethylene Test Sheets and Test Specimens³
- D 2633 Test Methods for Thermoplastic Insulations and Jackets for Wire and Cable⁴
- D 4730 Specification for Flooding Compounds for Telecommunications Wire and Cable⁴

¹ These test methods are under the jurisdiction of ASTM Committee D-9 on Electrical and Electronic Insulating Materials and are the direct responsibility of Subcommittee D09.18 on Solid Insulations, Nonmetallic Shieldings, and Coverings for Electrical Wires and Cables. Members of ASTM Committee D-2 on Petroleum Products and Lubricants, and ASTM Committee B-7 on Light Metals and Alloys, have contributed to these test methods.

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² Annual Book of ASTM Standards, Vol 10.01.

³ Annual Book of ASTM Standards, Vol 08.01.

⁴ Annual Book of ASTM Standards, Vol 10.02.

D 4731 Specification for Hot-Application Filling Compounds for Telecommunications Wire and Cable⁴

D 4732 Specification for Cool-Application Filling Compounds for Telecommunications Wire and Cable⁴

D 5423 Specification for Forced-Convection Laboratory Ovens for Evaluation of Electrical Insulation⁴

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in these test methods, refer to Terminology D 1711

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *aging (act of), n*—exposure of materials to filling or flooding compound at a specified temperature for a specified time.

3.2.2 *filling compound*—any of several materials (see Specifications D 4731 and D 4732) used to fill the air spaces in the cores of multi-conductor insulated wires and cables for the purpose of excluding air or moisture or both; especially with regard to telecommunications wire and cable intended for direct burial.

3.2.3 *flooding compound*—any of several materials (see Specification D 4730) used to flood wire or cable sheath interfaces (for example, the region between core wrap and a shield, between a shield and a jacket, etc.) to eliminate or to minimize normal voids or air spaces in these areas; especially with regard to telecommunications wire and cable intended for direct burial.

4. Significance and Use

4.1 Cable filling and flooding compounds are normally semi-solid at room temperature and fluid in varying degrees at elevated temperatures. They are normally applied in a liquid state and at an elevated temperature during wire and cable manufacturing. The completed finished wire or cable is exposed to various ambient conditions during its useful life. If not carefully selected, components of filling or flooding compounds may act to degrade the materials they contact, short term or long term. The following methods are intended to minimize the chances of such problems occurring.