SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS3677 REV. A

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Superseding AMS3677

Fabric, Polybenzimidazole (PBI) Polyamide Fiberglass Polytetrafluoroethylene (PTFE) Impregnated, Sintered

RATIONALE

This document has been determined to contain basic and stable technology which is not dynamic in nature.

STABILIZED NOTICE

This document has been declared "Stabilized" by SAE AMS P, Polymeric Materials Committee, and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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1. SCOPE:

1.1 Form:

This specification covers a polybenzimidazole (PBI) polyamide fiberglass fabric impregnated with polytetrafluoroethylene (PTFE) in the form of woven sheet or strip or of braided tubing.

1.2 Application:

This fabric has been used typically for anti-chafing cushion between parts, such as flexible metal tubes and tube clips, rub strips, gaskets, and air seals, requiring long-term heat resistance up to 290 °C (554 °F), but usage is not limited to such applications.

1.3 Safety - Hazardous Materials:

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

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 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 792 Specific Gravity (Relative Density) and Density of Plastics by Displacement
ASTM F 36 Compressibility and Recovery of Gasket Materials

2.2 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-STD-2073-1 DOD Materiel, Procedures for Development and Application of Packaging Requirements

3. TECHNICAL REQUIREMENTS:

3.1 Material and Fabrication:

The fabric shall be made from a yarn comprised of not less than 25% by weight Polybenzimidazole (PBI) with the balance polyamide and fiberglass woven or braided into the desired form with no metallic reinforcement, impregnated with polytetrafluoroethylene (PTFE), and thermally sintered. The final product shall be 55 to 70% by weight polytetrafluoroethylene.

3.1.1 Color: Shall be light brown to dark brown.

3.2 Properties:

The fabric shall conform to the requirements shown in Table 1 and 3.2.5; tests shall be performed on the fabric supplied and in accordance with specified methods:

TABLE 1 - Properties

Para	Properties	Requirement	Test Method
3.2.1	Specific Gravity, 23/23 °C (73/73 °F)	1.60 - 1.85	ASTM D 792, Method A
3.2.2	Compressibility	15 - 34%	ASTM F 36, Procedure A
3.2.3	Recovery, minimum	40%	ASTM F 36, Procedure A
3.2.4	Weight Loss at 315 °C (599 °F), based on original dry weight, maximum	5%	4.5.1

3.2.5 Corrosion: The fabric shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service. Discoloration of metals shall not be considered objectionable. Method of test and acceptance standards shall be as established by purchaser.

3.3 Quality:

Fabric, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to usage of the fabric.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of the fabric shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the fabric conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests for specific gravity (3.2.1), compressibility (3.2.2), recovery (3.2.3), and weight loss (3.2.4) are acceptance tests and shall be performed on each lot.

4.2.2 Preproduction Tests: Tests for all technical requirements are preproduction tests and shall be performed prior to or on the initial shipment of fabric to a purchaser, when a change in ingredients and/or processing 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, contracting officer, or request for procurement.

4.3 Sampling and Testing:

Shall be as follows:

4.3.1 For Acceptance Tests: Sufficient fabric shall be taken at random from each 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 fabric produced in a single production run from the same batches of raw materials under the same fixed conditions and presented for vendor's inspection at one time.

4.3.1.2 When a statistical sampling plan has a 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 4.6 shall state such plan was used.