Designation: D 4244 – 95 (Reapproved 2001)

An American National Standard

Standard Specification for General-Purpose, Heavy-Duty, and Extra-Heavy-Duty Acrylonitrile-Butadiene/Poly(Vinyl Chloride) (NBR/PVC) Jackets for Wire and Cable[1]

This standard is issued under the fixed designation D 4244; 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 durable, crosslinked black or colored acrylonitrile-butadiene/poly(vinyl chloride) (NBR/PVC) compounds suitable for use as outer coverings or jackets on electrical cables for general-purpose, heavy-duty, and extra-heavy-duty service.

1.2 General-purpose and heavy-duty jackets are not recommended for installation at a temperature lower than −25°C and extra-heavy-duty jackets at a temperature lower than −10°C.

1.3 Compounds are based on a fluxed blend of an acrylonitrile-butadiene synthetic rubber and poly(vinyl chloride) resin.

1.4 The values stated in inch-pound units are the standard, except in cases where SI units are more appropriate. The values given 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 1499 Practice for Filtered Open-Flame Carbon-Arc Exposures of Plastics[3]

G 23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials[4]

3. Test Applicable for Black Sunlight and Weather Resistant Materials

3.1 A black jacket shall retain a minimum of 80 % of its unexposed tensile strength and elongation after 720 h of exposure in a dual carbon-arc apparatus. Prepare the specimens in accordance with Test Methods D 470 for physical tests of insulations and jackets. Perform the test in accordance with Practice D 1499 using Method 1 of Practice G 23. This test is not applicable to colored jackets.

4. Physical Properties

4.1 Jackets shall conform to the requirements for physical properties prescribed in Table 1.

5. Sampling

5.1 Unless otherwise specified, sample the jacket in accordance with Test Methods D 470.

6. Test Methods

6.1 Unless otherwise specified, test the jacket in accordance with Test Methods D 470.

7. Keywords

7.1 acrylonitrile-butadiene/poly(vinyl chloride) 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 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 Feb. 15, 1995. Published April 1995. Originally published as D 4244 – 83. Last previous edition D 4244 – 89.

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

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

[4] Discontinued; see *1996 Annual Book of ASTM Standards*, Vol 14.02.

TABLE 1 Physical Properties[A]

Physical Property	General-Purpose	Heavy-Duty	Extra-Heavy-Duty
Unexposed (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, %	250	300	300
Tension set[B], max, %	30	30	30
Tear, min lbf/in. (kN/m)	...	...	40 (7)
Exposed (Aged) Requirements:			
After air-oven test at 100 ± 1°C for 168 h:			
Tensile strength, min, % of unexposed (unaged) value	50	50	50
Elongation at rupture, min, % of unexposed (unaged) value	50	50	50
After oil-immersion test at 121± 1°C for 18 h:			
Tensile strength, min, % of unexposed (unaged) value	60	60	60
Elongation at rupture, min, % of unexposed (unaged) value	60	60	60

[A] Values specified are applicable only to jackets having a nominal wall thickness of 1/32 in. (0.79 mm) or greater.
[B] Set in 2 in. (50 mm) gage length.