



AEROSPACE MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
TWO PENNSYLVANIA PLAZA, NEW YORK, N.Y. 1000

AMS 3681

Issued 11-1-68
Revised

ADHESIVE, ELECTRICALLY CONDUCTIVE Silver - Organic Resin

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **FORM:** The material shall be supplied as two components: a paste of silver-filled epoxy-base adhesive and a separate curing agent which may be paste or liquid. The mixed material shall have a consistency suitable for application by spatula or pressure gun.
3. **APPLICATION:** Primarily for providing an electrically conductive bond between metallic, thermosetting plastic, and ceramic surfaces; for bonding microcircuit devices; and as an electrically conductive sealing compound.
4. **COMPOSITION:** Unless otherwise specified, the adhesive shall consist of epoxy resin filled with silver powder, flakes, or balls. The filler metal shall remain dispersed and suspended in the adhesive. The curing agent shall be an amine type material.

Caution: In high humidity or presence of moisture, the silver particles in this adhesive can set up corrosion cells in contact with other metals which are lower in the electromotive series. Also, silver migration or whisker growth may occur between points of unequal electrical potential.

- 4.1 **Toxicity:** If it is necessary to include toxic or hazardous ingredients in the formulation, the manufacturer shall clearly note all required precautions on each container.
- 4.2 **Vapors:** No corrosive or noxious vapors shall be produced during mixing or curing of the adhesive.
5. **TECHNICAL REQUIREMENTS:** When ASTM methods are specified for determining conformance to the following requirements, tests shall be conducted in accordance with the issue of the ASTM method listed in the latest issue of AMS 2350, insofar as practicable.
 - 5.1 **General:**
 - 5.1.1 **Shelf Life:** The material shall be capable of meeting requirements of this specification after storage for not less than 6 months from date of manufacture when stored in unopened containers at temperatures not higher than 30 C (86 F).
 - 5.1.2 **Pot Life of Mixed Adhesive:** Shall be not less than 30 min. at 25 C $\pm$ 3 (77 F $\pm$ 5.4).
 - 5.1.3 **Corrosion:** The adhesive shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service. Discoloration of metal shall not be considered objectionable.

SAE Technical Board rules provide that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."