



AEROSPACE MATERIAL

Society of Automotive Engineers, Inc.

400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

SPECIFICATION

AMS 3840A

Superseding AMS 3840

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FABRIC, ASBESTOS Polytetrafluoroethylene Impregnated, Sintered

1. SCOPE:

1.1 Form: This specification covers one type of asbestos fabric impregnated with polytetrafluoroethylene in the form of woven sheet or strip or of braided tubing.

1.2 Application: Primarily for parts, such as flexible rub strips, gaskets, and air seals, requiring long-term heat resistance up to 500° F (260° C).

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

2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., 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 19120.

ASTM D299 - Asbestos Yarns

2.3 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: The product shall be made from selected long-fiber, grade A or better, chrysotile asbestos yarn (Ref. ASTM D299), woven or braided into the desired form with no metallic reinforcement, impregnated with approximately an equal weight of polytetrafluoroethylene, and thermally sintered.

3.1.1 Color: Shall be light grey to dark brown.

3.2 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with the specified methods:

3.2.1 Weight Loss at 900° F (480°C), based on
Ø original dry weight

45 - 65%

4.5.1

3.2.2 Brittleness After Sintering

Bend flat
with no breaks in
fabric

4.5.2

SAE Technical Board rules provide that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against infringement of patents."

3.2.3 Weathering: When specified, the product shall have weather resistance acceptable to the purchaser, determined by a procedure agreed upon by purchaser and vendor.

3.2.4 Corrosion: The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service. Discoloration of metal shall not be considered objectionable.

3.3 Quality: The product shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication, appearance, or performance of parts.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the product shall supply all samples and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.6. Purchaser reserves the right to perform such confirmatory testing as he deems necessary to ensure that the product conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to weight loss at 900° F or 480° C (3.2.1) and brittleness after sintering (3.3.2) requirements are classified as acceptance or routine control tests.

4.2.2 Qualification Tests: Tests to determine conformance to all technical requirements of this specification are classified as qualification or periodic control tests and may be the basis for approval of the product (See 4.4.1).

4.2.2.1 For direct U. S. Military procurement, qualification test material and supporting test data shall be submitted to the cognizant qualification agency as directed by the request for procurement, the procuring activity, or the contracting officer.

4.3 Sampling: Sufficient product shall be selected from each lot to perform all required tests as follows; a lot shall be all product produced in a single production run from the same batch of raw materials under the same fixed conditions and submitted for vendor's inspection at one time:

Property	Paragraph Reference
Weight Loss	3.2.1
Brittleness	3.2.2

4.4 Approval:

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

4.4.2 Vendor shall use ingredients, manufacturing procedures, processes, and methods of inspection on production fabric which are essentially the same as those used on the approved sample fabric. If any change is necessary in ingredients, in type of equipment for processing, or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in materials and processing and, when requested, sample revised fabric. No production fabric made by the revised procedure shall be shipped prior to receipt of reapproval.

4.5 Test Methods:

4.5.1 Weight Loss: Place a $2\text{-g} \pm 0.1$ sample in a tared crucible and heat at $220^{\circ}\text{F} \pm 2$ or $105^{\circ}\text{C} \pm 1$ to constant weight (original dry weight) at room temperature. Heat the crucible and contents to $600^{\circ}\text{F} \pm 10$ or $315^{\circ}\text{C} \pm 5$, hold at heat for $24\text{ hr} \pm 0.3$, cool in a desiccator, and reweigh. Reheat the crucible and contents to $900^{\circ}\text{F} \pm 25$ or $480^{\circ}\text{C} \pm 15$, hold at heat for $3\text{ hr} \pm 0.3$, cool, weigh, and calculate the weight loss during the 900°F or 480°C heating.

4.5.2 Brittleness: Heat a specimen to $600^{\circ}\text{F} \pm 10$ or $315^{\circ}\text{C} \pm 5$ and hold at heat for $24\text{ hr} \pm 0.3$. Transfer the specimen to an oven which is at $725^{\circ}\text{F} \pm 25$ or $385^{\circ}\text{C} \pm 15$, hold at heat for $1\text{ hr} \pm 0.1$, and quench in water. Bend the specimen flat on itself. Samples of tubing shall be split open and bent with the outside surface of the tube on the inside of the bend.

4.6 Reports:

4.6.1 The vendor of the product shall furnish with each shipment three copies of a report showing the results of tests made on the product to determine conformance to the acceptance test requirements of this specification. This report shall include the purchase order number, material specification number and its revision letter, vendor's material designation, form, size, and quantity.

4.6.2 The vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number and its revision letter, contractor or other direct supplier of material, supplier's material designation, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.

4.7 Resampling and Retesting: If any specimen used in the above tests fails to meet the specified requirements, disposition of the product 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 product 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 Packaging shall be accomplished in such a manner as to ensure that the product, during shipment and storage will be protected from exposure to weather or any normal hazard.

5.1.2 Identification: Each package shall be permanently and legibly marked to show the following information:

FABRIC, ASBESTOS, POLYTETRAFLUOROETHYLENE IMPREGNATED, SINTERED
AMS 3840A
FORM _____
SIZE _____
PURCHASE ORDER NUMBER _____
MANUFACTURER'S NAME _____
MANUFACTURER'S DESIGNATION _____
QUANTITY _____

5.1.3 Packages shall be prepared for shipment in accordance with commercial practice to ensure carrier acceptance and safe transportation to the point of delivery. Packaging shall conform to carrier rules and regulations applicable to the mode of transportation.

5.1.4 For direct U.S. Military procurement, packaging shall be in accordance with MIL-STD-794, Level A or Level C, as specified in the request for procurement. Commercial packaging as in 5.1.3 will be acceptable if it meets the requirements of Level C.