Designation: D4314 – 12

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

This standard is issued under the fixed designation D4314; 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 chlorosulfonated polyethylene[2] 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 cables installed at a temperature lower 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:*[3]

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

D1248 Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable

D1711 Terminology Relating to Electrical Insulation

3. Terminology

3.1 *Definitions:*

3.1.1 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 100°C for 168 h or oil at 121°C for 18 h.

4. Test Applicable for Sunlight and Weather– Resistant Materials

4.1 For jackets requiring sunlight- and weather-resistance testing, test in accordance with "Weatherability for Colored Materials" in Specification D1248. Prepare the specimens in accordance with Test Methods D470 for physical tests of insulations and jackets.

5. Physical Properties

5.1 The jacket shall conform to the requirements for physical properties prescribed in Table 1.

6. Sampling

6.1 Sample the jacket in accordance with Test Methods D470.

7. Test Methods

7.1 Unless otherwise instructed, test the jacket in accordance with Test Methods D470.

8. Keywords

8.1 crosslinked chlorosulfonated polyethylene jacket; crosslinked jacket; CSM; CSPE; extra-heavy-duty jacket; general-purpose jacket; heavy-duty jacket; rubber jacket

[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.

Current edition approved Jan. 1, 2012. Published February 2012. Originally approved in 1983. Last previous edition approved in 2005 as D4314 – 05. DOI: 10.1520/D4314-12.

[2] The term CSPE, as an abbreviation for Chlorosulfonated Polyethylene (CSM), is commonly used in the Wire and Cable industry.

[3] 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[A]

Physical Property	General-Purpose	Heavy-Duty	Extra-Heavy-Duty
Unaged Requirements:			
Tensile strength, min, psi (MPa)	1500 (10.3)	1800 (12.4)	2400 (16.5)
Tensile stress at 200 % elongation, min, psi (MPa)	...	500 (3.4)	700 (4.8)
Elongation at rupture, min, %	300	300	300
Tension set[B], max, %	30	30	30
Tear, min, lb/in. (kN/m)	...	...	40 (7)
Aged Requirements:			
After Air Oven Test at 100 ± 1°C for 168 h:			
Tensile strength, min, % of unaged value	60	85	70
Elongation at rupture, min, % of unaged value	50	65	60
After Oil Immersion Test at 121 ± 1°C for 18 h			
Tensile strength, min, % of unaged value	60	60	60
Elongation at rupture, min, % of unaged value	60	60	60

[A] Values specified are applicable only to jackets having a nominal wall thickness of 0.030 in. (0.76 mm) or greater.
[B] Set in 2–in. (50-mm) gage length.