Designation: D4730 – 13

Standard Specification for Flooding Compounds for Telecommunications Wire and Cable[1]

This standard is issued under the fixed designation D4730; 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 compounds used for flooding the shields and armors of telecommunications wires and cables (both electrical and fiber optic) for the purpose of preventing water and other undesirable fluids from entering or migrating along or through the cable sheath. (For related standards see Specifications D4731 and D4732.)

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D6 Test Method for Loss on Heating of Oil and Asphaltic Compounds

D92 Test Method for Flash and Fire Points by Cleveland Open Cup Tester

D482 Test Method for Ash from Petroleum Products

D1321 Test Method for Needle Penetration of Petroleum Waxes

D3236 Test Method for Apparent Viscosity of Hot Melt Adhesives and Coating Materials

D4565 Test Methods for Physical and Environmental Performance Properties of Insulations and Jackets for Telecommunications Wire and Cable

D4568 Test Methods for Evaluating Compatibility Between Cable Filling and Flooding Compounds And Polyolefin Wire and Cable Materials

D4731 Specification for Hot-Application Filling Compounds for Telecommunications Wire and Cable

D4732 Specification for Cool-Application Filling Compounds for Telecommunications Wire and Cable

E28 Test Methods for Softening Point of Resins Derived from Naval Stores by Ring-and-Ball Apparatus

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *flooding compounds*—any of several materials used to fill the air spaces between the sheath elements of single and multi-conductor insulated wires and cables or optical cables 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 or underground installations.

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

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

4. Ordering Information

4.1 Orders for material under this specification shall include the following information:

4.1.1 Quantity (mass or volume) of each item,

4.1.2 Generic name of the material, such as cable flooding compound,

4.1.3 How furnished (drums or barrels, blocks, etc.),

4.1.4 Certification, if required (see Section 11).

4.1.5 This specification designation, and

4.1.6 Any special requirements, as listed in 8.2 and 9.2, that apply.

5. Materials and Manufacture

5.1 The material and manufacturing methods used shall be such that the resulting products conform to the properties and characteristics prescribed in this specification.

6. Compatibility with Other Materials

6.1 It is the responsibility of the purchaser to ensure that the flooding compound ordered is suitable for the intended application and is compatible with any other components that may come into contact with the flooding compound.

6.2 The purchaser shall specify the materials that the compound must be compatible with when tested in accordance with Test Method D4568.

7. Chemical Composition

7.1 The chemical composition of these materials is not specified. The material shall be of a chemical composition

[1] This specification is under the jurisdiction of ASTM Committee D09 on Electrical and Electronic Insulating Materials and is under the direct responsibility of Subcommittee D09.18 on Solid Insulations, Non-Metallic Shieldings and Coverings for Electrical and Telecommunication Wires and Cables.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

***A Summary of Changes section appears at the end of this standard**

suitable for the intended purpose and which meets the requirements of this specification as hereinafter stated.

7.2 Once established, the producer shall not change the composition of the compound in successive lots of material without prior approval of the purchaser.

8. Physical Properties

8.1 Flooding compound furnished under this specification shall inhibit the corrosion of any metallic wire and cable elements with which it comes in contact, while serving as a radial and longitudinal barrier to moisture transmission. Contact of the flooding compound with any cable component shall not cause degradation of performance of the cable component. The flooding compound shall display adhesive properties to provide adhesion between metallic sheath elements and the outer jacket materials of wire and cable.

8.2 *Other Properties:*

8.2.1 Other physical properties requirements such as Viscosity (for example, Test Method D3236), Flash Point (for example, Test Method D92), Needle Penetration (for example, Test Method D1321), Ring-and-Ball Softening Point (for example, Test Method E28), and Heat Stability/Viscosity Change (for example, Test Method D3236), are specified, if needed, and shall be as agreed-upon between the producer and the purchaser.

8.3 The purchaser (individual cable manufacturer or other) shall specify any other expected requirements needed to ensure compliance with such end-product requirements as cold-bend, low-temperature flexibility, and the like (for example, Test Methods D4565).

9. General Requirements

9.1 All flooding compounds manufactured in conformance to this specification shall meet the following requirements:

9.1.1 *Homogeneity*—The compound shall be homogeneous and uniformly mixed.

9.1.2 *Foreign Material*—The compounds shall be free of dirt, metallic particles, and other foreign matter.

9.2 *Other Properties:*

9.2.1 Other raw material requirements such as Volatility (for example, Test Method D6), Metals Content (for example, Test Method D482), adhesive property measurements, and corrosion inhibiting characteristics are specified, if needed, and shall be as agreed-upon between the producer and the purchaser.

9.3 The purchaser (individual cable manufacturer or other) shall specify any other expected requirements needed to ensure compliance with such end-product requirements as cable drip-out temperature and jacket slip.

10. Quality Assurance

10.1 *Responsibility for Inspection and Tests*—Unless otherwise specified in the contract or purchase order, the producer is responsible for the performance of all inspection and test requirements specified herein. The producer shall use his own or any other suitable facilities for the performance of the inspection and test requirements specified herein, unless otherwise stated by the purchaser in the order or at the time of the contract signing. The purchaser shall have the right to perform any of the inspections and tests set forth in this specification where such inspections are deemed necessary to assure that the material conforms to prescribed requirements.

10.2 Each producer shall establish written nominal values and tolerances for the material properties routinely checked. For properties not routinely checked, typical values shall be specified. Once these values have been accepted by the purchaser, the producer shall not ship material which deviates from these limits without prior notification to and approval by the purchaser.

10.3 An inspection lot shall consist of an identifiable quantity of the same material subjected to inspection at one time.

11. Certification

11.1 The producer or supplier shall, on request, furnish to the purchaser a certificate stating that each lot has been sampled, tested, and inspected in accordance with this specification, and has met the requirements.

12. Packaging and Package Marking

12.1 *Packaging*—The flooding compound shall be packaged in a manner that protects the material from contamination during shipment.

12.2 *Package Marking*—Shipping containers shall be marked with the name of the manufacturer, trade name, type of material, lot number, mass or volume, and date of manufacture.

13. Keywords

13.1 adhesive; compatibility; flooding compound; moisture barrier; telecommunications wire and cable

SUMMARY OF CHANGES

Committee D09 has identified the location of selected changes to this standard since the last issue (D4730 – 02R08) that may impact the use of this standard. (Approved May 1, 2013.)

(1) Deleted “will” in 5.1.
(2) Changed “that may come” to “that come” in 6.1.
(3) Changed “may” to “shall” and “any” to “a” in 7.1.
(4) Changed “may be” to “are” in 8.2.1 and 9.2.1.
(5) Changed “The producer may” to “The producer shall” in 10.1.