

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard



AMS 3901/5C

Issued
Revised

JUN 1974
SEP 1998

Superseding AMS 3901/5B

(R)

Roving, Organic Fiber (Para-Aramid), High Modulus
OR 450 (3103)/22.5 Tensile Strength, 17.5 (121)/865 Tensile Modulus
7100 Denier, (7900 d tex), 0.6% Finish

1. SCOPE:

1.1 Form:

This specification covers one type of organic fiber in the form of roving. The product shall be formed as five ends of 1420 denier (1580 d tex) yarn (AMS 3901/4) collected into an approximately parallel arrangement without twist.

1.2 Classification:

Organic 7100 denier (7900 d tex) roving with 450 ksi (3103 MPa) or 22.5 g/d tensile strength and 17.5 Msi (121 GPa) or 865 g/d nominal tensile modulus for use in filament winding requiring high tensile strength and high modulus of elasticity in tension.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

See AMS 3901.

3. TECHNICAL REQUIREMENTS:

3.1 Basic Specification:

The complete requirements for procuring the organic roving described herein shall consist of this document and the latest issue of the basic specification.

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3.2 Properties:

Shall be as shown in Table 1; no individual package, based on the average of five determinations, shall have less than 90% of the lot minimum values specified in 3.2.1 and 3.2.2.

TABLE 1 - Properties

Paragraph	Requirement	Requirement Dry Twisted Roving	Requirement Impregnated Strand	Test Method
3.2.1	Tensile Strength, min	20.5 g/d	450 ksi (3103 MPa)	4.5.1 of AMS 3901
3.2.2	Modulus of Elasticity, min	800 g/d	17.5 Msi (121 GPa)	4.5.1 of AMS 3901
3.2.3	Linear Density	7100 $\pm$ 325 denier (7900 $\pm$ 350 d tex)	7100 $\pm$ 325 denier (7900 $\pm$ 350 d tex)	4.5.2 of AMS 3901
3.2.4	Fiber Finish, by weight	0.6% $\pm$ 0.6	0.6% $\pm$ 0.6	4.5.3 of AMS 3901
3.2.5	Fiber Density	0.052 pound mass per cubic inch $\pm$ 0.001 (1.44 grams/cm ³ $\pm$ 0.03)	0.052 pound mass per cubic inch $\pm$ 0.001 (1.44 grams/cm ³ $\pm$ 0.03)	
3.2.6	Catenary	1 inch per 50 feet (25.4 mm/15 m)	1 inch per 50 feet (25.4 mm/15 m)	4.5.4 of AMS 3901

3.3 Splicing:

The number of spliced ends within a ball of roving shall not exceed two times the roving weight of the ball in pounds (four times the roving weight of the ball in kilograms). There shall be no more than one spliced end in the same perpendicular plane for roving. Distance between splices shall not be less than 200 yards (183 m).

4. QUALITY ASSURANCE PROVISIONS:

See AMS 3901.

5. PREPARATION FOR DELIVERY:

See AMS 3901.