Designation: ~~D4363 – 17~~ D4363 – 21

Standard Specification for Thermoplastic Chlorinated Polyethylene (~~CM~~)(CPE) Jacket for Wire and Cable[1]

This standard is issued under the fixed designation D4363; 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 thermoplastic chlorinated polyethylene ~~(CM)~~(CPE) compounds suitable for use as an outer covering or jacket on electrical cables.

1.2 These jacket materials are suitable for use on cables which will be installed at temperatures ~~above -35°C.~~above –35 °C.

1.3 The values stated in inch-pound units are 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.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

~~D2633 Test Methods for Thermoplastic Insulations and Jackets for Wire and Cable~~
D1499 Practice for Filtered Open-Flame Carbon-Arc Exposures of Plastics
D1711 Terminology Relating to Electrical Insulation
D2633 Test Methods for Thermoplastic Insulations and Jackets for Wire and Cable
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.~~

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3.2 *Definitions of Terms Specific to This Standard:*

[1] This specification is under the jurisdiction of ASTM Committee D09 on Electrical and Electronic Insulating Materials and is the direct responsibility of Subcommittee D09.07 on Electrical Insulating Materials.

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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.

***A Summary of Changes section appears at the end of this standard**

3.2.1 *aging, (act of), n*—exposure of materials to air at a temperature of ~~121°C~~121 °C for 168 h and oil at ~~100°C~~100 °C for 18 h.

4. Physical Properties

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

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

5. Sunlight and Weather Resistance Requirements

5.1 If sunlight and weather resistance are required of the jackets, the jackets shall conform to the requirements specified in Table 3.

6. Sampling

6.1 Sample the jacket in accordance with Test Methods D2633.

7. Test Methods

7.1 Test the jacket in accordance with Test Methods D2633. If the sunlight and weather resistance test is required, perform it in accordance with ~~Practice~~Practices D1499 and ~~Practice~~ G153.

8. Keywords

8.1 chlorinated ~~polyethylene;~~ polyethylene (CPE); heat distortion; oil immersion; sunlight resistance; tensile strength; tensile stress; thermoplastic; weather resistance

TABLE 1 Physical Properties for ~~CM~~CPE Jacket

Physical Requirement (Original):	
Tensile strength, min, psi (MPa)	1400 (9.6)
Tensile stress at 100 % elongation, min, psi (MPa)	1000 (6.9)
Elongation at rupture, min, %	150
~~Cold bend,[A] -35 ± 1°C~~	~~No Cracks~~
Cold bend,[A] –35 ± 1 °C	No Cracks
Physical Requirements:	
~~Physical Requirements [after aging in an air-oven at 121 ± 1°C for 168 h]:~~	
(after aging in an air-oven at 121 ± 1 °C for 168 h):	
Tensile strength, min, % of original	85
Elongation at rupture, min, % of original	50
Physical Requirements:	
~~Physical Requirements [after oil immersion for 18 h at 100 ± 1°C]:~~	
(after oil immersion for 18 h at 100 ± 1 °C):	
Tensile strength, min, % of original	60
Elongation at rupture, min, % of original	60
~~Heat distortion, 121 ± 1°C, max, %~~	~~25~~
Heat distortion, 121 ± 1 °C, max, %	25

[A] Refer to Test Methods D2633, Table 8, Mandrel Requirements for Poly (Vinyl Chloride) Jacket.