

**AEROSPACE
MATERIAL
SPECIFICATION**



AMS3638

REV. G

Issued 1965-09
Revised 1993-07
Stabilized 2012-01
Superseding AMS3638F

Tubing, Irradiated Polyolefin Plastic, Electrical Insulation
Pigmented, Semi-Rigid, Heat Shrinkable, 2 to 1 Shrink Ratio

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.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2012 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

**SAE values your input. To provide feedback
on this Technical Report, please visit
<http://www.sae.org/technical/standards/AMS3638G>**

1. SCOPE:

1.1 Form:

This specification covers an irradiated, thermally-stabilized, flame-retardant, modified polyolefin plastic in the form of thin-wall tubing.

1.2 Application:

This tubing has been used typically as a semi-rigid, electrical insulation tubing whose diameter can be reduced to a predetermined size by heating to a temperature higher than 120 °C (248 °F), but usage is not limited to such applications. This tubing is stable, after being heat shrunk, under the following conditions:

-55 to +135 °C (-67 to +275 °F)	Continuous
-55 to +150 °C (-67 to +302 °F)	2000 hours
-55 to +175 °C (-67 to +347 °F)	336 hours
-55 to +200 °C (-67 to +392 °F)	48 hours
-55 to +250 °C (-67 to +482 °F)	8 hours
-55 to +300 °C (-67 to +572 °F)	2 hours

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 referenced publications shall be the issue in effect on the date of the purchase order.

2.1 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM D 471 Rubber Property - Effect of Liquids
 ASTM D 2671 Heat-Shrinkable Tubing for Electrical Use
 ASTM G 21 Determining Resistance of Synthetic Polymeric Materials to Fungi

2.2 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-H-5606 Hydraulic Fluid, Petroleum Base, Aircraft, Missiles and Ordnance
 MIL-T-5624 Turbine Fuel, Aviation, Grades Jp-4, Jp-5 and Jp-5/Jp-8 St
 MIL-STD-2073-1 DOD Materiel, Procedures for Development and Application of Packaging Requirements

3. TECHNICAL REQUIREMENTS:

3.1 Material:

Shall be an irradiated, thermally-stabilized, flame-retardant modified polyolefin plastic.

3.2 Color:

Shall be black.

3.3 Properties:

Tubing shall conform to the following requirements; reported values shall be the average of all specimens tested for each requirement. Except as otherwise specified herein, tests shall be performed in accordance with ASTM D 2671, insofar as practicable.

- 3.3.1 Recovered Tubing: The requirements shown in Table 1 apply to tubing after being shrunk by heating to $200\text{ }^{\circ}\text{C} \pm 5$ ($392\text{ }^{\circ}\text{F} \pm 9$) in a convection-current air oven with air velocity of 100 to 200 feet/minute (0.5 to 1.0 m/s) past the tubing, holding at heat for not less than three minutes, removing from the oven, and conditioning for not less than four hours at $23\text{ }^{\circ}\text{C} \pm 2$ ($73\text{ }^{\circ}\text{F} \pm 4$) and 45 to 55% relative humidity.

TABLE 1 - Recovered Tubing Properties

Paragraph	Property	Requirement	Test Method
3.3.1.1	Tensile strength, minimum Jaw separation rate 2 inches/ minute (0.85 mm/s)	2000 psi (13.8 MPa)	