Society of Automotive Engineers, Inc.
TWO PENNSYLVANIA PLAZA, NEW YORK, N.Y. 10001

AEROSPACE MATERIAL SPECIFICATION

AMS 3693A
Superseding AMS 3693

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ADHESIVE, MODIFIED EPOXY
Moderate Heat Resistant, 250 F (121.1 C) Curing, Film Type

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. FORM: Unless otherwise specified, the product shall consist of a supported film adhesive with protective liners; uniformly dispersed fillers may be included in the film.

3. APPLICATION: Primarily for structural bonding of metallic alloys and rigid nonmetallic surfaces to themselves and to each other and for bonding of internal and external structural honeycomb components operating in the temperature range of -67 to +180 F (-55 to +82 C). A liquid primer suitable for spray or brush application may be required for use with the adhesive.

4. TECHNICAL REQUIREMENTS:

4.1 General:

4.1.1 Description: The weight and/or caliper of the supported film adhesive shall be as specified on the drawing or purchase order.

4.1.2 Shelf Life: The adhesive, when stored in airtight or suitable vapor barrier containers, shall be capable of meeting the requirements of this specification after storage for six months at a temperature not higher than 0 F (-18 C).

4.1.3 Corrosion: The cured product shall not have a corrosive effect on adherend surfaces when exposed to conditions normally encountered in service. Discoloration of metals shall not be considered objectionable.

4.2 Properties: The product shall conform to the following requirements when cured in accordance with the manufacturer's recommendations. Tests shall be performed in accordance with the issue of specified ASTM methods listed in the latest issue of AMS 2350, insofar as practicable. Unless otherwise specified, only the tensile shear strength at 75 F ± 5 (23.9 C ± 2.8) of 4.2.1.1 need be determined on each batch but the material shall be capable of meeting all requirements of this specification. All reported values shall be the average of results of tests on not less than five specimens per batch.

4.2.1 Tensile Shear Strength: All specimens shall be prepared and tested in accordance with ASTM D1002; specimens to determine conformance to 4.2.1.2, 4.2.1.3, and 4.2.1.4 shall be exposed as specified after preparation but before testing.

4.2.1.1 As Cured:

Test Temperature	Minimum Average Strength, psi
75 F ± 5 (23.9 C ± 2.8)	2,500
-67 F ± 5 (-55 C ± 2.8)	2,500
180 F ± 5 (82.2 C ± 2.8)	1,250

4.2.1.2	Salt Spray Resistance:		ASTM B117 Time: 30 days
	Minimum Average Strength at 75 F ± 5 (23.9 C ± 2.8), psi	2,250	
4.2.1.3	Humidity Resistance:		ASTM D2247 Temperature: 120 F ± 5 (48.9 C ± 2.8) Time: 30 days
	Minimum Average Strength at 75 F ± 5 (23.9 C ± 2.8), psi	2,250	
4.2.1.4	Fuel Resistance:		ASTM D471 Medium: ASTM D1655 Jet A Fuel Temperature: 65 - 85 F (18.3 - 29.4 C) Time: 30 days
	Minimum Average Strength at 75 F ± 5 (23.9 C ± 2.8), psi	2,250	

4.2.2 Creep Deformation: Specimens prepared and tested in accordance with ASTM D2294 shall withstand being stressed for 192 hr at the temperature and stress shown below without fracture; the deformation shall be not greater than 0.015 in. at either test temperature.

Test Temperature	Stress, psi
75 F ± 5 (23.9 C ± 2.8)	1,600
180 F ± 5 (82.2 C ± 2.8)	800

4.2.3 Flatwise Tensile Strength: ASTM C297

Minimum Average Strength at Temperature Shown, psi

75 F ± 5 (23.9 C ± 2.8)	450
-67 F ± 5 (-55 C ± 2.8)	350
180 F ± 5 (82.2 C ± 2.8)	270

4.2.4 Flexural Strength: ASTM C393

Minimum Average Strength at Temperature Shown, psi

75 F ± 5 (23.9 C ± 2.8)	1,750
-67 F ± 5 (-55 C ± 2.8)	1,750
180 F ± 5 (82.2 C ± 2.8)	1,200
75 F ± 5 (23.9 C ± 2.8) after 192 hr in air at 180 F ± 5 (82.2 C ± 2.8)	1,000

4.2.5 T Peel Strength ASTM D1876

Minimum Average Strength at 75 F ± 5 (23.9 C ± 2.8), psi 15