Designation: D 4314 – 99

An American National Standard

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 D 4314; 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 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 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 470 Test Methods for Crosslinked Insulations and Jackets for Wire and Cable[2]

D 1248 Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable[3]

D 1711 Terminology Relating to Electrical Insulation[2]

3. Terminology

3.1 *Definitions*:

3.1.1 For definitions of terms used in this specification 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 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 D 1248. Prepare the specimens in accordance with Test Methods D 470 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 D 470.

7. Test Methods

7.1 Unless otherwise instructed, test the jacket in accordance with Test Methods D 470.

8. Keywords

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

---

[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 Telecommunications Wires and Cables.

Current edition approved Oct. 10, 1999. Published November 1999. Originally published as D 4314 – 83. Last previous edition D 4314 – 95.

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

[3] *Annual Book of ASTM Standards*, Vol 08.03.

Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States.

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.

The American Society for Testing and Materials takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

This standard is copyrighted by ASTM, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org).