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MIL-STD-655D
6 August 1992
SUPERSEDING
MIL-STD-655C
19 September 1985

MILITARY STANDARD

PROVISIONS FOR EVALUATING QUALITY

OF

CLOTH, WOOL, WORSTED AND WOOL BLENDS

AMSC N/A

FSC 8305

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FORWARD

1. This Military Standard is approved for use by all Departments and Agencies of the Department of Defense.

2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be used in improving this document should be addressed to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5019, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

2.1 Government documents.

2.1.1 Specifications, standards, and hanbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.1).

STANDARDS

FEDERAL

FED-STD-191 - Textile Test Methods

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-109 - Quality Assurance Terms and Definitions

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

FEDERAL TRADE COMMISSION

Rules and Regulations Under the Wool Products Labeling Act

(Copies are available from the Federal Trade Commission, Pennsylvania Avenue at Sixth Street, N.W., Washington, DC 20580-0001.)

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2.2 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. This standard provides a standardized procedure for evaluating quality of woolen, worsted, and wool blended cloths procured for the Department of Defense.

4. As of the date of approval of this standard, the following specifications will reference this standard:

SPECIFICATION		TITLE
MIL-C-823	-	Cloth, Serge, Wool; Wool and Nylon, Polyester and Wool
MIL-C-3727	-	Cloth, Barathea, Wool
MIL-C-3738	-	Cloth, Elastique, Wool
MIL-C-10176	-	Cloth, Gabardine: Wool, Polyester and Wool
MIL-C-11065	-	Cloth, Flannel, Wool and Nylon, 16-Ounce, Shrink Resistant(GL)
MIL-C-16290	-	Cloth, Melton, Wool (Moth-Proofed) (SA)
MIL-C-16291	-	Cloth, Flannel, Wool (SA)
MIL-C-17566	-	Cloth, Billiard
MIL-C-21115	-	Cloth, Tropical: Wool, Polyester/Wool
MIL-C-24903	-	Cloth, Elastique, Polyester/Wool (CG)
MIL-C-24910	-	Cloth, Tropical: Polyester and Wool
MIL-C-29405	-	Cloth, Broadcloth: Wool and Wool/Nylon (MC)
MIL-C-82252	-	Cloth, Broadcloth, Wool and Wool-Synthetic (MothProofed) (NU)

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1. SCOPE

1.1 Purpose. The purpose of this standard is to provide standardized examination provisions for evaluating quality of woolen, worsted, and wool blended cloths that are the basic materials for quality uniform items.

1.2 Scope. This standard will be made applicable to contracts by reference in the appropriate cloth documents.

2. REFERENCED DOCUMENTS

2.1 Government documents. Unless otherwise specified, the following documents of the issue in effect on date of invitations for bids or request for proposal, form a part of this document to the extent specified herein.

STANDARDS

FEDERAL

FED-STD-191 - Textile Test Methods

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes

MIL-STD-109 - Quality Assurance Terms and Definitions

(Copies of documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

OTHER GOVERNMENT DOCUMENTS

Laws and Regulations

Rules and Regulations Under the Wool Products Labeling Act

(Application for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

2.2 Order of precedence. In the event of a conflict between the text of this standard and the references cited herein, the text of this standard shall take precedence.

3. DEFINITIONS

3.1 Fabric defects. The fabric defect definitions applicable to the standard are described as follows:

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3.1.1 Barre. Bands, streaks, or bars in the fabric characterized by texture, tension, color, luster, or shrinkage differences.

3.1.2 Bowed or skewed filling. Cloth in which the filling yarn does not run at right angles to the warp.

3.1.3 Broken or missing yarn. A yarn partially or entirely missing.

3.1.4 Coarse or heavy yarn. A yarn larger in diameter than normally being used in the cloth.

3.1.5 Defective selvage. Selvage that is curled, folded, rolled, slack, tight, scalloped, wavy, stringy, beaded, loopy, cut, torn, missing, or raveled, or not adequately anchored to the edge of the cloth, preventing the unraveling of the edge.

3.1.6 Excess material. Extra yarn or waste which has been woven into the cloth or spun into the yarn, or extra length of yarn that has not completely been woven into the cloth.

3.1.7 Fine yarn. A yarn smaller in diameter than normally being used in the cloth.

3.1.8 Finishing imperfections. Cloth which has not been uniformly sheared, does not have the same degree and character of finish throughout, has tentering marks, or is streaked, blotched, spotted, or otherwise marked.

3.1.9 Heavy or light place. A fillingwise band or bar either across the full width of the cloth or a portion of it containing more or less than the normal number of picks, or containing picks of larger or smaller diameter than normally being used in the cloth.

3.1.10 Hole. A place in the cloth where two or more contiguous yarns have been ruptured.

3.1.11 Knot. Self descriptive. To be scored when it exceeds the limits specified in the basic cloth document.

3.1.12 Misweave. Any deviation from the specified weave pattern.

3.1.13 Mixed yarn. Yarn which differs from that normally being used in the cloth, such as wrong twist, wrong number of plies, wrong color, or mixed yarn lots.

3.1.14 Neppiness. A speckled condition of the cloth characterized by a number of definite fiber tangles (neps).

3.1.15 Open place. An open streak or crack which results in a clearly noticeable separation between the yarns.

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3.1.16 Reed mark. A mark or line running warpwise in the cloth.

3.1.17 Slub. A thick place in the yarn. To be scored when it exceeds the limits specified in the basic cloth document.

3.1.18 Spot, stain or streak. An area in the cloth or on the surface of the cloth showing discoloration, foreign matter, or soil, excluding decating marks.

3.1.19 Uneven yarn. A yarn tighter or slacker than the normal yarn in the body of the cloth.

3.1.20 Wavy cloth. Cloth that is of such a nature (baggy, ridgy, wavy, or contains crease) that it will not lie flat on a cutting table.

3.1.21 Weak spot. A place in the cloth where the surface has been damaged or has been abnormally weakened.

3.1.22 Uneven weaving. Irregular cloth characterized by conditions such as short elliptical or triangular distortions of one or more adjoining yarns, tight or slack places in the same yarn, crimped, rippled, wavy, pebbled, or cockled place in the cloth.

3.2 Fabric defect (not scorable).

3.2.1 Decating mark. A seam or fabric-end impression extending filling-wise across the cloth.

3.3 Quality assurance terms. Definitions of quality assurance terms shall be in accordance with MIL-STD-105 and MIL-STD-109.

4. GENERAL REQUIREMENTS

4.1 This standard contains provisions for visual examination of woolen, worsted and wool blended cloths. Fabric quality in the following quality levels shall be as specified in the applicable cloth document.

Quality Level 8
Quality Level 10
Quality Level 12
Quality Level 15

5. DETAILED REQUIREMENTS

5.1 End item examination.

5.1.1 Yard-by-yard examination. The total yardage of each roll in the sample shall be examined on the face side. All appropriate defects that are

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clearly noticeable at normal inspection distance (3 feet) shall be scored and assigned demerit points as specified in this paragraph. The sample size shall be in accordance with the following:

Lot size (yards)	Sample size (rolls) 1/
500 or less	8
501 up to 3,200	13
3,201 to 35,000	20
35,001 and over	32

Point value computation shall be as follows:

$$\frac{\text{Total points scored in sample X 3600}}{\text{Contracted width of cloth (inches) X Total yards inspected}} = \text{Points per 100 square yards}$$

The following defect, when present, shall be scored four points for each yard in which it occurs.

Width less than specified.

Except for above defect, all defects as defined in section 3.1 of this standard shall be scored and assigned demerit points as follows:

For defects 3 inches or less in any dimension	- one point
For defects exceeding 3 inches, but not exceeding 6 inches in any dimension	- two points
For defects exceeding 6 inches, but not exceeding 9 inches in any dimension	- three points
For defects exceeding 9 inches in any dimension	- four points

The same yardage shall be given a through - lighting inspection on the face side of the cloth for holes and thin areas not previously scored. Slight open places resulting from removal of burrs, shives, sisal or broken picks not previously scored shall not be scored in through - lighting inspection.

1/ No more than one roll shall be taken from any shipping container unless the number of shipping containers in the lot is less than the required number of rolls in which case all shipping containers shall be present in the sample.

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Selvage defects shall be scored when the thickness of the selvage exceeds the thickness of the body of the cloth by an excessive amount 2/ or the edge of the cloth is not adequately anchored. No linear yard (increments of 1 yard on the measuring device of the inspection machine) shall be scored more than four points, however, all defects shall be recorded. The lot shall be unacceptable if:

a. The point value per 100 square yards for the total yardage in the entire sample exceeds the applicable maximum acceptable point value (see table I).

b. The point value per 100 square yards for the total yardage in any individual roll in the sample exceeds the applicable maximum acceptable point value (see table I).

TABLE I. Maximum acceptable point values

	Quality Level	Maximum acceptable point values	
		Entire sample	Individual rolls
	8	8 points per 100 sq. yd.	12 points per 100 sq. yd.
Normal	10	10 points per 100 sq. yd.	15 points per 100 sq. yd.
Inspection	12	12 points per 100 sq. yd.	18 points per 100 sq. yd.
	15	15 points per 100 sq. yd.	23 points per 100 sq. ud.

5.1.2 Shade variation examination. During the yard-by yard examination, each roll in the sample shall be examined for shade variation. Any roll in the sample containing uneven shade or shade variation side to side, side to center, or end to end, shall be cause for rejection of the entire lot represented by the sample.

5.1.3 Length examination. During the yard-by-yard examination, each roll in the sample shall be examined for length.

5.1.3.1 Individual roll. Any length found to be less than the minimum length specified in the basic cloth document or more than 2 yards less than the length marked on the ticket shall be scored as a defect. The lot shall be unacceptable if two or more rolls in the sample are defective in respect to length.

2/ In the case of dispute, the thickness of the selvage shall not exceed the thickness of the body of the cloth by more than 40 percent, when tested in accordance with Method 5030 of FED-STD-191.

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5.1.3.2 Total yardage in sample. The lot shall be unacceptable if the total of the actual length of the rolls in the sample is less than the total of the lengths marked on the roll tickets.

5.1.4 Roll examination. During the yard-by-yard examination each roll in the sample shall be examined for defects listed below. The lot shall be unacceptable if two or more of the following defects are present in the sample:

Back stamping missing, incorrect or illegible from either or both ends, or bleed through occurring.
Back stamping on wrong side.
Letters less than 1/2 inch in height.
Not labeled or ticketed in accordance with the Rules and Regulations under the Wool Products Labeling Act.
Edge of roll build-up, or softness of roll in body of cloth.

5.1.5 Shade match and appearance examination. The shade match and appearance examination shall be as specified in the applicable cloth document.

5.1.6 Defect marking (stringing of defects) examination. During the yard-by-yard examination, each roll in the sample shall be examined for defect marking. Any roll having more than 2-three or four point fabric defects (red string) not strung, or more than 5 fabric defects (red or white strings) not strung shall be classified as a defective roll in regard to the defect marking requirement. As an alternative to marking defects with a string sewn in the selvage, plastic markers may be utilized provided all other criteria are met, e.g. color, proximity to defect, use in selvage, etc.

The lot shall be unacceptable if the sample contains more than the number of defective rolls or unstrung defects indicated below:

Sample size (rolls)	Maximum number of defective rolls	Maximum number of unstrung defects
8	0	12
13	1	19
20	2	30
32	3	48

5.2 Inspection procedures. Inspection procedures, except for sampling plans, shall be as specified in MIL-STD-105, except where otherwise indicated in this standard.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

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6.1 Issue of DODISS. When this standard is used in acquisition, the applicable issue of the DODISS must be cited in the solicitation (see 2.1.1).

6.2 Subject term (key word) listing.

Examination
Fabric defect
Inspection
PFEQ

6.3 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - GL
Navy - NU
Air Force - 11
Coast Guard - CG

Review activities:

Navy - MC
Air Force - 82, 99
DLA - CT

User activity:

Navy - AS

Preparing activity:

Army - GL

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

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I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE (YYMMDD)
	MIL-STD-655D	1992 August 6

3. DOCUMENT TITLE
PROVISIONS FOR EVALUATING QUALITY OF CLOTH, WOOL, WORSTED AND WOOL BLENDS

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)

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