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SUPERSEDING
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MILITARY SPECIFICATION

CLOTH, TWILL, ACETATE

This specification is approved for use by the Navy Clothing and Textile Research Facility, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for one type of acetate twill cloth.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. Unless otherwise specified, the following specifications, standards, and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified.

SPECIFICATIONS

FEDERAL

PPP-P-1133 - Packaging and Packing of Synthetic Fiber Fabrics

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Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Officer in Charge, Navy Clothing and Textile Research Facility, 21 Strathmore Road, Natick, MA 01760 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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STANDARDS

FEDERAL

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

MILITARY

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

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein.

LAWS AND REGULATIONS

Rules and Regulations under the Textile Fiber Products Identification Act.

(Copies may be obtained without charge from the Federal Trade Commission, Washington, DC 20580.)

2.2 Other publications. The following document(s) form a part of this specification to the extent specified herein. The issues of documents which are indicated and DOD adopted shall be the issue listed in the current DoDISS and supplement thereto, if applicable.

Technical Manual of the American Association
of Textile Chemists and Colorists, Volume 57, 1981/1982

(Application for copies shall be addressed to the American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709).

3. REQUIREMENTS

3.1 Guide sample. Samples, when furnished, are solely for guidance and information to the contractor (see 6.3). Variations from this specification may appear in the sample in which case this specification shall govern.

3.2 First article. When specified, the contractor shall furnish sample unit(s) for first article inspection and approval (see 4.3 and 6.2).

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3.3 Material.

* 3.3.1 Yarn. The yarn for the warp and filling shall be a continuous multifilament, solution dyed bright acetate. The size of the warp yarn shall be 75 denier and the size of the filling yarn shall be 100 denier when tested as specified in 4.5.

* 3.3.2 Cloth. The finished cloth shall conform to the physical requirements specified in Table I when tested as specified in 4.5.

Table I - Physical Requirements

Characteristic	
Weight, oz/sq yd (g/m2)	2.0 min. (67.8)
Yarns per inch (2.5cm)	
Warp	130 min.
Filling	75 min.

* 3.3.2.1 Weave. The weave for the cloth shall be a 2 up 2 down right hand twill when tested as specified in 4.5.

3.3.2.2 Width. The width of the cloth shall be as specified (see 6.2) and shall be the minimum width inclusive of selvage.

3.4 Color. The color of the cloth shall be Black 3218 and shall match the standard sample (see 6.3).

3.4.1 Matching. The color of the finished dyed cloth shall match the standard sample under artificial daylight, having a color temperature of 7000 (± 500) Kelvin and shall be a good approximation to the standard sample under incandescent lamplight at 2850 (±100) Kelvin.

* 3.4.2 Colorfastness. The finished cloth shall show fastness to laundering, wet-dry cleaning (two methods), dry cleaning, crocking, perspiration and light (80 SFH) equal to or better than the standard sample. When no standard sample is available, the finished cloth shall show a minimum of "good" fastness to laundering, wet-dry cleaning (two methods),dry cleaning, perspiration and light (80 SFH) and shall show a Munsell Value for crocking not lower than 8.5. Testing shall be performed as specified in 4.5.

* 3.5 Shrinkage. The cloth shall not shrink or elongate more than 3.0 percent in the warp and filling when tested as specified in 4.5.

* 3.6 Non-fibrous material. The starch and protein content including alcohol soluable and water-soluable material of the finished cloth shall not exceed 8.0 percent when tested as specified in 4.5.

3.7 Acidity (pH). The pH value of the water extract of the finished cloth shall be not less than 5.0 nor more than 8.5 when tested as specified in 4.5.

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* 3.8 Finish. The cloth shall have a natural finish. The use of resins, oils, starches, or gums in the finishing of the cloth is prohibited (see 4.4.1).

3.9 Length and put-up. Unless otherwise specified (see 6.2), the cloth shall be in continuous pieces each not less than 50 yards in length and shall be put up in rolls, full width, as specified in PPP-P-1133.

3.10 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.

3.11 Workmanship. The finished cloth shall conform to the quality established by this specification. The demerit points per 100 square yards when calculated as specified in section 4 shall not exceed the established maximum point value.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the contractor may use his own or any other facilities suitable for 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 o determine the validity of the certification.

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

1. First article inspection (see 4.3).
2. Quality conformance inspection (see 4.4).

4.3 First article inspection. When required, the first article of finished cloth shall be visually inspected for color, finish, and appearance and shall be tested for chemical and physical properties in accordance with the applicable methods specified in 4.5.

4.4 Quality conformance inspection. Sampling for inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated.

4.4.1 Component and material inspection. In accordance with 4.1 above, 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 procurement documents. The contractor shall furnish a certificate of compliance for the finish requirements of 3.8.

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4.4.2 Examination of the end item. Examination of the end item shall be in accordance with 4.4.2.1 through 4.4.2.4.

4.4.2.1 Yard-by-yard examination. Each roll in the sample shall be examined on one side only. When the total yardage in the roll does not exceed 100 yards (91.4m), the entire yardage in the roll shall be examined. When the total yardage in the roll exceeds 100 yards (91.4m), only 100 yards (91.4m) shall be examined. All defects as defined in Section III of FED-STD-4, which are clearly noticeable at normal inspection distance (3 feet) (.91m) shall be scored and assigned demerit points as listed in 4.4.2.2, except that only those slubs and knots which exceed the limits shown on Sears Fabric Defect Scale (see 6.4), "C" for slubs and "B" for knots, shall be scored. No linear yard (increments of 1 yard (.91m) on the measuring device of the inspection machine) from any one roll within the sample shall be penalized more than 4 points. The sample size shall be in accordance with the list below. The lot shall be unacceptable if the points per 100 square yards (83.6m2) of the total yardage examined exceeds 25.0 points. The lot shall be unacceptable if the points per 100 square yards (83.6m2) of two or more individual rolls exceed 38.0 points. If one roll exceeds 38.0 points per 100 square yards (83.6m2), a second sample of 20 rolls shall be examined only for individual roll quality examination. The lot shall be unacceptable in one or more rolls in the second sample exceeds 38.0 points per 100 square yards (83.6m2). Point computation for lot quality and individual roll quality shall be as shown below.

Lot size (yards)	Sample size (rolls)
3200 or less	8
3201 to 10,000	13
10,001 and over	20

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

4.4.2.2 Demerit points. Demerit points shall be assigned as follows:

For defects up to and including 3 inches (7.6cm) in any dimension	-one point
For defects exceeding 3 inches (7.6cm) but not exceeding 6 inches (15.2cm) in any dimension	- two points
For defects exceeding 6 inches (15.2cm) but not exceeding 9 inches (22.90cm) in any dimension	- three points
For defects exceeding 9 inches (15.2cm) in any dimension	- four points

The following defects, when present, shall be scored 4 points for each yard in which they occur:

Baggy, ridgy or wavy cloth
Width less than specified
Characteristics of finish, hand, or shade not equal to the standard sample

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4.4.2.3 Examination for length.

4.4.2.3.1 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 (1.8m) less than the length marked on the ticket shall be considered 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.

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

4.4.2.4 Examination for noncompliance with the Textile Fiber Products Identification Act. During the yard-by-yard examination,, each roll [illegible] t[illegible] sample shall be examined for this defect. The lot shall be unacceptable if two or more rolls in the sample are not labeled or ticketed in accordance with the Textile Fiber Products Identification Act.

4.4.3 Examination of preparation for delivery requirements. An examination shall be made in accordance with the provisions of PPP-P-1133 to determine that packaging, packing and marking comply with Section 5 requirements of this specification.

4.5 Testing of the end item. The methods of testing specified in FED-STD-191 wherever applicable, and as listed in Table II shall be followed. The physical and chemical values specified in Section 3, except where otherwise specified, apply to the average of the determinations made on the 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 result. The sample shall be expressed in units of one yard each. The lot shall be unacceptable if one or more units fail to meet any test requirements specified. The sample size shall be in accordance with the following:

Lot size (yards)	Sample size (units)
800 or less	2
801 thru 22,000	3
22,001 and over	5

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*TABLE II - Test methods

Characteristics	Requirement paragraph	Test method
Yarns	3.3.1	1/
Weight	3.3.2	5041
Yarns per inch		
Warp	3.3.2	5050
Filling	3.3.2	5050
Weave	3.3.2.1	Visual 2/
Colorfastness to:		
Laundering	3.4.2	5614
Wet-Dry Cleaning	3.4.2	5622
Wet-Dry Cleaning	3.4.2	5621
Dry Cleaning	3.4.2	5620
Crocking	3.4.2	5651
Perspiration	3.4.2	5680
Light	3.4.2	5660 3/
Nonfibrous materials	3.6	2611 4/
pH	3.7	2811
Shrinkage	3.5	AATCC TM 135-1978 5/

1/ Unless otherwise specified, a certificate of compliance shall be submitted and will be acceptable for the stated requirements.
2/ One determination shall be made from each sample unit and the results shall be reported as "Pass" or "Fail".
3/ The colorfastness to light samples shall be exposed to 60 SFH.
4/ Nonfibrous shall be determined in accordance with the method prescribed except that ethyl alcohol shall be used in lieu of chloroform.
5/ Machine cycle-permanent press, wash temperature II ($120^{\circ} \pm 5^{\circ}$), drying procedure (b). Tumble dry for one complete cycle only.

5. PACKAGING

5.1 Preservation-packaging. Packaging shall be level A or C as specified (see 6.2).

5.1.1 Levels A and C. The cloth, put up as specified, shall be packaged in accordance with the applicable requirements of PPP-P-1133.

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

5.2.1 Levels A, B, and C. The cloth shall be packed in accordance with the applicable requirements of PPP-P-1133.

5.3 Marking. In addition to any special marking required by the contract or order, shipments shall be marked in accordance with the requirements of PPP-P-1133.

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6. NOTES

6.1 Intended use. The cloth covered by this specification is intended for use in the manufacture of neckerchiefs for Navy personnel.

6.2 Ordering data. Procurement documents should specify the following:

a. Title, number and date of this specification.
b. When first article is required (see 3.2). The item will be tested and should be a first article sample. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, quantity, and testing and approval of the first article.
c. Width required (see 3.3.2.2).
d. Length required if other than specified (see 3.9).
e. Levels of packaging and packing required (see 5.1 and 5.2).

6.3 Standard sample. For access to the standard sample (see 3.1), address the procuring activity issuing the invitation for bids.

6.4 Sears Fabric Defect Scales are available from Sears, Roebuck and Company, Department 817, (Attn: BSC-23-29), Chicago, IL 60694.

6.5 Changes from previus issue. The margin of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
MIL-C-87074A(NU)	CLOTH, TWILL, ACETATE

3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION *(Mark one)*
b. ADDRESS *(Street, City, State, ZIP Code)*	☐ VENDOR ☐ USER ☐ MANUFACTURER ☐ OTHER *(Specify)*: _____

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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