



Standard Specification for Poly(Vinyl Chloride) Jacket for Wire and Cable¹

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This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers a durable general-purpose thermoplastic jacket made from poly(vinyl chloride) or the copolymer of vinyl chloride and vinyl acetate suitable for a minimum installing temperature of -10°C .

1.2 The values stated in inch-pound units are the standard, except in cases where SI units are more appropriate. The values 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 Cable²

D 1499 Practice for Operating Light- and Water-Exposure Apparatus (Carbon-Arc Type) for Exposure of Plastics³

D 2633 Methods of Testing Thermoplastic Insulations and Jackets for Wire and Cable⁴

G 23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials⁵

3. Test Applicable for Sunlight and Weather Resistant Materials

3.1 The 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.

4. Physical Properties

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

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

5. Sampling

5.1 Sample the jacket in accordance with Methods D 2633 unless otherwise specified.

6. Test Methods

6.1 Unless otherwise specified, test the jacket in accordance with Methods D 2633.

7. Keywords

7.1 jacket for wire and cable; poly (vinyl chloride) jacket; thermoplastic 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.

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

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

⁴ *Annual Book of ASTM Standards*, Vol 10.02.

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

TABLE 1 Physical Properties for Poly(Vinyl Chloride) Jacket^A

<i>Unexposed (Unaged) Requirements:</i>	
Tensile strength, min, psi (MPa)	1500 (10.3)
Elongation at rupture, min, %	100
<i>Exposed (Aged) Requirements:</i>	
After Air Oven Aging Test at 100 ± 1°C for 5 days:	
Tensile strength, min, % of unexposed (unaged) value	85
Elongation at rupture, min, % of unexposed (unaged) value	60
After Oil Immersion Test at 70 ± 1°C for 4 h:	
Tensile strength, min, % of unexposed (unaged) value	80
Elongation at rupture, min, % of unexposed (unaged) value	60
Heat distortion, 121 ± 1°C, max, %	50
Heat shock, 121 ± 1°C	no cracks
Cold bend, -35 ± 1°C	no cracks

^A The values specified are applicable only to jacket having a nominal wall thickness of 0.030 in. (0.76 mm) or greater.

TABLE 2 Requirements for Resistivity and U-Bend Discharge

Surface resistivity, min, MΩ	200 000
U-bend discharge at the required cable insulation ac test voltage	no cable failures or cracks in the jacket

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