



AEROSPACE MATERIAL SPECIFICATION

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

AMS 3823B

Superseding AMS 3823A

Issued 5-1-69
Revised 7-15-77

FABRIC, GLASS CLOTH
Style 7781, Chrome-Silane Finish

1. SCOPE:

1.1 Form: This specification covers one type of woven glass fabric treated with a chrome-silane finish.

1.2 Application: Primarily as a reinforcing material for structural plastic laminates, particularly those having a polyester, epoxy, or phenolic resin matrix.

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.

ASTM D123 - Definitions of Terms Relating to Textile Materials

ASTM D374 - Thickness of Solid Electrical Insulation

ASTM D578 - Glass Yarns

ASTM D579 - Woven Glass Fabrics

ASTM D1910 - Construction Characteristics of Woven Fabrics

ASTM D2410 - Woven Glass Fabrics, Cleaned and After-Finished with Chrome Complexes, for Plastic Laminates

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:

3.1.1 Yarn: The fabric shall be woven from ECDE 75-1/0 yarn as defined in ASTM D578.

3.1.2 Weave: The weave shall be an eight harness, satin weave in which each warp and fill yarn goes under one, and over seven, then under one, etc. The interweaving of the warp and fill yarns shall be staggered, i.e., the No. 1 warp yarn shall go under the No. 1, No. 9, No. 17, etc fill yarn, and the No. 2 warp yarn shall go under the No. 2, No. 10, No. 18, etc, fill yarn, etc.

SAE Technical Board rules provide that: "All technical reports, including standards approved by the Board, 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 or 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 liability for infringement of patents."

3.1.3 **Finish:** The fabric shall have been suitably cleaned to remove all lubricating materials or binders, followed by a chrome-silane finish which will meet the requirements of 3.2.4. The chrome-silane finish shall aid in wetting the fabric with resin and shall provide an intermediate chemical bond between the fabric and resin when the fabric is used for reinforcing plastic laminates.

3.2 **Properties:** Fabric shall conform to the following requirements; tests shall be performed on the fabric supplied and in accordance with specified ASTM methods:

3.2.1	Weight	8.1 - 9.2 oz per sq yd (275 - 312 g/m ²)	ASTM D1910
3.2.2	Thickness	0.0085 in. ± 0.001 (0.216 mm ± 0.03)	ASTM D374, Method C
3.2.3	Fabric Count		
	Warp	55 - 59 ends per in. (25.4 mm)	
	Fill	52 - 56 ends per in. (25.4 mm)	
3.2.4	Chrome-silane Level, by weight	0.020 - 0.035%	ASTM D2410
3.2.5	Breaking Strength per unit of width, min		ASTM D579
	Warp	210 lb per in. (36.8 kN/m)	
	Fill	195 lb per in. (34.1 kN/m)	

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

3.3.1 **Imperfections:** In any 100 yd (91.4 m) of fabric supplied there shall be no more than the equivalent of 10 major imperfections (2 minors = 1 major), based on the following imperfection classification; definition of terms shall be in accordance with ASTM D123:

Imperfection	Description	Classification
Bias or bowed filling	Distorted from perpendicular to the selvage edge more than 3 in. (76 mm) for 38-in. (965-mm) width and proportionately for all other widths.	Minor
Baggy, ridgy, or wavy cloth	Clearly noticeable.	Major
Cut or tear	2 in. (51 mm) or more in combined directions.	Major
	Less than 2 in. (51 mm) but greater than 1/4 in. (6.4 mm) in combined directions.	Minor
Hole	1/2 in. (12.7 mm) or more in diameter.	Major
	Less than 1/2 in. (12.7 mm) in diameter.	Minor

Imperfection	Description	Classification
Spots, streaks, or stains	Clearly noticeable 2 in. (51 mm) in combined directions.	Major
	Clearly noticeable less than 2 in. (51 mm) in combined directions.	Minor
Tender or weak spot	Clearly noticeable 2 in. (51 mm) or more in combined direction.	Major
	Clearly noticeable less than 2 in. (51 mm) but greater than 1/4 in. (6.4 mm) in combined directions.	Minor
Smash	3 in. (76 mm) or more in combined directions	Major
	Less than 3 in. (76 mm) in combined directions.	Minor
Broken or missing ends or picks	3 or more contiguous regardless of length or 2 contiguous more than 36 in. (914 mm) in length.	Major
	2 contiguous less than 36 in. (914 mm) in length.	Minor
Floats and skips	2 in. (51 mm) or more in combined directions	Major
	Less than 2 in. (51 mm) in combined directions.	Minor
Coarse or light place	Over 1/2 in. (12.7 mm) in width causing thickness outside of limits specified in 3.2.2.	Minor
Selvage defects	Cut or torn.	Major
	Cut or folded under.	Minor
Crease	Hard, embedded, and folded over on self.	Major
Brittle or fused area	Any.	Major
Uneven finish	Thin areas where finishing compound is missing or insufficient.	Major

3.4 Tolerances: The width shall be within $\pm 1/2$ in. (± 12.7 mm) of that ordered, unless otherwise specified.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of fabric 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 4.5. Purchaser reserves the right to perform such confirmatory testing as he deems necessary to ensure that the fabric conforms to the requirements of this specification.

4.2 Classification of Tests: Tests to determine conformance to all technical requirements of this specification are classified as acceptance tests and as preproduction tests.

4.2.1 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; a lot shall be all fabric produced in a single production run under the same fixed conditions and submitted for vendor's inspection at one time.

4.3.1 Frequency of Sampling:

4.3.1.1 Examination of Rolls: 100% visual examination shall be performed on all lots.

4.3.1.2 Fabric Tests: Shall be in accordance with Table I.

TABLE I

SAMPLE SIZE FOR TESTS OF GLASS CLOTH

Lot Size, Yards	Sample Size, Yards
Up to 3,200, incl	2
Over 3,200 to 22,000, incl	3
Over 22,000	5

TABLE I (SI)

Lot Size, Metres	Sample Size, Metres
Up to 2,925, incl	1.8
Over 2,925 to 20,100, incl	2.7
Over 20,100	4.6

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 material and processing and, when requested, sample fabric. Production fabric made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Reports:

4.5.1 The vendor of fabric shall furnish with each shipment three copies of a report showing the results of tests to determine conformance to the technical requirements of this specification. This report shall include the purchase order number, material specification number and its revision letter, vendor's material and finish designation, date of finishing, and quantity.