Designation: D4313 – 12

Standard Specification for General-Purpose, Heavy-Duty, and Extra-Heavy-Duty Crosslinked Chlorinated Polyethylene (CM) Jackets For Wire and Cable[1]

This standard is issued under the fixed designation D4313; 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 crosslinked chlorinated polyethylene (CM) compounds suitable for use as outer coverings or jackets on electrical cables for general-purpose, heavy-duty, and extra-heavy-duty service.

1.2 These jacket materials are not recommended for use on cables which are to be installed at a temperature less than – 25°C.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D470 Test Methods for Crosslinked Insulations and Jackets for Wire and Cable

D1499 Practice for Filtered Open-Flame Carbon-Arc Exposures of Plastics

D1711 Terminology Relating to Electrical Insulation

G153 Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials

3. Terminology

3.1 *Definitions:* For definitions of terms used in this specification refer to Terminology D1711.

3.2 *Definitions of Terms 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 121°C for 18 h.

4. Physical Properties

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

5. Sunlight and Weather Resistance Requirements

5.1 If sunlight and weather resistance are required of the crosslinked jackets, the jackets shall conform to the requirements specified in Table 2.

6. Sampling

6.1 Sample the jacket in accordance with Test Methods D470.

7. Test Methods

7.1 Test the jacket in accordance with Test Methods D470. If the sunlight and weather resistance test is required, perform it in accordance with Practice D1499 and Practice G153.

8. Keywords

8.1 chlorinated polyethylene; crosslinked; oil immersion; sunlight resistance; tear; tensile strength; tensile stress; tension test; weather resistance

[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.

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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.

TABLE 1 Physical Properties for CM Jacket

	General-Purpose	Heavy-Duty	Extra-Heavy-Duty
Physical Requirements (Original):			
Tensile strength, min, psi (MPa)	1200 (8.3)	1800 (12.4)	2400 (16.5)
Tensile stress at 200 % elongation, min, psi (MPa)	...	500 (3.4)	700 (4.8)
Elongation at rupture, min, %	200	300	300
Tension set, max, %	35	30	30
Physical Requirements [After aging in an air oven at 121 ± 1°C for 168 h]:			
Tensile strength, min, % of original	75	85	70
Elongation at rupture, min, % of original	50	55	55
Physical Requirements [After oil immersion at 121°C for 18 h]:			
Tensile strength, min, % of original	60	60	60
Elongation at rupture, min, % of original	60	60	60

TABLE 2 Sunlight and Weather Resistance Requirements

	min,% Original Value
After 720 h in a dual carbon-arc apparatus:	
Tensile Strength	80
Elongation	80