AEROSPACE MATERIAL SPECIFICATION

AMS3824	REV. C

Issued 1972-11
Revised 1995-09
Reaffirmed 2013-07

Superseding AMS3824B

Cloth, Glass
Finished for Resin Laminates

RATIONALE

AMS3824C has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE:

1.1 Form:

This specification covers "E" glass in the form of woven cloth.

1.2 Application:

This cloth has been used typically as a reinforcing material for structural plastic laminates and is supplied with finishes suitable for use with various resin matrices, 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 applicable issue of referenced publications shall be the issue in effect on the date of the purchase order.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/AMS3824C

2.1 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM D 123	Terminology Relating to Textile Materials
ASTM D 374	Thickness of Solid Electrical Insulation
ASTM D 578	Glass Fiber Yarns
ASTM D 579	Greige Woven Glass Fabrics
ASTM D 1777	Measuring Thickness of Textile Materials
ASTM D 3775	Fabric Count of Woven Fabric
ASTM D 3776	Mass Per Unit Area (Weight) of Woven Fabric

2.2 U.S. Government Publications:

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

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-2073-1	DOD Materiel, Procedures for Development and Application of Packaging Requirements

3. TECHNICAL REQUIREMENTS:

3.1 Material:

3.1.1 Color: Shall be essentially white.

3.1.2 Finish: The finish, as specified by purchaser, shall be compatible with, and produce the required performance characteristics for, the resin system specified in the applicable impregnated glass cloth specification, the laminate specification, or the procuring document.

3.1.3 Yarn: The cloth shall be woven from yarns as specified in Table 1.

3.1.4 Weave: Shall be as specified in Table 1.

3.1.5 Indicator Yarn: When specified, the warp direction of the finished cloth shall be marked by colored direction-indicator yarns running warpwise in the cloth. Color and spacing of the indicator yarns, when specified, shall be acceptable to purchaser.

3.2 Properties:

Shall be as specified in Table 1 except that finish content shall be as specified by supplier, unless otherwise ordered; conformance to these requirements shall be determined by the following methods:

Weight:	ASTM D 3776
Nominal Thickness:	ASTM D 374, Method C, and ASTM D 1777
Fabric Count:	ASTM D 3775
Finish, %:	ASTM D 576
Breaking Strength:	ASTM D 579

TABLE 1A - Type "E" Glass Cloth Construction and Physical Properties, Inch/Pound Units

Fabric Style No.	Yarn Count per Inch	Warp Yarn	Filling Yarn	Weave	Weight Ounces per Square Yard	Nominal Thickness Inch	Breaking Strength lbf per Inch, min
104	60 x 52	D900 1/0	D1800 1/0	Plain	0.56	0.0011	15 x 5
325	90 x 44	D900 1/0	D1800 1/0	Plain	0.70	0.0013	17 x 5
106	56 x 56	D900 1/0	D900 1/0	Plain	0.73	0.0014	12 x 12
107	60 x 35	D900 1/2	D900 1/0	Plain	1.01	0.0018	24 x 7
1070	60 x 35	D450 1/0	D900 1/0	Plain	1.03	0.0017	24 x 7
108	60 x 47	D900 1/2	D900 1/2	Plain	1.40	0.0022	24 x 20
1080	60 x 47	D450 1/0	D450 1/0	Plain	1.40	0.0023	24 x 20
112	40 x 39	D450 1/2	D450 1/2	Plain	2.10	0.0035	40 x 35
2112	40 x 39	D225 1/0	D225 1/0	Plain	2.10	0.0035	40 x 35
1125	40 x 39	D450 1/2	G150 1/0	Plain	2.60	0.0041	40 x 45
2125	40 x 39	D225 1/0	G150 1/0	Plain	2.60	0.0041	40 x 45
1610	32 x 28	G150 1/0	G150 1/0	Plain	2.35	0.0036	35 x 30
113	60 x 64	D450 1/2	D900 1/2	Plain	2.45	0.0034	50 x 25
2113	60 x 64	D225 1/0	D450 1/0	Plain	2.38	0.0032	50 x 25
119	54 x 50	D450 1/2	D450 1/2	Plain	2.71	0.0039	60 x 50
1674	40 x 32	G150 1/0	G150 1/0	Plain	2.80	0.0043	50 x 35
1675	40 x 32	DE150 1/0	DE150 1/0	Plain	2.83	0.0044	50 x 35
116	60 x 58	D450 1/2	D450 1/2	Plain	3.10	0.0040	60 x 55
2116	60 x 58	D225 1/0	D225 1/0	Plain	3.10	0.0040	60 x 55
1165	60 x 52	D450 1/2	G150 1/0	Plain	3.60	0.0044	55 x 60
2165	60 x 52	D225 1/0	G150 1/0	Plain	3.62	0.0048	55 x 60
120	60 x 58	D450 1/2	D450 1/2	Crowfoot	3.14	0.0042	60 x 55
2120	60 x 58	D225 1/0	D225 1/0	Crowfoot	3.12	0.0042	60 x 55
1677	40 x 40	DE150 1/0	DE150 1/0	Plain	3.14	0.0044	60 x 50
1681	56 x 36	DE150 1/0	DE150 1/0	Plain	3.60	0.0048	60 x 45
125	36 x 34	D450 2/2	D450 2/2	Plain	3.70	0.0057	60 x 55
118	90 x 60	D450 1/2	D450 1/2	Crowfoot	3.90	0.0052	75 x 60
1676	56 x 48	DE150 1/0	DE150 1/0	Plain	4.00	0.0048	70 x 60
1510	32 x 29	G150 1/2	G150 1/2	Plain	4.78	0.0050	55 x 45
126	34 x 32	D450 3/2	D450 3/2	Plain	5.30	0.0076	80 x 55
1526	34 x 32	G150 1/2	G150 1/2	Plain	5.27	0.0071	80 x 55
7626	34 x 32	G75 1/0	G75 1/0	Plain	5.20	0.0062	80 x 55
1557	57 x 30	G150 1/2	D225 1/0	Crowfoot	5.27	0.0058	125 x 25
1680	72 x 70	DE150 1/0	DE150 1/0	8H Satin	5.56	0.0060	95 x 80
7533	18 x 18	G75 1/2	G75 1/2	Plain	5.65	0.0092	90 x 85
3733	18 x 18	G37 1/0	G37 1/0	Plain	5.60	0.0078	90 x 85

TABLE 1 A - (Continued)

Fabric Style No.	Yarn Count per Inch	Warp Yarn	Filling Yarn	Weave	Weight Ounces per Square Yard	Nominal Thickness Inch	Breaking Strength lbf per Inch, min
127	42x32	D450 3/2	D450 3/2	Plain	5.80	0.0078	80 x 55
128[1]	42x32	D225 1/3	D225 1/3	Plain	5.80	0.0072	80 x 55
1528	44x32	G150 1/2	G150 1/2	Plain	5.95	0.0069	80 x 55
7628	44x32	G75 1/0	G75 1/0	Plain	5.95	0.0069	80 x 55
7628	44x32	G75 1/0	G75 1/0	Crowfoot	5.95	0.0069	80 x 55
7637	44x22	G75 1/0	G37 1/0	Plain	6.70	0.0082	80 x 80
7532	16x14	G75 1/3	G75 1/3	Plain	7.05	0.0120	115 x 100
2532	16x14	H25 1/0	H25 1/0	Plain	6.85	0.0097	100 x 95
7520	18x17	G75 1/3	G75 1/3	Plain	8.22	0.0099	105 x 100
141[1]	32x21	D225 3/2	D225 3/2	Plain	8.50	0.0115	125 x 90
7641	32x21	G75 1/2	G75 1/2	Plain	8.50	0.0105	125 x 90
1143[1]	49x30	D225 3/2	D450 1/2	Crowfoot	8.30	0.0086	250 x 20
1543	49x30	G75 1/2	D225 1/0	Crowfoot	8.30	0.0086	250 x 20
3743	49x30	G37 1/0	D225 1/0	Crowfoot	8.30	0.0086	250 x 20
341[1]	30x49	D450 1/2	D225 3/2	Crowfoot	8.68	0.0095	30 x 250
1581	57 x 54	G150 1/2	G150 1/2	8H Satin	8.60	0.0092	150 x 130
7781	57 x 54	DE75 1/0	DE75 1/0	8H Satin	8.82	0.0092	150 x 130
7500	16x14	G75 2/2	G75 2/2	Plain	9.55	0.0145	150 x 120
1800	16 x 14	K18 1/0	K18 1/0	Plain	9.68	0.0130	150 x 120
7743	120 x 20	DE75 1/0	G150 1/0	8H Satin	10.0	0.0096	275 x 35
1523	28 x 20	G150 3/2	G150 3/2	Plain	11.5	0.0140	160 x 140
2523	28 x 20	H25 1/0	H25 1/0	Plain	11.28	0.0140	190 x 130
162[1]	28 x 16	D225 2/5	D225 2/5	Plain	11.70	0.0165	190 x 125
164[1]	20 x 18	D225 4/3	D225 4/3	Plain	12.4	0.0160	190 x 160
1564	20 x 18	G150 4/2	G150 4/2	Plain	12.25	0.0150	190 x 160
7664	20 x 18	G75 2/2	G75 2/2	Plain	12.50	0.0165	190 x 160
3732	48 x 32	G37 1/0	G37 1/0	Crowfoot	12.5	0.0125	175 x 150
182[1]	60 x 56	D225 2/2	D225 2/2	8H Satin	12.2	0.0135	180 x 160
1582	60 x 56	G150 1/3	G150 1/3	8H Satin	13.75	0.0155	160 x 150
1527	17 x 17	G150 3/3	G150 3/3	Plain	12.0	0.0170	180x 170
183[1]	54 x 48	D225 3/2	D225 3/2	8H Satin	16.0	0.0185	250 x 225
1583	54 x 48	G75 1/2	G75 1/2	8H Satin	16.0	0.0180	250 x 225
1544	28 x 14	G150 4/2	G150 4/4	2/1 Basket	17.7	0.0220	190 x 160
7544	28 x 14	G75 2/2	G75 2/4	2/1 Basket	17.7	0.0220	190 x 160
7587	40 x 21	G75 2/2	G75 2/2	Mock Leno	20.0	0.0315	300 x 170
184[1]	42 x 36	D225 4/3	D225 4/3	8H Satin	25.0	0.0300	300 x 250
1584	44 x 35	G150 4/2	G150 4/2	8H Satin	25.2	0.0300	300 x 250
1884	44 x 35	K18 1/0	K18 1/10	8H Satin	25.0	0.0280	300 x 250

[1]ECE 225 yarn originally required for this cloth has been replaced by ECD 225 yarn because of unavailability. When available, ECE 225 may be used.

TABLE 1B - Type "E" Cloth Construction and Physical Properties, SI Units

Fabric Style No.	Yarn Count per 50.8 mm	Warp Yarn	Filling Yarn	Weave	Weight g/m²	Nominal Thickness mm	Breaking Strength N/50m min
104	118 x 102	EC5 5.5 1x0	EC5 2.75 1x0	Plain	19.0	0.028	131 x 44
325	177 x 86	EC5 5.5 1x0	EC5 2.75 1x0	Plain	23.7	0.033	149 x 44
106	110 x 110	EC5 5.5 1x0	EC5 5.5 1x0	Plain	24.8	0.036	105 x 105
107	118 x 69	EC5 5.5 1x0	EC5 5.5 1x0	Plain	34.2	0.046	210 x 61
1070	118 x 69	EC5 11 1x0	EC5 5.5 1x0	Plain	34.9	0.043	210 x 61
108	118 x 92	EC5 5.5 1x2	EC5 5.5 1x2	Plain	47.5	0.056	210 x175
1080	118 x 92	EC5 11 1x0	EC5 11 1x0	Plain	47.5	0.058	210 x 175
112	78 x 77	EC5 11 1x2	EC5 11 1x2	Plain	71.2	0.089	350 x 306
2112	78 x 77	EC5 22 1x0	EC5 22 1x0	Plain	71.2	0.089	350 x 394
1125	78 x 77	EC5 11 1x2	EC9 33 1x0	Plain	88.2	0.104	350 x 394
2125	78 x 77	EC5 22 1x0	EC9 33 1x0	Plain	88.2	0.104	350 x 394
1610	63 x 55	EC5 33 1x0	EC9 33 1x0	Plain	79.7	0.091	306 x 262
113	118 x 126	EC5 11 1x2	EC5 5.5 1x2	Plain	83.1	0.086	438 x 219
2113	118 x 126	EC5 22 1x0	EC5 11 1x0	Plain	80.7	0.081	438 x 219
119	106 x 99	EC5 11 1x2	EC5 11 1x2	Plain	91.9	0.099	525 x 438
1674	78 x 63	EC9 33 1x0	EC9 33 1x0	Plain	94.9	0.109	438 x 306
1675	78 x 63	EC6 33 1x0	EC6 33 1x0	Plain	96.0	0.112	438 x 306
116	118 x 114	EC5 11 1x2	EC5 11 1x2	Plain	105	0.102	525 x 481
2116	118 x 114	EC5 22 1x0	EC5 22 1x0	Plain	105	0.102	525 x 481
1165	118 x 102	EC5 11 1x2	EC9 33 1x0	Plain	122	0.112	481 x 525
2165	118 x 102	EC5 22 1x0	EC9 33 1x0	Plain	123	0.122	481 x 525
120	118 x 114	EC5 11 1x2	EC5 11 1x2	Crowfoot	106	0.107	525 x 481
2120	118 x 114	EC5 22 1x0	EC5 22 1x0	Crowfoot	106	0.107	525 x 481
1677	78 x 78	EC6 33 1x0	EC6 33 1x0	Plain	106	0.112	525 x 438
1681	110 x 71	EC6 33 1x0	EC6 33 1x0	Plain	122	0.122	525 x 390
125	71 x 67	EC5 11 2x2	EC5 11 2x2	Plain	125	0.145	525 x 481
118	177 x 118	EC5 11 1x2	EC5 11 1x2	Crowfoot	132	0.132	657 x 525
1676	110 x 94	EC6 33 1x0	EC6 33 1x0	Plain	136	0.122	613 x 525
1510	63 x 57	EC9 33 1x2	EC9 33 1x2	Plain	162	0.127	481 x 394
126	67 x 63	EC5 11 3x2	EC511 3x2	Plain	180	0.193	700 x 481
1526	67 x 63	EC9 33 1x2	EC9 33 1x2	Plain	179	0.180	700 x 481
7626	67 x 63	EC9 66 1x0	EC9 66 1x0	Plain	176	0.157	700 x 481
1557	112 x 59	EC9 33 1x2	EC5 22 1x0	Crowfoot	179	0.147	1094 x 175
1680	142 x 138	EC6 33 1x0	EC6 33 1x0	8H Satin	188	0.152	832 x 700
7533	36 x 36	EC9 66 1x2	EC9 66 1x2	Plain	192	0.234	788 x 744
3733	36 x 36	EC9 134 1x0	EC9 134 1x0	Plain	190	0.198	788 x 744
127	83 x 63	EC5 11 3x2	EC5 141 3x2	Plain	197	0.198	700 x 481
128[1]	83 x 63	EC5 22 1x3	EC5 22 1x3	Plain	197	0.183	700 x 481
1528	86 x 63	EC9 33 1x2	EC9 33 1x2	Plain	202	0.175	700 x 481

TABLE 1B - (Continued)

Fabric Style No.	Yam Count per 50.8 mm	Warp Yarn	Filling Yarn	Weave	Weight g/m²	Nominal Thickness mm	Breaking Strength N/50m min
7628	86 x 63	EC9 66 1x0	EC9 66 1x0	Plain	202	0.175	700 x 481
7628	86 x 63	EC9 66 1x0	EC9 66 1x0	Crowfoot	202	0.175	700 x 481
7637	86 x 44	EC9 66 1x0	EC9 134 1x0	Plain	227	0.208	1007 x 700
7532	32 x 28	EC9 66 1x3	EC9 66 1x3	Plain	239	0.305	1007 x 875
2532	32 x 28	EC10 198 1x0	EC10 198 1x0	Plain	232	0.246	875 x 832
7520	35 x 33	EC9 66 1x3	EC9 66 1x3	Plain	279	0.251	919 x 875
141[1]	63 x 41	EC5 22 3x2	EC5 22 3x2	Plain	288	0.292	1094 x 788
7641	63 x 41	EC9 66 lx2	EC9 66 1x2	Plain	288	0.267	1094 x 788
1143[1]	96 x 59	EC5 22 3x2	EC5 11 1x2	Crowfoot	281	0.218	2189 x 175
1543[1]	96 x 59	EC9661x2	EC5 22 1x0	Crowfoot	281	0.218	2189 x 175
3743	96 x 59	EC9 134 1x0	EC5 22 1x0	Crowfoot	281	0.218	2189 x 175
341	59 x 96	EC511 1x2	EC5 22 3x2	Crowfoot	294	0.241	262 x 2189
1581	112 x 106	EC9 33 1x2	EC9 33 1x2	8H Satin	292	0.234	1313 x 1138
7781	112 x 106	EC6 66 1x0	EC6 66 1x0	8H Satin	299	0.234	1313 x 1138
7500	32 x 28	EC9 66 2x2	EC9 66 2x2	Plain	324	0.368	1313 x 1050
1800	32 x 28	EC13 275 1x0	EC1 3 275 1x0	Plain	328	0.330	1313 x 1050
7743	236 x 40	EC6 66 1x0	EC9 33 1x0	8H Satin	339	0.244	2408 x 306
1523	55 x 40	EC9 33 3x2	EC9 33 3x2	Plain	390	0.356	1401 x 1225
2523	55 x 40	EC10 198 1x0	EC10 198 1x0	Plain	382	0.356	1644 x 1138
162[1]	55 x 32	EC5 22 2x5	EC5 22 2x5	Plain	397	0.419	1664 x 1094
164[1]	40 x 36	EC5 22 4x3	EC5 22 4x3	Plain	420	0.406	1664 x 1401
1564	40 x 36	EC9 33 4x2	EC9 33 4x2	Plain	415	0.381	1664 x 1401
7664	40 x 36	EC9 66 2x2	EC9 66 2x2	Plain	424	0.419	1664 x 1401
3732	94 x 63	EC9 134 1x0	EC9 134 1x0	Crowfoot	424	0.318	1532 x 1313
182[1]	118 x 110	EC5 22 2x2	EC5 22 2x2	8H Satin	414	0.343	1576 x 1401
1582	118 x 110	EC9 33 1x3	EC9 33 1x3	8H Satin	466	0.394	1401 x 1313
1527	34 x 34	EC9 33 3x3	EC9 33 3x3	Plain	407	0.432	1576 x 1488
183[1]	106 x 94	EC5 22 3x2	EC5 22 3x2	8H Satin	542	0.470	2189 x 1970
1583	106 x 94	EC9 66 1x2	EC966 1x2	8H Satin	542	0.457	2189 x 1970
1544	55 x 28	EC9 33 4x2	EC9 33 4x4	2/1 Basket	600	0.559	1664 x 1401
7544	55 x 28	EC9 66 2x2	EC9 66 2x4	2/1 Basket	600	0.559	1664 x 1401
7587	82 x 42	EC9 66 2x2	EC9 66 2x2	Mock Leno	678	0.800	2626 x 1488
184[1]	82 x 71	EC5 22 4x3	EC5 22 4x	38H Satin	848	0.762	2626 x 2189
1584	86 x 69	EC9 33 4x2	EC9 33 4x2	8H Satin	854	0.762	2626 x 2189
1884	86 x 69	EC13 275 1x0	EC13 275 1x0	8H Satin	848	0.711	2626 x 2189

(1) ECE 225 yarn originally required for this cloth has been replaced by ECD 225 yarn because of unavailability. When available, ECE 225 may be used.

3.3 Quality:

Cloth, as received by purchaser, shall be uniform in quality and condition, smooth, and free from foreign materials and from imperfections detrimental to usage of the cloth.

3.3.1 Imperfections: In any 100 yards (91 m) of cloth supplied in nominal width of 38 inches (965 mm), there shall be no more than the equivalent of 10 major imperfections (2 minors = 1 major), based on the following classification: for nominal widths of 50 inches (1270 mm) and 60 inches (1524 mm), there shall be no more than the equivalent of 13 and 16 major imperfections, respectively. See Table 2 for classification of imperfections. Definition of terms shall be in accordance with ASTM D 123. The term “clearly noticeable” used in Table 2 shall be interpreted to mean visible at normal inspection distance of approximately 3 feet (0.9 m).

3.3.1.1 All imperfections shall be counted regardless of their proximity to one another, except where two or more imperfections represent a single local condition on the end item, in which case only the more serious imperfection shall be counted. A continuous imperfection shall be counted as one imperfection; the sample unit shall be one roll.

TABLE 2 - Classification of imperfections

Imperfection	Description and Limitation	Classification
Bias or bowed filling	Distorted from perpendicular to the selvage edge over 3 inches (76 mm) for 38 inches (965 mm) width and proportionately for all other widths	Minor
Baggy, ridgy, or wavy cloth	Clearly noticeable	Major
Cut or tear	2 inches (51 mm) or over in combined directions	Major
	Under 2 inches (51 mm) but greater than 1/4 inch (6.4 mm) in combined directions	Minor
	Any cut or tear under 1/4 inch (6.4 mm) in length	Minor
Hole	1/2 inch (12.7 mm) or over in diameter	Major
	Under 1/2 inch (12.7 mm) in diameter	Minor
Spots, streaks, or stains	Clearly noticeable 2 inches (51 mm) or over in combined directions	Major
	Clearly noticeable under 2 inches (51 mm) in combined directions	Minor
Tender or weak spot	Clearly noticeable 2 inches (51 mm) or over in combined directions	Major
	Clearly noticeable under 2 inches (51 mm) but over 1/4 inch (6.4 mm) in combined directions	Minor
Smash	3 inches (76 mm) or over in combined directions	Major
	Under 3 inches (76 mm) in combined directions	Minor

TABLE 2 - (Continued)

Imperfection	Description and Limitation	Classification
Broken or missing ends or picks	3 or more contiguous regardless of length or 2 contiguous over 36 inches (914 mm) in length	Major
	2 contiguous under 36 inches (914 mm) in length	Minor
Floats and skips	2 inches (51 mm) or over in combined directions	Major
	Under 2 inches (51 mm) in combined directions	Minor
Coarse or light place	Over 1/2 inch (12.7 mm) in width causing thickness outside of limits specified in Table 1	Minor
Selvage defects	Cut or torn 1/4 inch (6.4 mm) and over in length	Major
	Cut or torn under 1/4 inch (6.4 mm) in length	Minor
	Curled or folded under	Minor
Crease	Hard, embedded, and folded over on itself	Major
Brittle or fused area	Any	Major
Uneven finish	Thin areas where finished compound is missing or insufficient	Major

3.4 Sizes and Tolerances:

Standard lengths and widths shall be as specified in 3.4.1 and 3.4.2; tolerances shall conform to the following:

3.4.1 Length of Roll: Shall be 100 yards ± 25 (91 m ± 23) or as otherwise agreed upon by purchaser and supplier.

3.4.2 Width: Shall be 38, 50, or 60 inches (965, 1270, or 1524 mm), as ordered, and shall be within ±1/2 inch (±12.7 mm) of the ordered width.

3.4.3 Weight: Shall not vary from the values shown in Table 1 by more than the permissible variation shown in Table 3.

TABLE 3 - Weight Tolerance

Nominal Weight Ounces per Square Yard	Nominal Weight Grams per m^2	Permissible Variation, % Plus and Minus
Up to 4.00, incl	Up to 136, incl	10
Over 4.00	Over 136	6

3.4.4 Thread Count:

3.4.4.1 Warp: The average count of warp ends shall be within ±2 ends from the nominal count listed in Table 1.

3.4.4.2 Fill: The average count of filling picks shall be within ±2 picks from the nominal count listed in Table 1.

3.4.5 Thickness: Permissible variation in thickness shall be as specified in Table 4.

TABLE 4A - Permissible Variations in Thickness of Fabrics, Inch/Pound Units

Nominal Thickness Inch	Permissible Variations Inch Plus and Minus
Up to 0.0030, incl	0.0005
Over 0.0030 to 0.0100, incl	0.0010
Over 0.0100 to 0.0150, incl	0.0020
Over 0.0150	0.0030

TABLE 4B - Permissible Variations in Thickness of Fabrics, SI Units

Nominal Thickness Millimeter	Permissible Variations Millimeter Plus and Minus
Up to 0.076, incl	0.013
Over 0.076 to 0.254, incl	0.025
Over 0.254 to 0.381, incl	0.051
Over 0.381	0.076

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

Manufacturer of cloth shall supply all samples and shall be responsible for all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the cloth conforms to specified requirements.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Weight, nominal thickness, thread count, finish percent, and breaking strength (3.2), quality (3.3), imperfections (3.3.1), and tolerances (3.4) are acceptance tests and shall be performed on each lot.