

AEROSPACE MATERIAL SPECIFICATION



AMS 3901/14A

Issued FEB 1996
Revised SEP 1998

Superseding AMS 3901/14

Submitted for recognition as an American National Standard

(R) Yarn, Organic Fiber (Para-Aramid), High Modulus
OY 390 (2689)/22.3 Tensile Strength, 16.5 (114)/855 Tensile Modulus
2840 (3160 d tex) Denier, 0.6% Finish

1. SCOPE:

1.1 Form:

This specification covers one type of organic fiber in the form of yarn. The product shall be formed as a multiplicity of filaments drawn together and gathered into an approximately parallel arrangement.

1.2 Classification:

Organic 2840 denier (3160 d tex) yarn with 390 ksi (2689 MPa) minimum or 22.3 g/d nominal tensile strength and 16.5 Msi (114 GPa) minimum or 855 g/d nominal tensile modulus for use in general purpose composites 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.

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3. TECHNICAL REQUIREMENTS:

3.1 Basic Specification:

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

3.2 Properties:

Shall be as shown in Table 1; no individual package, based on the average of three 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 Yarn | Requirement Impregnated Strand | Test Method |
|-----------|-------------------------------|---|---|-------------------|
| 3.2.1 | Tensile Strength, min | 19.4 g/d | 390 ksi (2689 MPa) | 4.5.1 of AMS 3901 |
| 3.2.2 | Modulus of Elasticity, min | 775 g/d | 16.5 Msi (114 GPa) | 4.5.1 of AMS 3901 |
| 3.2.3 | Linear Density | 2840 ± 90 denier (3160 ± 100 d tex) | 2840 ± 90 denier (3160 ± 100 d tex) | 4.5.2 of AMS 3901 |
| 3.2.4 | Fiber Finish, by weight | 0.6% ± 0.4 | 0.6% ± 0.4 | 4.5.3 of AMS 3901 |
| 3.2.5 | Fiber Density | 0.052 pound mass per cubic inch ± 0.001 (1.44 grams/cm ³ ± 0.03) | 0.052 pound mass per cubic inch ± 0.001 (1.44 grams/cm ³ ± 0.03) | |

3.3 Splicing:

There shall be not more than two knots per 5-pound (2.3-kg) package in the continuous yarn.