Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 3570B
Superseding AMS 3570A
Issued 7-1-56
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FOAM, FLEXIBLE POLYURETHANE
Open Cell, Medium Flexibility

1. SCOPE:

1.1 Form: This specification covers an open-cell, medium-flexibility polyurethane foam in the form of sheet, strip, and shapes.

1.2 Application: Primarily for general interior padding, cushioning, and vibration insulation.

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 19103.

D2406 - Testing Molded Flexible Urethane Foam

2.3 Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120 except as specified in 2.3.2.

2.3.1 Military Standards:

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

2.3.2 Federal Aviation Administration Regulations: Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

FAR Part 25 - Airworthiness Standards: Transport Category Airplanes

3. TECHNICAL REQUIREMENTS:

3.1 Material: Shall be a flexible polyurethane foam free from contamination and from foreign and scrap materials.

3.1.1 Finish: All surfaces of sheet and strip shall have a cut finish, unless otherwise specified.

3.1.2 Color: Shall be natural, unless otherwise ordered.

3.1.3 Non-Toxicity: The product shall be non-toxic and shall not cause any harmful effects when in prolonged contact with the skin.

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

3.2.1 As Received:

3.2.1.1	Density	2.1 - 2.9 lb per cu ft (33.6 - 46.5 kg/m^3)	ASTM D2406
3.2.1.2	Load deflection for 25% compression	50 - 80 lb per 50 sq in. (6.88 - 11 kPa)	ASTM D2406, Method A
3.2.1.3	Resiliency, time to recovery to 95% original thickness, max	5 sec	4.5.1
ø 3.2.1.4	Flammability (See 8.2)	Pass	FAR 25.853
3.2.2	Compression Set:		ASTM D2406, Method B Compress specimen to 75% of original thickness
3.2.2.1 ø	Percent of Original Thickness, max	12	
3.2.3	Hydrolytic Stability:		
3.2.3.1 ø	Change in Load Deflection for 25% Compression, max	20%	ASTM D2406, Steam Autoclave Test
3.2.3.2	Compression Set, max	14%	
3.2.3.3	Evidence of Surface Deterioration	No tackiness, exudation, or cracking	
3.2.4	Low-Temperature Compression Set:		4.5.2
3.2.4.1 ø	Percent of Original Thickness, max	20	

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

3.2.6 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. Method of test and standards for acceptance shall be as agreed upon by purchaser and vendor.

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

3.3.1 Voids: The foam shall contain no surface voids larger in diameter than the sheet thickness or 1/2 in. (12.7 mm), whichever is smaller.

3.4 Tolerances: Thickness of sheet and strip shall not vary from the nominal by more than ±1/16 in. (±1.6 mm).

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 the following requirements are classified as acceptance tests and shall be performed on each batch of material. A batch shall be the quantity of compound run through a mill or mixer at one time.

Property	Paragraph Reference
Density	3.2.1.1
Load Deflection	3.2.1.2
Resiliency	3.2.1.3
Flammability	3.2.1.4

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

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

4.3 Sampling: Shall be in accordance with ASTM D2406 and the following:

4.3.1 Flammability: FAR 25.853.

4.3.2 Low-Temperature Compression Set: Three specimens.

4.4 Approval:

4.4.1 Sample material shall be approved by purchaser before material for production use is supplied, unless such approval be waived. Results of tests on production material 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 material which are essentially the same as those used on the approved sample material. 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 material and processing and, when requested, sample material. Production material made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Test Methods:

4.5.1 Resiliency: Test specimens having top and bottom surface dimensions greater than the thickness shall be compressed to 25% of original thickness, held in the compressed state for 1 min. ± 0.1, and the load removed. The time to recover to 95% of original thickness shall be measured.

4.5.2 Low-Temperature Compression Set: Dry specimens for not less than 16 hr in a desiccator before testing. Place specimens in a cold chamber which is at -40° C ± 1 (-40° F ± 2) for 5 hr ± 0.1. At the end of this period and while still in the cold chamber, compress specimens in accordance with ø ASTM D2406, Method B, to 75% of original thickness, maintain this compression for 1 min. ± 0.1, release the load, and, after 1 min. ± 0.1 recovery time, measure the thickness of specimens. Calculate the compression set as a percentage of the original thickness.

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 to determine conformance to the acceptance tests requirements and stating that the product ø conforms to the other technical requirements of this specification. This report shall include the purchase order number, material specification number and its revision letter, vendor's compound number, batch number, 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 compound number, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each batch 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 ø 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 Identification and Packaging:

5.1.1 Each sheet shall be marked in one corner and strip shall be marked near one end with AMS 3570B. The characters shall be of such size as to be clearly legible, shall be applied using a suitable marking ø fluid which will not cause staining or discoloration of lacquer finished or vinyl-coated interior fabrics, and shall be sufficiently stable to withstand normal handling. The markings shall have no deleterious effect on the product or its performance.

5.1.2 Packaging shall be accomplished in such a manner as to ensure that the product, during shipment and storage, will not be permanently distorted and will be protected against damage from exposure to weather, direct sunlight, or any normal hazard.

5.1.3 Each package shall be permanently and legibly marked with AMS 3570B, size or part number, manufacturer's identification, compound number, purchase order number, quantity, and any applicable cautions or handling instructions for toxic or hazardous materials.

5.1.4 Containers shall be prepared for shipment in accordance with commercial practice to ensure carrier acceptance and safe transportation to the point of delivery and in compliance with applicable regulaø tions pertaining to the handling, packaging, and transportation of this material. Packaging shall conform to carrier rules and regulations applicable to the mode of transportation.

5.1.5 For direct U.S. Military procurement, packaging shall be in accordance with MIL-STD-794, Level A ø or Level C, as specified in the request for procurement. Commercial packaging as in 5.1.2, 5.1.3, and 5.1.4 will be acceptable if it meets the requirements of Level C.