

## ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

**ADHESIVE, EPOXY, ELECTRICALLY CONDUCTIVE**

**WSF-M2G366-A**

### 1. SCOPE

The material defined by this specification is a one component, heat curing, thermosetting, electrically conductive epoxy adhesive.

### 2. APPLICATION

This specification was released originally for material used to provide EMC bonding and grounding in an electronic module as well as provide a thermally conducting pathway for heat transfer.

### 3. REQUIREMENTS

#### 3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

#### 3.3 COLOR

Silver

#### 3.4 VISCOSITY

(ASTM D 1084, Brookfield Model RVT, #51 spindle, 10 rpm at 25 °C)

As Received

13,000 - 26,000 mPa.s

#### 3.5 SOLIDS, min

(ASTM D 2834, except heat at 100 +/- 2 °C for 3 h in a mechanical convection oven)

99 %

#### 3.6 VOLUME RESISTIVITY, max

0.001 Ω/cm

Note: Using stencil printing, or a doctor blade drawn across pressure sensitive adhesive tape used as a shim, apply a stripe of adhesive to a cleaned glass slide 0.25 cm wide and 0.005 cm thick. The length of the adhesive stripe should be at least 7.5 cm. Cure sample for 60 minutes at 150 °C. Measure sample resistance using a Kelvin Bridge (4 point). Calculate resistivity based on the following formula:

Resistivity = (Resistance x thickness x width)/length

| Date       | Action           | Revisions                                        |
|------------|------------------|--------------------------------------------------|
| 2003 02 28 | Revised          | Para 3.0 inserted; Para 3.1, 3.2, 3.9, 4 deleted |
| 1992 08 13 | DF00E00107002205 | Released J. Kelly                                |

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**3.7 CURED ADHESIVE PROPERTIES**

3.7.1 Cure to Handle at 150 °C, max 60 minutes

3.7.2 Overlap Shear Strength  
(ASTM D 1002, aluminum to aluminum)

3.7.2.1 Normal (25 °C), min 3.5 MPa

3.7.2.2 Elevated Temperature, min 2.0 MPa

Test Method: Condition samples at 125 +/- 1 °C for 1 h. Pull to failure at 125 +/- 1 °C.

3.7.2.3 Low Temperature, min 3.5 MPa

Test Method: Condition at - 30 +/- 1 °C for 1 h. Pull to failure at - 30 +/- 1 °C.

General Test Method: Chemically clean 25 x 100 x 1.6 mm aluminum coupons at 70 +/- 1 °C in a solution of 30 parts of distilled water, 4 parts of sodium dichromate, and 10 parts of sulphuric acid (1.84 gr) for 5 minutes. Rinse thoroughly in running tap water and force dry for 15 minutes at 70 +/- 1 °C. Cool to 23 +/- 2 °C. Coat aluminum with a thin film of adhesive and mate parts under finger pressure to obtain a total bond area of 6.5 cm<sup>2</sup> (film thickness 0.08 - 0.25 mm). Bonded assemblies shall be pulled in a testing machine having a jaw separation rate of 2.5 mm/minute.

**3.8 STORAGE STABILITY**

The material shall be stored in closed containers at a temperature below 5 °C, away from all sources of heat. Heat greatly accelerates aging. Under these storage conditions, the minimum shelf life of the material shall be 3 months. However, when stored at - 10 °C the shelf life is extended to 6 months. When these materials are stored at temperatures below 23 °C, they shall be conditioned at room temperature prior to application. Adequate conditioning permits the material to obtain its maximum application properties.

**3.9 QUALITY**

The material shall be a smooth homogeneous mixture, free from foreign materials and properties detrimental to normal production operations.