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400 Commonwealth Dr., Warrendale, PA 15096

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 3388C

Issued 8-15-58
Revised 1-1-87

Superseding AMS 3388B

HOSE, AIRCRAFT FUELING, ACRYLONITRILE BUTADIENE (NBR) RUBBER, Single Wire Braid Reinforced, Noncollapsing

1. SCOPE:

1.1 Form: This specification covers a synthetic rubber in the form of a non-rigid, smooth bore, noncollapsing-type hose.

1.2 Application: Primarily for fueling aircraft. Not intended for flexible connection between tractor and trailer, or to be collapsed for drainage. Not recommended for operating pressures higher than 185 psi (1290 kPa).

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 Specifications: 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 D380 - Testing Rubber Hose
ASTM D471 - Rubber Property - Effect of Liquids

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

MIL-H-775 - Hose, Hose Assemblies; Rubber, Plastic, Fabric, or Metal (Including Tubing); and Fittings, Nozzles, and Strainers, Packing of

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3. TECHNICAL REQUIREMENTS:

3.1 Material and Fabrication:

3.1.1 Hose: Shall consist of an acrylonitrile butadiene (NBR) rubber inner tube, Ø single corrosion resistant steel wire braided reinforcement, and a chloroprene (CR) rubber cover. In addition to the steel wire reinforcement, one or more textile braids or plies may be incorporated at manufacturer's option.

3.1.1.1 Tube: Shall be fabricated from a compound based on a copolymer of Ø acrylonitrile and butadiene. Thickness of tube shall be not less than 0.078 in. (2.00 mm). The bore shall be smooth and free from pitting and from objectionable cuttings, borings, and cements.

3.1.1.2 Reinforcement: Shall be well, evenly, and firmly braided, and shall be free from dirt, lumps, and irregularities of braid.

3.1.1.3 Cover: Shall be chloroprene (CR) rubber, or other types or blends Ø having equivalent resistance to weathering and petroleum products, and shall be free from pitting.

3.2 Properties: Hose shall conform to the following requirements; tests shall be performed on the hose supplied and, except as otherwise specified, in accordance with ASTM D380, insofar as practicable:

3.2.1 Aromatic Fuel Resistance: (Immediate Deteriorated Properties)

Medium: ASTM Ref. Fuel B (See ASTM D471)
Temperature: 20° - 30°C (68° - 86°F)
Time: 22 hr ± 0.2

3.2.1.1 Volume Change:

3.2.1.1.1 Tube 0 to +50%

3.2.1.1.2 Cover 0 to +100%

3.2.2 Burst Pressure: Hose shall withstand the minimum pressure specified in Table I without bursting, leaking, or developing blisters in the cover.

Table I

Nominal ID		Pressure, min	
Inches	Millimetres	psig	kPa
2	50	1000	6895
2-1/2	62.5	750	5170
3	75	750	5170

3.2.3 Change in Length Under Pressure: Hose shall not change in length by more than 7% when subjected to a pressure of 250 psi (1725 kPa).

3.2.4 Corrosion: The hose shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service, determined by a procedure agreed upon by purchaser and vendor. Discoloration of metal shall not be considered objectionable. Standards for acceptance shall be as agreed upon by purchaser and vendor.

3.2.5 Weather Resistance: When specified, hose shall have weather resistance acceptable to purchaser, determined by a procedure agreed upon by purchaser and vendor.

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

3.4 Standard Sizes, Weights, and Tolerances: Hose shall be furnished in lengths of 50 ft + 0.5 (15 m + 0.15) and to the dimensions and weights shown in Table II. Lengths from which samples have been cut may be accepted as full lengths if the other technical requirements of this specification are met:

Table II

Nominal ID Inches	ID Tolerance Inch plus and minus	Weight (Without Couplings) lb per ft, max
2	1/16	1.6
2-1/2	1/16	1.9
3	1/16	2.3

Table II (SI)

Nominal ID Millimetres	ID Tolerance Millimetres plus and minus	Weight (Without Couplings) kg/m, max
50	1.5	2.4
62.5	1.5	2.8
75	1.5	3.4

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of hose shall supply all samples Ø for vendor's tests and shall be responsible 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 hose 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 aromatic fuel resistance (3.2.1), burst pressure (3.2.2), and change in length under pressure (3.2.3) 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 hose 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 activity, the contracting officer, or the request for procurement.

4.3 Sampling: Shall be as follows:

4.3.1 For Acceptance Tests: Sufficient hose shall be taken at random from each Ø lot to perform all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three.

4.3.1.1 A lot shall be all hose of the same size produced in a single production Ø run from the same batches of raw materials under the same fixed conditions and presented for vendor's inspection at one time. A lot shall not exceed 10,000 ft (3000 m). A lot may be packaged and delivered in smaller quantities under the basic lot approval provided lot identification is maintained.

4.3.1.2 When a statistical sampling plan and acceptance quality level (AQL) Ø have been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3.1 and the report of 4.5.1 shall state that such plan was used.

4.3.2 For Preproduction Tests: As agreed upon by purchaser and vendor. Ø