SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS 3892/5B

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Superseding AMS 3892/5A

Tow or Yarn, Carbon Fibers For Structural Composites GF 220 (1517) Tensile Strength, 75 (517) Tensile Modulus

1. SCOPE:

1.1 Form:

This specification covers one type of continuous multifilament carbon fibers in the form of a tow or yarn (when twisted). The weight per unit length of the tow or yarn is governed by the filament count which is identified by the supplier's grade or material designation.

1.2 Classification:

Carbon tow or yarn, derived from a polyacrylonitrile precursor, with typical 220 ksi (1517 MPa) tensile strength and 75 Msi (517 GPa) tensile modulus for use in general purpose structural composites requiring very high modulus of elasticity and moderately high tensile strength.

2. APPLICABLE DOCUMENTS:

See AMS 3892.

3. TECHNICAL REQUIREMENTS:

3.1 Basic Specification:

The complete requirements for procuring the carbon tow or yarn described herein shall consist of this document and the latest issue of the basic specification.

3.2 Storage Life:

The product shall be readily strippable from the spool and the filaments spreadable when tested at any time up to six months from date of receipt by purchaser provided it has been stored at room temperature in the original closed container.

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3.3 Properties:

Shall conform to the requirements shown in Table 1. The requirements of 3.3.1 and 3.3.2 apply to the average of the number of determinations indicated in the basic specification but no individual value shall be less than 90% of the specified minimum average unless due to an obvious testing problem, in which case a substitute specimen may be tested:

TABLE 1 - Properties

Paragraph	Property	Requirement
3.3.1	Tensile Strength, typical	220 ksi (1517 MPa)
3.3.2	Tensile Modulus minimum	70 Msi (483 GPa)
3.3.3	Mass per unit length	Preproduction Value ±5%
3.3.4	Finish Content, maximum	2% by weight
3.3.5	Density	0.069 to 0.072 pound per cubic inch (1.90 to 2.00 g/cm^3)
3.3.6	Yarn Twist (when applicable), nominal maximum	0.5 turn per inch (19 turns/m) 1.0 turn per inch (38 turns/m)

4. QUALITY ASSURANCE PROVISIONS:

See 3892.

5. PREPARATION FOR DELIVERY:

See AMS 3892.

6. ACKNOWLEDGMENT:

See AMS 3892.

7. REJECTIONS:

See AMS 3892.