SAE The Engineering Resource For Advancing Mobility

400 COMMONWEALTH DRIVE WARRENDALE, PA 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 3894/2A
Superseding AMS 3894/2

Issued 11-15-72
Revised 4-1-83

CARBON (GRAPHITE) FIBER TAPE AND SHEET
Epoxy Resin Impregnated
G 150,000 (1034) Tensile, 20,000,000 (138) Modulus, 175 (350)

1. SCOPE:

1.1 Form: This specification covers one type of epoxy-resin-impregnated carbon (graphite) fibers in the form of tape and sheet.

1.2 Application: Primarily for use in structural composites requiring high tensile strength up to 175°C (350°F).

1.3 Classification: G 150,000 psi (1034 MPa) tensile strength, 20,000,000 psi (138 GPa) tensile modulus carbon (graphite) fiber impregnated with epoxy resin for service up to 175°C (350°F).

2. APPLICABLE DOCUMENTS: See AMS 3894.

3. TECHNICAL REQUIREMENTS:

3.1 Basic Specification: The complete requirements for procuring the product described herein shall consist of this document and the latest issue of the basic specification, AMS 3894.

3.2 Material: The product shall be AMS 3892/3 (latest issue) high tensile strength carbon (graphite) fibers impregnated with epoxy resin formulated to meet the requirements specified herein.

3.2.1 Storage Life: The product shall meet the requirements of this
Ø specification when tested at any time up to six months from date of receipt by purchaser provided it has been stored in the original unopened containers at not higher than -18°C (0°F).

3.2.2 Working Life: The product shall meet the requirements of this
Ø specification when tested after continuous exposure for up to 20 days within the relative humidity and temperature limits shown in Fig. 1.

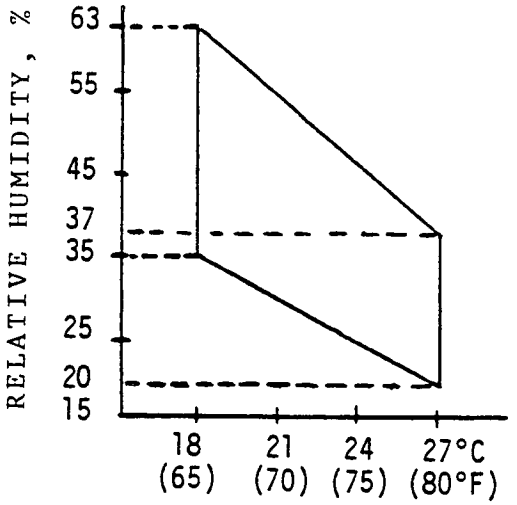

Figure 1

3.3 Properties of Uncured Impregnated Product: The properties of the uncured product shall be as specified in 3.3.1 through 3.3.5. Tests shall be performed on the product after warming to above the dew point prior to sampling and in accordance with test methods listed in the basic specification.

3.3.1 ø	Volatile Content, % of resin weight, max	1.5
	Test Temperature:	120°C ± 5 (250°F ± 10)
	Test time:	15 - 60 min.
3.3.2 ø	Resin Solids Content, % by weight	Preproduction value ± 3
3.3.3	Resin Flow, % by weight	10 - 30
3.3.4 ø	Gel Time, min.	Preproduction value ± 10%
3.3.5 ø	Tack	Shall adhere for not less than 30 min.

3.4 Properties of Cured Laminates: The properties of cured laminates shall be as follows, determined on specimens cut from a test panel prepared as specified in the basic specification and tested in accordance with test methods specified therein:

3.4.1 Mechanical Properties: Shall be as specified in Table I.

3.4.2 Density: Shall be determined on the test laminate used to determine mechanical properties; values for each test laminate shall be reported. Fiber density and cured resin density shall also be reported.

3.4.3 Void Content: Shall be not greater than 1%.

Ø

4. QUALITY ASSURANCE PROVISIONS: See AMS 3894.

5. PREPARATION FOR DELIVERY: Shall be in accordance with AMS 3894 and the following:

5.1 Exterior package marking shall indicate storage temperature of "-18°C (0°F), maximum".

6. ACKNOWLEDGMENT: See AMS 3894.

7. REJECTIONS: See AMS 3894.

8. NOTES: See AMS 3894 and the following:

8.1 Marginal Indicia: The phi (Ø) symbol is used to indicate technical changes from the previous issue of this specification.

This specification is under the jurisdiction of AMS Committee "C" (NOMETCOM).