SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS3648 REV. C

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Superseding AMS3648B

Tubing, Polychlorotrifluoroethylene (PCTFE) Unplasticized

RATIONALE

This document has been determined to contain basic and stable technology which is not dynamic in nature.

STABILIZED NOTICE

This document has been declared "Stabilized" by SAE AMS P, Polymeric Materials Committee, and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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FOREWORD

Changes in this reaffirm are format/editorial only.

1. SCOPE:

1.1 Form:

This specification covers a 100% homopolymer of polychlorotrifluoroethylene, (PCTFE) in the form of thin wall tubing.

1.2 Application:

Primarily for electrical and electronic applications requiring a chemically-inert tubing of the fluorocarbon family, having high dielectric strength and volume resistivity and being free from pinholes and electrical flaws, for use up to 165 °C (329 °F).

1.3 Safety - Hazardous Materials:

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 149 Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies
ASTM D 374 Thickness of Solid Electrical Insulation

ASTM D 618 Conditioning Plastics and Electrical Insulating Materials for Testing
ASTM D 792 Specific Gravity (Relative Density) and Density of Plastics by Displacement
ASTM D 876 Testing Nonrigid Vinyl Chloride Polymer Tubing Used for Electrical Insulation
ASTM D 1430 Polychlorotrifluoroethylene (PCTFE) Plastics

2.2 U.S. Government Publications:

Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-STD-794 Parts and Equipment, Procedures for Packaging and Packing of

3. TECHNICAL REQUIREMENTS:

3.1 Material:

Shall be manufactured from virgin, unplasticized, 100% homopolymer polychlorotrifluoroethylene (PCTFE).

3.2 Color:

Shall be natural (unpigmented) and may vary from transparent to translucent.

3.3 Properties:

Tubing shall conform to the following requirements; tests shall be performed on the tubing supplied and in accordance with specified test methods, insofar as practicable:

3.3.1	Tensile Strength at 23 °C ±1 (73 °F ± 2), minimum	4500 psi (31.0 MPa)	4.5.1
3.3.2	Elongation at 23 °C ± 1 (73 °F ± 2), minimum	100%	4.5.1
3.3.3	Insulation Resistance at 23 °C ± 1 (73 °F ± 2) and 500 volts DC, minimum	1.0×10^7 megohm per foot (3.05×10^7 megohm/m)	ASTM D 876