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400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

# AEROSPACE MATERIAL SPECIFICATION

AMS 3107/3

Issued 4-1-83
Revised

## PRIMER, ADHESIVE, CORROSION-INHIBITING
High Durability Epoxy, -55° to +175°C (-65° to +350°F)

1. SCOPE:

1.1 Form: This specification covers a corrosion-inhibiting, modified epoxy resin primer in the form of a ready-to-use, sprayable liquid.

1.2 Application: Primarily for use as a primer on metal surfaces in preparation for high-durability, structural, adhesive bonding of metal-to-metal or sandwich panel assemblies. The primer is useful over a temperature range from -55° to +175°C (-65° to +350°F).

2. APPLICABLE DOCUMENTS: See AMS 3107.

3. TECHNICAL REQUIREMENTS:

3.1 Basic Specification: The complete requirements for procuring the primer described herein shall consist of this document and the latest issue of the basic specification, AMS 3107.

3.2 Material: The primer shall be a sprayable liquid composed of a modified epoxy resin system pigmented and compounded to be compatible with AMS 3695/3 epoxy film adhesive and silicone resin-based topcoat.

3.2.1 Storage Life: The primer, in the original closed containers, shall meet the requirements of this specification when stored and tested at any time up to the time and under the temperature conditions specified below:

180 days below -18°C (0°F), or
60 days at -18° to +5°C (0° to +40°F), or
7 days above 5°C up to 25°C (40° to 77°F).

3.3 Properties: Primer shall conform to the following requirements:

3.3.1 Uncured Primer: The primer, as received, shall meet the requirements of Table I, Tests 1 through 7.

3.3.2 Cured Primer Film: The primer, open dried for not less than 30 min. at 25°C ± 5 (77°F ± 9) and hot air cured by heating to 150° - 175°C (300° - 350°F) for 60 - 90 min., shall meet the requirements of Table I, Tests 8 through 18. Other curing schedules may be used when approved by purchaser after preproduction testing of a primer system.

3.3.3 Cured Primer/Adhesive System: Shall meet the requirements of Table I, Test 19, when applied and cured in conjunction with adhesive conforming to AMS 3695/3 and tested in accordance with the applicable portion of AMS 3695/3.

TABLE I

| Test Number | Property | Requirement |
|---|---|---|
| 1 | Color | As approved on preproduction |
| 2 | Solids Content | Preproduction Value ± 1% |
| 3 | Inhibitor Content | |
| 3.1 | For Preproduction: | Not less than 6.5% of solids content |
| 3.2 | For Acceptance: | Preproduction Value ± 20% |
| 4 | Weight per Volume | Preproduction Value ± 2% |
| 5 | Viscosity | Preproduction Value ± 10% |
| 6 | Sprayability | Uniform in thickness, color, and surface texture |
| 7 | Pot Life | 5 days at 30°C ± 2 (86°F ± 4) |
| 8 | Adhesion | No flaking, lifting, or peeling |
| 9 | Flexibility | No cracking, flaking, or loss of adhesion |
| 10 | Impact Resistance | No cracking or loss of adhesion at 40 in.-lb (4.5 N·m) |
| 11 | Hardness | 4H, minimum |
| 12 | Fluid Resistance | No film failure exhibited by blistering, softening, cracking, peeling, or loss of adhesion |
| 12.1 | Distilled Water | Exposure for 7 days ± 0.1 at 25°C ± 1 (77°F ± 2) |

TABLE I (Continued)

| Test Number | Property | Requirement |
|---|---|---|
| 12.2 | Polyol Ester Based Fluid (MIL-L-23699) | Maximum reduction of 2 units pencil hardness allowed after exposure for 30 days ± 0.5 at 175°C ± 3 (347°F ± 5) |
| 12.3 | Anti-Icing Fluid (AMS 1425) | Exposure for 7 days ± 0.1 at 25°C ± 1 (77°F ± 2) |
| 12.4 | Petroleum Base Hydraulic Fluid (AMS 3020) | Exposure for 7 days ± 0.1 at 25°C ± 1 (77°F ± 2) |
| 12.5 | Diester Lubricating Oil (AMS 3021) (See 8.1) | Exposure for 7 days ± 0.1 at 120°C ± 3 (250°F ± 5) |
| 12.6 | Aromatic Fuel (ASTM D471, Fuel B, or TT-S-735, Type III) | Exposure for 7 days ± 0.1 at 25°C ± 1 (77°F ± 2) |
| 12.7 | JP4 Fuel (ASTM D1655, Jet B or MIL-T-5624, JP-4 Grade) | Exposure for 7 days ± 0.1 at 25°C ± 1 (77°F ± 2) |
| 13 | Corrosion Resistance | |
| 13.1 | Salt Spray | No film or substrate degradation more than 1/8 in. (3 mm) beyond scribe mark after 40 days ± 0.5 salt spray exposure |
| 13.2 | Filiform (Acid-Humidity) | No blisters, corrosion, or loss of adhesion after 30 days ± 0.5 exposure |
| 14 | Humidity Resistance | No film failure or loss of adhesion |
| 15 | Heat Resistance After 30 days ± 0.5 at 175°C ± 3 (347°F ± 5) | No film failures; slight discoloration is acceptable |
| 16 | Low-Temperature Shock Cycle: 175°C ± 3 to -55°C ± 1 (347°F ± 5 to -67°F ± 2) | No film failure |
| 17 | Compatibility with Sealant | 10 lbf per in. (1750 N/m) min avg, with 7.5 lbf per in. (1310 N/m) individual min value, and no evidence of adhesive failure between primer and MIL-A-46106 sealant |