

# AEROSPACE MATERIAL SPECIFICATION

AMS 3139

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Submitted for recognition as an American National Standard

## ADHESIVE, URETHANE TWO-PART

### 1. SCOPE:

- 1.1 Form: This specification covers the requirements for a two-part urethane adhesive consisting of an isocyanate resin and a polyol hardener.
- 1.2 Application: Primarily for use in bonding a variety of materials, including plastics, rubber, and metals.
- 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 latest issue of SAE publications shall apply. The applicable issue of other publications shall be as the issue in effect on the date of the purchase order.

- 2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

- 2.1.1 Aerospace Material Specifications:

AMS 2825 - Material Safety Data Sheets

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

ASTM D 792 - Specific Gravity (Relative Density) and Density of Plastics by Displacement

ASTM D 1002 - Strength Properties of Adhesives in Shear by Tension Loading (Metal-to-Metal)

ASTM D 2240 - Rubber Property - Durometer Hardness

ASTM D 2393 - Viscosity of Epoxy Resins and Related Components

ASTM E 831 - Linear Thermal Expansion of Solid Materials by Thermomechanical Analysis

2.3 U.S. Government Publications: Available from Naval Publications and Forms Center, Attn: NPODS, 5801 Tabor Avenue, Philadelphia, PA 19120-5099.

2.3.1 Military Specifications:

MIL-M-24041 - Molding and Potting Compound, Chemically Cured, Polyurethane

2.3.2 Military Standards:

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

### 3. TECHNICAL REQUIREMENTS:

3.1 Material: Product shall be a two-component urethane system consisting of a methylene bisphenyl isocyanate resin with a polyol curing agent. When mixed and cured according to manufacturer's instructions, the product shall meet the requirements of 3.2, 3.3, and 3.4.

3.2 Storage Life: Product, when stored in the original, unopened containers at 30°C (85°F) or lower, shall meet the requirements of 3.3 up to six months for the base resin and up to one year for the curing agent from date of receipt by purchaser.

3.3 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with specified test methods, insofar as practicable.

3.3.1 Uncured Compound:

3.3.1.1 Viscosity: Blended product shall have a viscosity not higher than 40,000 centipoise, determined in accordance with ASTM D 2393.

3.3.1.2 Pot Life: The time to double the initial viscosity (3.3.1.1) of a 6-ounce (177 mL) sample shall be not less than 30 minutes at 25°C ± 2 (77°F ± 4).

3.3.1.3 Nonvolatile Content: Shall be 99%, minimum, determined in accordance with MIL-M-24041.