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An American National Standard

Standard Specification for Thermoplastic Chlorinated Polyethylene (CM) Jacket for Wire and Cable[1]

This standard is issued under the fixed designation D 4363; 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 thermoplastic chlorinated polyethylene (CM) compounds suitable for use as an outer covering or jacket on electrical cables.

1.2 These jacket materials are suitable for use on cables which will be installed at temperatures above −35°C.

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.

2. Referenced Documents

2.1 *ASTM Standards:*

D 2633 Methods of Testing Thermoplastic Insulations and Jackets for Wire and Cable[2]

D 1499 Practice for Operating Light- and Water-Exposure Apparatus (Carbon-Arc Type) for Exposure of Plastics[3]

D 1711 Terminology Relating to Electrical Insulation[4]

G 153 Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials[5]

3. Terminology

3.1 *Definitions:* For definitions of terms used in this specification refer to Terminology D 1711.

3.2 *Definition of Term Specific to This Standard:*

3.2.1 *aging, (act of), n*—exposure of materials to air at a temperature of 121°C for 168 h and oil at 100°C for 18 h.

4. Physical Properties

4.1 Thermoplastic jackets shall conform to the requirements for physical properties specified in Table 1.

4.2 When used on single-conductor non-shielded cable rated 2001 to 5000 V phase to phase, the jacket shall also conform to the requirements for surface resistivity and U-bend discharge prescribed in Table 2.

TABLE 1 Physical Properties for CM Jacket

Physical Requirement (Original):	
Tensile strength, min, psi (MPa)	1400 (9.6)
Tensile stress at 100 % elongation, min, psi (MPa)	1000 (6.9)
Elongation at rupture, min, %	150
Cold bend,[A] −35± 1°C	No Cracks
Physical Requirements [after aging in an air-oven at 121 ± 1°C for 168 h]:	
Tensile strength, min, % of original	85
Elongation at rupture, min, % of original	50
Physical Requirements [after oil immersion for 18 h at 100 ± 1°C]:	
Tensile strength, min, % of original	60
Elongation at rupture, min, % of original	60
Heat distortion, 121 ± 1°C, max, %	25

[A] Refer to Methods D 2633, Table 8, Mandrel Requirements for Poly (Vinyl Chloride) Jacket.

5. Sunlight and Weather Resistance Requirements

5.1 If sunlight and weather resistance are required of the jackets, the jackets shall conform to the requirements specified in Table 3.

6. Sampling

6.1 Sample the jacket in accordance with Methods D 2633.

7. Test Methods

7.1 Test the jacket in accordance with Methods D 2633. If the sunlight and weather resistance test is required, perform it in accordance with Practice D 1499 and Practice G 153.

8. Keywords

8.1 chlorinated polyethylene; heat distortion; oil immersion; sunlight resistance; tensile strength; tensile stress; thermoplastic; weather resistance

[1] This specification is under the jurisdiction of ASTM Committee D-9 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.

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[2] *Annual Book of ASTM Standards*, Vol 10.02.

[3] *Annual Book of ASTM Standards*, Vol 08.01.

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

[5] *Annual Book of ASTM Standards*, Vol 14.02.

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