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AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

SAE AMS 3816C

Issued 1 NOV 1959
Revised 1 JAN 1993

Superseding AMS 3816B

BRAID, FLAT, NYLON, ELECTRICAL TYING
Wax Coated

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of July, 1992. It is recommended, therefore, that this specification not be specified for new designs.

This cover sheet should be attached to revision "B" of the subject specification.

"NONCURRENT" refers to those materials which have previously been widely used and which may be required on some existing designs in the future. The Aerospace Materials Division, however, does not recommend these as standard materials for future use in new designs. Each of these "NONCURRENT" specifications is available from SAE upon request.

PREPARED UNDER THE JURISDICTION OF AMS COMMITTEE "CP".

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AEROSPACE MATERIAL SPECIFICATION

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SAE AMS 3816B

Issued 11-1-59
Revised 1-1-86

Superseding AMS 3816A

BRAID, FLAT, NYLON, ELECTRICAL TYING
Wax Coated

1. SCOPE:

1.1 Form: This specification covers wax-coated nylon in the form of flat braid.

1.2 Application: Primarily for tying and lacing electrical wire harness assembles, especially for miniature devices or where maximum fungus resistance is required.

1.3 Classification: This specification covers three classes, by size, as follows:

Size 30 - 30 lb (135 N) minimum breaking strength

Size 50 - 50 lb (220 N) minimum breaking strength

Size 80 - 80 lb (355 N) minimum breaking strength

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D259 - Woven Tapes

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

3. TECHNICAL REQUIREMENTS:

3.1 Material and Fabrication:

3.1.1 Yarn: Braid shall be made from high-tenacity, bright, continuous-filament nylon yarn free from weighting materials, twisted 3/4 to 1 turns per in. (0.03 to 0.04 turns/mm).

3.1.2 Impregnation: Finished braid shall contain 22 - 32% by weight of a non-flaking, fungus-resistant, wax dispersion. No fungicide containing mercury or copper shall be used.

3.1.3 Construction: Shall be as specified in Table I, determined in accordance with ASTM D259.

TABLE I

	Size Designation		
	30	50	80
Nominal Width, in	0.050	0.090	0.160
Nominal Thickness, in	0.014	0.014	0.014
Yards per lb, min	1200	750	550

TABLE I (SI)

	Size Designation		
	30	50	80
Nominal Width, mm	1.25	2.25	4.00
Nominal Thickness, mm	0.35	0.35	0.35
Metres per kg, min	2420	1510	1110

3.1.4 Color: Shall be natural.

3.2 Properties: Braid shall conform to the following requirements:

3.2.1 Mechanical Properties: Shall be as specified in Table II, determined in accordance with ASTM D259.

TABLE II

	Size Designation		
	30	50	80
Breaking Strength, min	30 lb	50 lb	80 lb
Ultimate Elongation, max	25%	40%	40%

TABLE II (SI)

	Size Designation		
	30	50	80
Breaking Strength, min	135 N	220 N	355 N
Ultimate Elongation, max	25%	40%	40%

3.2.2 Fray Resistance: A freshly cut end of the braid shall not fray open when held approximately 1/4 in. (6 mm) from the end and firmly tamped several times on a hard surface.

3.3 Quality: Braid, as received by purchaser, shall be uniform in quality and
Ø condition, clean, smooth, and free from foreign materials and from imperfections detrimental to usage of the braid.

3.4 Standard Sizes and Tolerances: Standard sizes shall be 30, 50, and 80. Width tolerance shall be ±15% and thickness tolerance shall be ±0.003 in. (0.08 mm) of specified values.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of braid shall supply all
Ø samples for vendor's tests and shall be reponsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.5. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the braid conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to requirements for
Ø nominal width and thickness (Table I) and breaking strength (Table II) are classified as acceptance tests and shall be performed on each lot.

4.2.2 Preproduction Tests: Tests to determine conformance to all technical
Ø requirements of this specification are classified as preproduction tests and shall be performed prior to or on the initial shipment of braid to a purchaser, when a change in material, processing, or both requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring acitivity, the contracting officer, or the request for procurement.

4.3 Sampling: Shall be in accordance with ASTM D259.

4.4 Approval:

4.4.1 Ø Sample braid shall be approved by purchaser before braid for production use is supplied, unless such approval be waived by purchaser. Results of tests on production braid shall be essentially equivalent to those on the approved sample.

4.4.2 Vendor shall use materials, manufacturing procedures, processes, and methods of inspection on production braid which are essentially the same as those used on the approved sample braid. If necessary to make any change in materials, in type of equipment for processing, or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in material, processing, or both and, when requested, sample braid. Production braid made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Reports:

4.5.1 The vendor of braid shall furnish with each shipment a report showing the results of tests to determine conformance to the acceptance test requirements and stating that the braid conforms to the other technical requirements of this specification. This report shall include the purchase order number, AMS 3816B, vendor's material designation, size, and quantity.

4.5.2 Ø When parts made of this braid or assemblies requiring use of this braid are supplied, the part or assembly manufacturer shall inspect each lot of braid to determine conformance to the technical requirements of this specification and shall furnish with each shipment a report stating that the braid conforms. This report shall include the purchase order number, AMS 3816B, part or assembly number, and quantity.

4.6 Resampling and Retesting: If any specimen used in the above tests fails to meet the specified requirements, disposition of the braid may be based on the results of testing three additional specimens for each original nonconforming specimen. Failure of any retest specimen to meet the specified requirements shall be cause for rejection of the braid represented and no additional testing shall be permitted. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Packaging and Identification:

5.1.1 Braid shall be furnished on parallel-wind spools or universal-wind tubes. Sizes 30 and 50 braid shall be supplied in 500 yd (455 m) lengths and size 80 shall be supplied in 250 yd (230 m) lengths. A tolerance of +10% and -3% in length will be allowed. There shall be no more than four pieces per spool or tube and no piece shall be less than 50 yd (45 m) in length. The braid shall be free from twists, lumps, and projecting ends and shall be evenly wound so that each turn and layer is free from entanglement and twisting.