

INCH-POUND

A-A-55115
August 31 1993

COMMERCIAL ITEM DESCRIPTION

CLOTH, BROADCLOTH, POLYESTER AND COTTON

The General Services Administration has authorized the use of this Commercial Item Description in preference to MIL-C-43479.

Abstract. This Commercial Item Description covers one type and six classes of polyester and cotton blended cloth. The cloth is intended for use in the manufacture of shirtwaists, shirts and lining material for sleeping bags.

Classification. The cloth shall be in the following types and classes:

Type I - 2.8 to 3.6 oz/yd²

Class 1 - White 3024

Class 2 - Dyed

Class 3 - Dyed and treated with a durable press finish

Class 4 - White 3024 treated with a durable press finish

Class 5 - Dyed and water repellant treated

Class 6 - Dyed, water repellant and downproof treated

Type II - 3.2 to 3.7 oz/yd², end to end construction

Class 3 - Dyed

Description. Unless otherwise specified, the finished cloth shall be a minimum of 60 inches inclusive of selvage when fly shuttle looms or shuttleless with tuck-in selvage looms are used. For all other shuttleless looms the width measurement shall be

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Personnel Support Center, Clothing and Textiles Directorate, Attn: DPSC-FSSD, 2800 South 20th Street, Philadelphia, PA 19101-8419, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8305

DISTRIBUTION STATEMENT A.

Approved for public release;
distribution is unlimited.

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made between the last warp yarn on each side excluding the protruding fringe(s).

Standard sample. The finished cloth shall match the standard sample for shade and appearance and shall, unless otherwise indicated, be equal to or better than the standard sample with respect to all characteristics for which the standard sample is referenced.

Yarns. The yarns shall be a blend of polyester and combed cotton, drawn and spun into single yarns for both warp and filling. The finished cloth shall contain $65 \pm 5\%$ polyester and the remaining percentage cotton, based on the dry weight of the desized specimen.

Color. The color of the finished cloth shall be White 3024 for Type I, Classes 1 and 4. The cloth shall be fully bleached and may be supplemented with fluorescent optical brightener to the blue region. The color of the warp ends of the finished cloth for Type II class 3 shall be Air Force Blue 1550 and shall match the standard sample. The selvaage of the cloth shall be the same color as the base cloth. The color of the cloth for Type I, classes 2, 3, 5 and 6 shall be as specified in the contract and shall match the standard sample. The use of resin bonded pigments is prohibited.

Labile sulfur (classes 2, 3, 5, and 6). The use of dyes and compounds containing elementary sulfur capable of oxidation to sulfuric acid is prohibited. The dyestuff shall be chosen and applied so that the cloth shall contain no more labile sulfur than shown by the standard sample when tested as specified in Table III. When a standard sample is not available, the dyed and finished cloth shall show no more than a slight trace of labile sulfur when tested as specified in Table III.

Matching. The color of the finished cloth shall match the standard sample when viewed under filtered tungsten lamps which approximate artificial daylight having a correlated color temperature of 7500 (± 200) Kelvin, with illumination of 100 (± 20) foot candles and shall be a good match to the standard sample under incandescent lamplight at 2300 (± 200) Kelvin.

Colorfastness. The dyed classes 2, 3, 5, and 6 finished cloth shall show fastness to laundering (after 3 cycles) perspiration and light equal to or better than the standard sample or equal to or better than a rating of "good" when tested as specified in Table III. The dyed and finished class 5 cloth shall show "good"

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fastness to light after 40 standard fading hours even when a standard sample is available. The dyed and finished classes 2, 3, 5 and 6 cloth shall show fastness to crocking equal to or better than the standard sample or shall have an AATCC Chromatic Transference Scale rating not lower than 3.5 when tested as specified in Table III.

Physical requirements. The finished cloth shall conform to the requirements listed in Table I.

Table I Physical requirements

Characteristic	Requirement		Test Method
Yarn (types I&II)	Singles (warp & fill)		Visual
Weave (types I&II)	Plain		Visual
Weight Ounces/yd ²			
Type	Min.	Max.	
I	2.8	3.6	ASTM D 3776 Method C
II	3.2	3.7	(small swatch of fabric method)
Yarns per inch	Minimum		
Type	Warp	filling	
I	132	68	ASTM-D-3775
II	100	64	
Breaking strength Minimum, lbs.			ASTM-D-5034
Type	Warp	Filling	
I	90	35	ASTM-D-5034
II	70	52	

Construction. Type II cloth shall be of an end and end construction with alternating warp ends in blue and white. The blue warp ends shall be solid color and the remaining warp ends and all the picks shall be white.

Finish.

Type I classes 1 and 2; type II class 3. The cloth shall be scoured, singed, stabilized, mercerized and bleached when required to obtain a smooth and lustrous finish equal in character to that of the standard sample and to meet the requirements of this document. The finish shall be of a cellulose reactive type.

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Type I, classes 3 and 4. The cloth shall be given an approved durable press treatment.

Type I, classes 5 and 6 (water repellency). The cloth shall be given an approved quarpel type water repellent treatment and shall conform to the water repellency requirements of Table II when tested as specified.

Table II Water repellency requirements (type I, classes 5 and 6)

<u>Characteristic</u>	<u>Class 5</u>	<u>Class 6</u>
Hydrostatic, cm (min)		
Initial	15	20
After laundering	10	20
Dynamic absorption, % (max)		
Initial	25	15
After laundering	35	20
Spray rating (min)		
Initial	90,90,80	90,90,80
After laundering	80,80,80	80,80,80

Organic liquid resistance (type I, classes 5 and 6) The water repellent treated cloth shall show no wetting by n-decane after 30 seconds when tested as specified.

Downproofness (type I, class 6). The cloth shall be given an approved durable downproof treatment in order that the fabric provides satisfactory feather and down retention before and after laundering when tested as specified.

Nonfibrous material

Type I, classes 1 and 2; type II, class 3 The nonfibrous material of the finished cloth shall not exceed 5.0 percent starch and protein content, including chloroform-soluble and water-soluble material when tested as specified.

Type I, classes 3,4,5 and 6. The cloth shall be tested prior to the application of an approved durable press treatment for classes 3 and 4 and prior to the application of an approved water repellent treatment for classes 5 and 6 and the nonfibrous material shall not exceed 2.0 percent starch and protein content including chloroform soluble and water soluble material when tested as specified in Table III.

Appearance rating (type I, classes 3 and 4). The cloth shall be processed so that the white or the dyed, finished and cured cloth shall have an appearance rating of not less than 3.3 when tested after 5 launderings as specified in Table III.

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Dimensional stability. Except for type I, class 6, the finished cloth or cured cloth shall not shrink or elongate more than 2.0% in either the warp or filling direction when tested as specified in Table III. Type I, class 6 finished cloth shall not shrink or elongate more than 2.5% in the warp and 2.0% in the filling directions when tested as specified in Table III. The preshrinking process used shall not be identified by name or trademark on the cloth, ticket or package.

pH. The pH value of the water extract of the finished or cured cloth shall be no less than 5.0 nor more than 8.5 when tested as specified in Table III.

Seam efficiency. The finished or cured cloth shall have a seam efficiency of not less than 90% when tested as specified in Table III.

Width. The width of the cloth shall be as specified in the procurement document and shall be the minimum acceptable width inclusive of selvage when fly shuttle looms or shuttleless with tuck-in selvage looms are used. For all other shuttleless looms the width measurement shall be made between the last warp yarn on each side excluding the protruding fringe(s).

Length and put up. Unless otherwise specified the cloth shall be furnished in continuous lengths of not less than 40 yards. The cloth shall be put up in rolls weighing approximately 125 pounds.

Quality Assurance.

Certification. The contractor shall certify that the product offered meets the salient characteristics of this description and that the product conforms to the producer's own drawings, specifications, standards and quality assurance practices. The government reserves the right to require proof of such conformance prior to the first delivery and thereafter as may be otherwise provided for, under the provisions of the contract. Reliance on contractor QA systems shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the government for acceptance comply with all requirements of the contract.

End item tests. The cloth shall be tested for characteristics listed in Table III. The physical and chemical values specified apply to the average results of the determinations made on a sample unit for test purposes as specified in the applicable test methods. All test reports shall contain the individual values utilized in expressing the final results. The sample unit shall be 4 continuous yards full width of the finished cloth. For Type I, classes 3, 5 and 6 a 1/4 yard length full width of the dyed untreated cloth shall be submitted for nonfibrous materials testing. The lot shall be unacceptable if one or more sample units fails to meet any test requirement. The sample size shall be in accordance with the following:

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<u>Lot size-yards</u>	<u>Sample size</u>
800 or less	1
801 up to and including 22,000	2
22,001 and over	3

Table III End item tests

<u>Characteristic</u>	<u>Requirement</u>	<u>Test Method</u>
Polyester identification		AATCC 20 <u>1/</u>
Cotton identification		1200 <u>1/</u>
Cotton, combed		<u>1/</u>
Fiber content		2535 <u>1/</u>
Yarn		Visual <u>1/</u>
Discoloration (classes 1 & 4)		5660 <u>2/</u>
Resin bonded pigments (type I, classes 2, 3, 5 & 6)		<u>1/</u>
Labile sulfur (classes 2,3,5 & 6)		2020 <u>1/</u>
Colorfastness to:		
(classes 2,3,5 & 6)		
Laundering (after 3 cycles)		5610 <u>3/</u>
Perspiration		5680
Crocking		AATCC-8
Light		5660 <u>4/</u>
Weight		ASTM-D-3776
Weave		Visual <u>5/</u>
Cellulose reactive finish		<u>1/</u>
Mercerization		<u>1/</u>
Approved durable press treatment (type I, classes 3 & 4)		<u>1/</u>
Hydrostatic pressure (classes 5 and 6)		
Initial		5514
After laundering		5518, 5514
Dynamic absorption (classes 5 and 6)		
Initial		5500
After laundering		5518, 5500
Spray rating (classes 5 and 6)		
Initial		5526
After laundering		5518, 5526
Organic liquid resistance (classes 5 and 6)		AATCC-118
Downproofness (class 6)		5530 <u>6/</u>
Nonfibrous material		2611
Appearance rating (type I, classes 3 and 4)		AATCC-124 <u>7/</u>
Dimensional stability (percent)		
(all except type I classes 3 & 4)		5552
Dimensional stability (type I, classes 3 and 4)		<u>7/</u>
pH		2811
Seam efficiency		5110 <u>8/</u>

1/ Unless otherwise specified, a certificate of compliance shall be submitted and will be acceptable for the stated requirement.

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2/ Method 5660 shall be used except that exposure of the specimen and standard sample shall be for 20 standard fading hours. Any specimen showing discoloration less than or equal to that of the standard sample shall be rated "pass". Any specimen showing discoloration greater than that of the standard sample shall be rated "fail". One determination shall be made for each sample unit and the result reported as "pass" or "fail".

3/ The specimens shall be dried after each of the three laundering cycles.

4/ Except that for classes 5 and 6, the exposure time shall be 40 standard fading hours.

5/ One determination shall be made for each sample unit and the result reported as "pass" or "fail".

6/ Except as an alternate, tumbling apparatus shall be an empty tumbler dryer with no heat applied when operated. When a tumble dryer is used, sixteen #9 solid rubber stoppers weighing approximately 1.5 lbs. shall be used in place of the specified #7 stoppers.

7/ Refer to "Appearance and dimensional stability after laundering testing".

8/ The needle shall measure 0.040 ± 0.001 inch across the blade at the eye. The thread for all classes shall be polyester or cotton covered in accordance with A-A-50199, Ticket No. 50 for the needle and ticket no.70 for the looper.

Methods of inspection.

Appearance and dimensional stability after laundering testing.

Apparatus and materials. Apparatus and materials shall be as specified in AATCC Technical Manual, Method 124.

Preparation of specimens. Three specimens 22 by 22 inches measured parallel to the warp and filling shall be cut from a portion of the cloth sample. One specimen shall be cut from each side of the sample unit to within 3 inches of the selvages and the third specimen shall be taken from the center. No two specimens shall contain the same filling yarns. The specimens shall be conditioned to equilibrium under standard conditions in accordance with FED-STD-191. The conditioned specimens shall be laid without tension on a flat surface, care being taken that the cloth is free from wrinkles or creases. Three distances, each a minimum of 18 inches, shall be measured and marked off parallel to each of the warp and filling directions of the specimen. Each pair of markings shall be a minimum of 6 inches from each other and not closer than 1 inch to the edges of the specimen. The distance may be marked with indelible ink and a fine pointed pen, or by sewing fine threads into the cloth, or by stamping. The samples shall then be laundered in accordance with the following instructions:

Laundering. Place the three 22 by 22 inch specimens into the washer. The washing load shall be $4 \pm 1/4$ pounds. Dummy pieces

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shall be added to the machine along with the specimens to make up the $4 \pm 1/4$ pound load. Fill to the full water level of the washer with water of a hardness not to exceed 50 parts per million and at a temperature of $120^{\circ} \pm 5^{\circ}\text{F}$ and the rinse temperature shall be $80^{\circ} \pm 5^{\circ}\text{F}$. Add 140 ± 1 grams of detergent. Set the washer for a 12 minute cycle on the "permanent press" setting. Allow the washing to proceed automatically through the final spin cycle. Remove the specimens immediately at the completion of the final spin and separate from the dummy pieces and each other if tangled. Place the complete washed load (4 pounds) in the dryer and dry at a permanent press setting with a 10-minute cool down cycle. Operate the dryer until the load is dry and continue tumbling 5 minutes with the heat turned off (cool down cycle). Remove the load immediately after the machine stops. Repeat the wash and dry cycles for five complete cycles. Remove all specimens and condition to equilibrium under Standard Conditions in accordance with FED-STD-191.

Appearance evaluation. Three trained observers shall evaluate each sample unit for appearance characteristics. The observers shall make their evaluations independent of each other. Each observer shall evaluate each specimen for appearance as it hangs on the viewing board while standing in front of the viewing board and 4 feet back from it. The overhead lighting shall be used. Mount each 22 by 22 inch specimen on the viewing board with the center of the specimen 5 feet from the floor. Place 3 dimensional plastic replicas on each side of the specimen with the centers 5 feet from the floor, to facilitate comparative rating. The specimen shall be rated according to the appearance on the plastic replica that most nearly matches the appearance of the cloth. No estimated rating falling between the approved replicas shall be given. The average of the rating values assigned for appearance of the cloth by the observers rounded off to the nearest 0.1 rating shall be the rating for the specimen. Each rating value given by the observers for the appearance of the cloth shall also be reported.

Dimensional stability. After evaluation for appearance is made, the three 22 by 22 inch specimens shall be laid out without tension on a flat surface in the standard atmosphere. Care shall be taken that the specimens are free from wrinkles and creases. The previously measured distance marked on the specimens shall be measured in both the warp and filling directions. The dimensional stability of the specimens shall be calculated as follows:

$$\text{Dimensional change, percent} = \frac{A-B}{A} \times 100$$

Where A - Average of initial measurements (3 specimens)
B - Average measurements after laundering (3 specimens)

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The dimensional change of the sample unit in the warp and filling directions shall be the average of the specimens tested in each direction respectively and shall be reported separately

to the nearest 0.1 percent. The individual values used to calculate the average shall also be reported.

Fiber identification. Each roll of cloth shall be labeled or ticketed for fiber content in accordance with the Rules and Regulations under the Textile Fiber Products Identification Act.

Marking. The face side of the cloth shall be identified by applying a stamping on that side of the cloth with the word "FACE" at each end of the piece.

Yard- by- yard examination. Each roll in the sample shall be examined on the face side only. When the total yardage in the roll does not exceed 100 yards the entire yardage in the roll shall be examined. When the total yardage in the roll exceeds 100 yards, only 100 yards shall be examined. All defects as defined in section I of FED-STD-4, which are clearly noticeable at normal inspection distance (3 feet), shall be scored and assigned demerit points as listed below except that only those slubs and knots which exceed the limits shown on the Sears Fabric Defect Scale, E for slubs and B for knots shall be scored. No linear yard (increments of 1 yard on the measuring device of the inspection machine) from any one roll within the sample shall be penalized more than four points. The sample size shall be 20 rolls selected from 20 containers. The lot shall be unacceptable if the points per 100 yds² of the total yardage examined exceeds the following point values:

21.0 points for type I
16.5 points for type II

The lot shall be unacceptable if the points per 100 yds² of two or more individual rolls exceeds the following point values:

32.0 points for type I
26.0 points for type II

If no individual roll exceeds the point level, the lot shall be acceptable with respect to this characteristic. If one roll exceeds the point level, a second sample of 20 rolls shall be examined only for individual roll quality. The lot shall be unacceptable if one or more rolls in the second sample exceeds the point level. Point computation for lot quality and individual roll quality shall be as follows:

Total points scored in sample X3600 = Points/100 yds²
Contracted width of cloth (inches)
X Total yards inspected

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Demerit points. Demerit points shall be assigned as follows:

- For defects up to and including 3 inches 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

NOTE: The following defects, when present, shall be scored four points for each yard in which they occur:

- Baggy, ridgy or wavy cloth
- Width less than minimum specified
- Poor dye penetration, mottled, streaky or cloudy
- Excessive neppiness

Shade and appearance examination. During the yard-by-yard examination, each roll in the lot shall be examined for shade and appearance. Any roll in the sample off shade; shaded side to side, side to center or end to end; or not having the same appearance as the standard sample shall be cause for rejection of the entire lot represented by the sample.

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

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

- Contains identification of a preshrinkage process by name or trademark on cloth or ticket.
- Face stamping missing from either or both ends.
- Not labeled or ticketed in accordance with the Rules and Regulations under the Textile Fiber Products Identification Act.

Preservation, Packing and Marking. The preservation, packing and marking shall be as specified in the contract or order.

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Sources of Government Documents. Copies of Military and Federal documents are available from:

Standardization Documents Order Desk
Bldg. 4D
700 Robbins Avenue
Philadelphia, PA 19111-5094

Rules And Regulations Under The Textile Fiber Products
Identification Act

(Copies may be obtained without charge from the Federal
Trade Commission, Washington, DC 20850.)

Sources of Non-government Documents.

TECHNICAL MANUAL OF THE AMERICAN ASSOCIATION OF TEXTILE CHEMISTS
AND COLORISTS (AATCC)

Method No. 8 - Crocking
Method No. 118 - Oil Repellency: Hydrocarbon Resistance Test
Method No. 124 - Appearance of Durable Press Fabric after
Repeated Home Launderings

(Applications for copies should be addressed to AATCC, P.O. Box
12215, Research Triangle Park, N.C. 27709)

Chromatic Transference Scale

AATCC Chromatic Transference Scales are available from AATCC,
P.O. Box 12215, Research Triangle Park, N.C. 27709.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

Method No. 3775 - Fabric Count of Woven Fabric
Method No. 3776 - Mass Per Unit Area (Weight) of Woven
Fabric
Method No. 5034 - Breaking Force And Elongation of Textile
Fabrics (Grab Test)

(Applications for copies should be addressed to American
Society For Testing and Materials, 1916 Race Street,
Philadelphia, PA 19103.)

Sears Fabric Defect Scales are available from Sears, Roebuck and
Company, Department 817 (Attn: BSC 23-29), "Sears Defect Replica
Kit", Sears Tower, Chicago, IL 60684.

Approval of durable press resin, water repellant, and downproof
finishes.

Approval of the durable press resin and water repellant and
downproof finishes is the responsibility of the U.S. Army Natick

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Research, Development and Engineering Center, Natick, MA 01760-5014. Only those treatments approved and so listed in the invitation for bids or request for proposals shall be considered acceptable for the related procurement.

Custodian:

Army - GL
Navy - NU

Civil Agency Coordinating

Activity:
GSA - FSS

User Activity:

Navy - MC

Preparing Activity:

DLA - CT

Project No. 8305-0496

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.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

1. RECOMMEND A CHANGE:		1. DOCUMENT NUMBER A-A-55115	2. DOCUMENT DATE (YYMMDD) Aug 31 1993
3. DOCUMENT TITLE Cloth, Broadcloth, Polyester And Cotton			
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)
8. PREPARING ACTIVITY			
NAME Defense Personnel Support Center ATTN: DPSC-FSSD (12-3-D)		b. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON	
c. ADDRESS (Include Zip Code) 2800 South 20th Street P. O. Box 8419 Philadelphia, Pennsylvania 19101-8419		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	