

# AEROSPACE MATERIAL SPECIFICATION

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Superseding AMS 3894/14

Carbon Fiber Tape and Sheet  
Epoxy Resin Impregnated  
G 90,000 (621) Tensile, 40,000,000 (276) Modulus, 175 (347)

1. SCOPE:

- 1.1 Form: This specification covers one type of epoxy-resin-impregnated carbon fibers in the form of tape and sheet.
- 1.2 Application: Primarily for use in structural composites requiring very high modulus of elasticity in tension and high tensile strength up to 175°C (347°F).
- 1.3 Classification: G 90,000 psi (621 MPa) tensile strength, 40,000,000 psi (276 GPa) tensile modulus carbon fiber impregnated with epoxy resin for service up to 175°C (347°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 3892/4 very high modulus carbon 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 specification when tested at any time up to 6 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).

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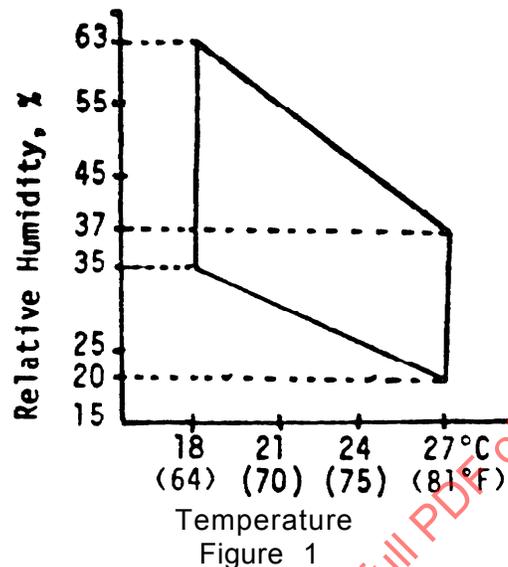
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- 3.22 Working Life: The product shall meet the requirements of this specification when tested after continuous exposure for up to 20 days within the relative humidity and temperature limits shown in Figure 1.



- 3.3 Properties of Uncured Impregnated Product: Shall be as follows; 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 Volatile Content, % of resin weight, maximum 1.5

Test temperature:  $150^{\circ}\text{C} \pm 5$  ( $302^{\circ}\text{F} \pm 9$ )  
 Test time: 15 - 60 minutes -

- |   |   |
|---|---|
| 3.3.2 Resin Solids Content, % by weight | Preproduction Value $\pm 3$               |
| 3.3.3 Resin Flow, % by weight           | 10 - 30                                   |
| 3.3.4 Gel Time, minimum                 | Preproduction Value $\pm 10\%$            |
| 3.3.5 Tack                              | Shall adhere for not less than 30 minutes |

- 3.4 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 1.

- 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%.
4. QUALITY ASSURANCE PROVISIONS: See AMS 3894.
5. PREPARATION FOR DELIVERY: Shall be in accordance with AMS 3894 and the following:
- 5.1 Exterior packaging 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.

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