



Standard Specification for Nonrigid Vinyl Chloride Polymer Tubing¹

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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 nonrigid tubing of vinyl chloride polymer or its copolymers with other materials for use in electrical insulation in three grades, as follows:

- 1.1.1 *Grade A*—General-purpose.
- 1.1.2 *Grade B*—Low-temperature.
- 1.1.3 *Grade C*—High-temperature.

NOTE 1—This standard is similar but not identical to IEC 60684-3-100 to -105.

2. Referenced Documents

2.1 ASTM Standards:

D 876 Test Methods for Nonrigid Vinyl Chloride Polymer Tubing Used for Electrical Insulation²

D 1711 Terminology Relating to Electrical Insulation²

D 3636 Practice for Sampling and Judging Quality of Solid Electrical Insulating Materials³

E 176 Terminology of Fire Standards⁴

2.2 IEC Standards:

IEC-60684-3-100 to -105 Flexible insulating sleeving, Part 3, Sheets 100 to 105: Extruded PVC sleeving⁵

3. Terminology

3.1 Definitions:

3.1.1 For definitions pertaining to electrical insulation, refer to Terminology D 1711.

3.1.2 For definitions pertaining to fire standards, refer to Terminology E 176.

4. Ordering Information

4.1 Orders for material covered by this specification shall include the following:

- 4.1.1 Grade of tubing,
- 4.1.2 Size and color,
- 4.1.3 Total length in feet (or metres),
- 4.1.4 Length of cut pieces in inches (or centimetres), if any, and
- 4.1.5 Amount of tubing on each spool or in each coil, if not standard packaging with the supplier.

5. Color

5.1 Clear transparent, black, white, yellow, green, blue, and red shall be considered standard colors. Other colors shall be considered special. The color desired shall be specified in the purchase order.

6. Dimensional Requirements

6.1 *Inside Diameter*—The inside diameter of the tubing shall conform to the requirements prescribed in Table 1 or Table 2.

6.2 *Wall Thickness*—The wall thickness of the tubing shall conform to the requirements prescribed in Table 1 or Table 2.

6.3 *Commercial Lengths*—The tubing shall be supplied in continuous lengths.

7. Workmanship, Finish, and Appearance

7.1 The surface shall be smooth, free of blisters, cracks, or any other defects that may detrimentally affect its suitability for the service intended. It shall not be subject to peeling, scaling, or flaking.

8. Physical and Electrical Requirements

8.1 Tubing shall conform to the following requirements for physical and electrical properties:

8.1.1 *Flammability*—The average duration of burning shall not exceed 15 s and the paper indicator shall show no evidence of being affected.

8.1.2 *Tensile Strength*—The average tensile strength shall be not less than 2000 psi (15 MPa) for Grades A and C, and not less than 1800 psi (13 MPa) for Grade B. The average ultimate elongation shall be not less than 200 % for Grades A and C and not less than 250 % for Grade B.

8.1.3 *Effect of Elevated Temperatures*—When Method A is used, the average loss of ultimate elongation after exposure to elevated temperatures shall be not greater than 35 % for Grades

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

³ *Annual Book of ASTM Standards*, Vol 10.02.

⁴ *Annual Book of ASTM Standards*, Vol 04.07.

⁵ Available from the American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.