

CCC-C-436E  
February 14, 1986  
SUPERSEDING  
CCC-C-436D  
October 6, 1971

FEDERAL SPECIFICATION

CLOTH, TICKING TWILL, COTTON

This specification is approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the requirements for cotton ticking twill cloth.

1.2 Classification.

1.2.1 Types and classes. The cotton ticking twill cloth shall be of the following types and classes as specified (see 6.2).

Type I - 9 ounces per square yard (8.5 oz. min )

Class 1 - Untreated

Type II - 7 ounces per square yard (see 6 5 oz min )

Class 1 - Untreated

Class 2 - Treated

Style a - Alternating unbleached or bleached white and blue stripe fabric

Style b - Unbleached or bleached white fabric

2. APPLICABLE DOCUMENTS

2.1 Government publications. The following documents, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein

AMSC N/A

FSC 8305

DISTRIBUTION STATEMENT A Approved for public release, distribution is unlimited.

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Federal Specification:

PPP-P-1134 - Packaging of Cotton and Cotton-Synthetic Fiber Blend  
Fabrics (Excluding Duck Fabrics)

Federal Standards

FED-STD-4 - Glossary of Fabric Imperfections  
FED-STD-191 - Textile Test Methods

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(Federal Government activities may obtain copies of Federal Standardization documents and the Index of Federal Specifications, Standards, and Commercial Item Descriptions from established distribution points in their agencies.)

Federal Regulations:

Rules and Regulations Under the Textile Fiber Products Identification Act

(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. When indicated, reprints of certain regulations may be obtained for the Federal agency responsible for issuance thereof.

3 REQUIREMENTS

3.1 Standard sample. When a standard sample is established, the finished cloth shall match the standard sample for shade and shall be equal to or better than the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.3).

### 3.2 Material (see 6.5).

3.2.1 Yarn. The yarn shall be singles and shall be made from cotton which has been carded, drawn, and spun into singles yarn.

### 3.3 Color.

3.3.1 Style a. The color design of the cloth shall be alternating bleached or unbleached white, and blue "dyed" warp stripes which may be either solid or broken by bleached or unbleached white warp ends. The white stripe shall be about 1/4 inch wide and the blue stripe shall be about 3/16 inch wide.

3.3.1.1 Style b. The color shall be bleached or unbleached white cloth.

3.3.2 Matching, style a. The color of the blue stripe shall match the color of the blue stripe on the approved standard sample for shade when viewed under filtered tungsten lamps which approximate artificial daylight having a correlated color temperature of  $7000 \pm 500$  K, with illumination of  $100 \pm 20$  foot candles, and shall be a good match to the standard sample under incandescent lamplight at  $2300 \pm 100$  K.

3.3.3 Colorfastness, style a. The finished cloth shall show colorfastness to water equal to or better than the standard sample. When no standard sample is established or referenced for colorfastness, the finished cloth shall show "good" colorfastness to water, when tested as specified in 4.2.3.

3.3.4 Labile sulfur, style a. The use of dyes and compounds containing elementary sulfur capable of oxidation to sulfuric acid is prohibited. The dyes shall be chosen and applied so that the dyed and finished cloth shall contain no more labile sulfur than shown by the standard sample when tested as specified in 4.2.3. When no standard sample is available, the finished cloth shall show no more than a slight trace of labile sulfur when tested as specified in 4.2.3.

3.4 Shrinkage. Type II, class 2 cloth shall be preshrunk and the residual shrinkage shall not exceed 2.0 percent in either the warp or filling direction when tested as specified in 4.2.3. The preshrinking process used shall not be identified by name or trademark, either on the cloth, on the ticket or on the package.

3.5 Treatment. Type II, class 2 cloth shall be given an approved flame-resistant treatment (see 6.4). The finished cloth shall have an average time of flaming of not more than 2.0 seconds and an average length of char of not more than 5.0 inches, both initially and following 15 launderings, when tested as specified in 4.2.3. The finished cloth shall be thoroughly plant-washed to remove any residues from the curing process. The water-soluble material of the finished cloth shall not exceed 4.5 percent when tested as specified in 4.2.3.

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3.5.1 Nonfibrous material. Type II, class 2 cloth, prior to flame-resistant treatment, shall show no more than 2.0 percent starch and protein content including chloroform-soluble and water-soluble material when tested as specified in 4.2.3.

3.5.2 pH. The water extract of the type I and type II, class 1, finished cloth shall have a pH value of no less than 5.5 nor more than 8.5 and the water extract of type II, class 2, finished cloth, shall have a pH value of no less than 5.0 nor more than 8.5 when tested as specified in 4.2.3.

3.6 Physical requirements. The finished cloth shall conform to the requirements specified in table I, when tested as specified in 4.2.3.

TABLE I. Physical requirements

Type	Yarns per inch (minimum)		Weight oz./sq. yd. minimum	Breaking strength (pounds) (min.)		Weave
	Warp	Filling		Warp	Filling	
Type I, class 1	78	62	8.5	135	90	$\frac{3}{1}$ Twill
Type II:						
Class 1	70	44	6.5	110	60	$\frac{2}{1}$ Twill
Class 2	<u>1/</u>	<u>2/</u>	<u>3/</u>	<u>4/</u>	<u>4/</u>	

- 1/ The lot average value for warp texture of the aftertreated cloth shall be not less than the lot average found in the untreated type II, class 1 cloth.
- 2/ The lot average value for filling texture of the aftertreated cloth shall be not less than 90 percent of the lot average found in the untreated type II, class 1 cloth.
- 3/ The lot average value for weight of the finished treated cloth shall not exceed 130 percent of the lot average weight of the untreated type II, class 1 cloth.
- 4/ The lot average value for the breaking strength of the finished treated cloth shall be not less than 85 percent of the average breaking strength of the untreated type II, class 1 cloth.

3.7 Width. The width of the cloth shall be as specified (see 6.2), and shall be the minimum acceptable width inclusive of the selvage when fly shuttle looms or shuttleless with tuck-in selvage looms are used. For all other

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shuttleless looms the width measurement shall be made between the last warp yarn on each side excluding the protruding fringes(s).

3.8 Length and put-up. Unless otherwise specified (see 6.2), the cloth shall be furnished in continuous lengths, each not less than 40 yards. The cloth shall be put-up in a roll as specified in 5.1.

3.9 Fiber identification. Each piece shall be labeled, or ticketed for fiber content in accordance with the Rules and Regulations Under the Textile Fiber Products Identification Act.

3.10 Workmanship. The finished cloth shall conform to the quality established by this specification. The points per 100 square yards shall not exceed the established point value.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Certificate of compliance. Where certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

#### 4.2 Quality conformance.

4.2.1 Component and material inspection. In accordance with 4.1, components and materials shall be tested in accordance with all the requirements of referenced specifications, drawings, and standards unless otherwise excluded, amended, modified or qualified in this specification or applicable purchase documents.

#### 4.2.2 End item examination.

4.2.2.1 Yard-by-yard examination. The entire yardage of each roll in the sample but not more than 100 linear yards per roll, shall be examined on the face side. 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 4.2.2.1.1 except that only those slubs and knots which exceed the limits shown in figure 1 of FED-STD-4 shall be scored. No linear yard shall be penalized more than 4 points. The sample size shall be 20 rolls

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selected from 20 containers. The lot shall be unacceptable if the points per 100 square yards of the total yardage examined exceeds 35.0 points. The lot shall be unacceptable if the points per 100 square yards of two or more individual rolls exceeds 53.0 points. If no individual roll exceeds 53.0 points per 100 square yards, the lot shall be acceptable with respect to this characteristic. If one roll exceeds 53.0 points per 100 square yards, a second sample of 20 rolls shall be examined only for individual roll quality examination. The lot shall be unacceptable if one or more rolls in the second sample exceeds 53.0 points per 100 square yards. Point computation for lot quality and individual piece quality shall be as follows:

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

4.2.2.1.1 Demerit points. Demerit points shall be assigned 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 following defects when present, shall be scored four points for each yard in which they occur:

- Hole, cut, -or tear
- Baggy, ridgy, or wavy cloth
- Width less than specified
- Excessive neppiness as compared to the standard sample
- Colored strips not within established shade tolerances (style a)
- Objectionable odor, discoloration, moist to touch

4.2.2.2 Length examination.

4.2.2.2.1 Individual rolls. During the yard-by-yard examination, each roll in the sample shall be examined for length. Any length found to be less than the minimum specified or more than two yards less than the length marked on the ticket shall be considered as a defect with respect to length. The lot shall be unacceptable if two or more rolls in the sample are defective in respect to length.

4.2.2.2.2 Examination for total yardage. The lot shall be unacceptable if the total of the actual lengths of the rolls in the sample (see 4.2.2.2.1) is less than the total of the lengths marked on the roll tickets.

4.2.2.3 Roll identification 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.

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Preshrinkage process identified by name or trademark on cloth or ticket.

Not labeled or ticketed in accordance with the Rules and Regulations under the Textile Fiber Products Identification Act.

4.2.3 End item testing. The cloth shall be tested for the characteristics list in table II. The methods of testing specified in FED-STD-191 whenever applicable and as listed in table II shall be followed. The physical and chemical values specified in Section 3, except for type II, class 2 cloth where lot average applies to yarns per inch, weight, and breaking strength, apply to the results of the determinations made on the sample unit for test purposes as specified in the applicable test method. The sample unit shall be 1-1/2 continuous yards for types I and II, class I cloth, and 3 continuous yards for the finished type II, class 2 cloth. Also, for the type II, class 2 cloth, the sample unit shall include 1-1/2 continuous yards of cloth before it is desized for treating and 1/2 yard of cloth after it is desized for treating. The sample size (number of sample units) shall be as shown below. The lot size shall be expressed in units of one yard. The lot shall be unacceptable if one or more sample units fail to meet any test requirement specified. All test reports shall contain the individual values utilized in expressing the final results.

<u>Lot size (yards)</u>	<u>Sample size (sample units)</u>
800 or less	2
801 up to and including 22,000	3
22,001 and over	5

TABLE II. End item tests

<u>Characteristic</u>	<u>Requirement paragraph</u>	<u>Test method</u>
Cotton identification	3.2.1	1200 <u>1/</u>
Colorfastness to water, style a	3.3.3	5630 <u>2/</u>
Presence of Liabile Sulfur, style a	3.3.4	2020
Shrinkage (type II, class 2 only)	3.4	5550
Flame resistance (type II, class 2 only)		
Time of flaming		
Length of char		
Initial	3.5	5903
After 15 launderings	3.5	4.3.1 and 5903
Water-soluble material (type II, class 2 only)	3.5	2611 <u>3/</u>

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TABLE II. End item tests (cont'd)

Characteristic	Requirement paragraph	Test method
Nonfibrous material before treatment (type II, class 2 only)	3.5.1	2611
pH	3.5.2	2811
Weave	3.6	Visual <u>4/</u>
Yarns per inch	3.6	5050 <u>5/</u>
Weight oz./sq. yd.	3.6	5041 <u>5/</u>
Breaking strength	3.6	5100 <u>5/</u>

- 1/ Unless otherwise specified a certificate of compliance shall be submitted and will be acceptable for the stated requirements.
- 2/ The six fiber filling bars of the transfer cloth shall be placed perpendicular to the blue dyed warp stripes.
- 3/ The testing shall be performed in accordance with the water-soluble material paragraph of test method 2611. The chloroform-soluble material paragraph shall be omitted.
- 4/ One determination per individual sample unit and the result shall be reported as "pass" or "fail".
- 5/ The lot average result of all untreated sample units shall be compared to the lot average results of all treated sample units in determining conformity to requirements for type II, class 2 cloth.

4.2.4 Packaging inspection. The inspection shall be in accordance with the quality assurance provisions of PPP-P-1134.

#### 4 3 Methods of inspection.

4.3.1 Durability of treatment to laundering test. The launderings shall be performed in accordance with Method 5556 (cotton laundering procedure). The specimens for the flame resistance tests shall be conditioned for a minimum of 16 hours at standard atmospheric conditions for textiles prior to testing.

### 5. PACKAGING

5 1 Put-up and preservation. Put-up and preservation shall be level A or Commercial as specified (see 6.2).

5 1 1 Levels A and Commercial. The cloth shall be put-up and preserved in accordance with the applicable requirements of PPP-P-1134.



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5.2 Packing. Packing shall be level A, B or Commercial as specified (see 6.2).

5.2.1 Levels A, B and Commercial. The cloth shall be packed in accordance with the applicable requirements of PPP-P-1134.

5.3 Marking. In addition to any special marking required by the contract or purchase order, shipments shall be marked in accordance with the applicable requirements of PPP-P-1134.

## 6. NOTES

6.1 Intended use. The cloth is intended for use in the manufacture of mattress and pillow covers. Type I is used for pillows and types I and II are used for mattresses.

6.2 Ordering data. Purchase should select the preferred options permitted herein, and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Type, class, and style of cloth required (see 1.2.1).
- (c) Width of cloth required (see 3.7).
- (d) If other than 40-yard minimum lengths of put-up, preservation and packing (see 5.1 and 5.2).

6.3 Standard. For access to standard sample, address the procuring office issuing the invitation for bids.

6.4 Flame resistant treatment approval. Approval of flame resistant treatments for utilization under this specification is the responsibility for the U.S. Army Natick Research, Development, and Engineering Center, Natick, Massachusetts, 01760-5014 and is based on extensive tests, including those for toxicity which are not set forth in this specification. Because of the time necessary to conduct full evaluation (approximately 6 months), only those treatments approved and so listed in the invitation for bids or request for proposal, shall be considered acceptable for the related procurement (see 3.5).

6.5 Recycled material. It is encouraged that recycled material be used when actual as long as it meets the requirements of the specification.

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MILITARY INTERESTS:

Custodians

Army - GL  
Navy - NU  
Air Force - 99

Review activities

Army - MD  
Air Force - 82  
DLA - CT

User activities

Navy - MC  
DLA - DM

CIVIL AGENCY COORDINATING ACTIVITIES:

GSA - FSS  
HHS  
JUS - FPI  
VA - OSS

PREPARING ACTIVITY:

Army - GL

Project No. 8305-0055

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# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

*(See Instructions - Reverse Side)*

1 DOCUMENT NUMBER DCC-C-436E	2 DOCUMENT TITLE CLOTH, LICKING TWILL, COTTON
3a. NAME OF SUBMITTING ORGANIZATION	4 TYPE OF ORGANIZATION (Mark one) <input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER (Specify) _____
b ADDRESS (Street, City, State, ZIP Code)	
5 PROBLEM AREAS	
a. Paragraph Number and Wording	
b. Recommended Wording	
c. Reason/Rationale for Recommendation	
6 REMARKS	
7a. NAME OF SUBMITTER (Last, First, MI) - Optional	b. WORK TELEPHONE NUMBER (Include Area Code) - Optional
c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional	8. DATE OF SUBMISSION (YYMMDD)

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