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MILITARY SPECIFICATION

CLOTH, KNITTED, NYLON, TRICOT

This specification is approved for use by Naval Supply Systems Command, 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 of one type of nylon tricot cloth.

2. APPLICABLE DOCUMENTS

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

SPECIFICATION

FEDERAL

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

STANDARDS

FEDERAL

FED-STD-191 - Textile Test Methods

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

FSC 8305

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MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-1491 - Glossary of Knitting Imperfections

(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.)

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 documents form a part of this specification to the extent specified herein. Unless a specific issue is identified the issue in effect on date of invitation for bids or request for proposal shall apply.

TECHNICAL MANUAL OF THE AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS

(Application for copies of the AATCC Manual should be addressed to the AATCC National Headquarters, PO Box 12215, Research Triangle Park, NC 27709.)

3. REQUIREMENTS

3.1 Standard sample The heat set finish 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 First article When specified, the contractor shall furnish a sample of cloth for first article inspection and approval (see 4.3 and 6.2).

3.3 Material

3.3.1 Fiber The fiber shall be regular tenacity, dull luster, (front guide bar) and regular tenacity, mid-dull luster (back guide bar) nylon. Testing shall be as specified in 4.5.

3.3.2 Yarn The yarn for the front guide bar shall be round cross section, nominal 30 denier, 10 filaments with built-in anti-static protection. The yarn for the back guide bar shall be tri-lobal cross section, nominal 40 denier, 13 filaments with built-in anti-static protection. Testing shall be as specified in 4.5.

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3.4 Physical requirements The finished cloth shall conform to the physical requirements specified in Table I, when tested as specified in 4.5.

Table I - Physical requirements

Weight, oz/sq yd (Min) (g/m^2)	Wales/in (cm) (Min)	Courses/in (cm) (Min)	Bursting strength lbs (Min) (newtons)
2.7 (91.5)	32 (12.6)	68 (26.8)	125 (556)

3.4.1 Knit The cloth shall be knitted on a single needle bed warp knit machine having 31 needles per inch (12.2per cm) minimum and two guide bars (see 6.4). Testing shall be as specified in 4.5.

3.4.2 Knit pattern The guide bar stitch pattern shall be as follows when tested as specified in 4.5:

Front Bar 1/0, 0/1
Back Bar 1/0, 4/5

3.4.3 Width Unless otherwise specified (see 6.2), the width of the finished cloth shall be a minimum of 50 inches (127.0cm).

3.5 Color The color of the finished cloth shall be white 3006 and shall match the standard sample.

3.5.1 Matching The color of the finished dyed cloth shall match the standard sample under artificial daylight having a color temperature of 7500° Kelvin and shall be a good approximation to the standard sample under incandescent lamplight at 2800° Kelvin.

3.5.2 Discoloration The finished cloth shall show no more discoloration to light, combined laundering and bleaching, perspiration and wet-dry cleaning than that of the standard sample when tested as specified in 4.5.

3.6 Dimensional stability The finished cloth shall not shrink or elongate more than 5.0 percent in the wale direction and 2.5 percent in the course direction when tested as specified in 4.5.

3.7 Non-fibrous materials The non-fibrous content including chloroform-soluble and water-soluble material shall not exceed 4.0 percent when tested as specified in 4.5.

3.8 Finish The cloth shall be scoured, heat set and dyed. The character of the finish shall be equal to that of the standard sample.

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3.9 pH The pH value of the water extract of the finished cloth shall be not lower than 5.0 nor higher than 8.5 when tested as specified in 4.5.

3.10 Face marking The face side of the cloth shall be identified by stamping on that side with the word "FACE" at each end of each piece.

3.11 Length and put up Unless otherwise specified (see 6.2), the cloth shall be in continuous pieces each not less than 40 yard (36.5m) in length and shall be put up in rolls, full width, face inside, as specified in PPP-P-1133.

3.12 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.

3.13 Workmanship The finished cloth shall conform to the quality established by this specification. The occurrence of defects shall not exceed the applicable acceptable quality levels.

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, 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 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).

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4.3 First article When required (see 6.2), 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 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 purchase document.

4.4.2 Examination of the end item Examination of the end item shall be in accordance with 4.4.2.1 through 4.4.2.3.

4.4.2.1 Yard-by-yard examination The required yardage of each roll shall be examined on the face side and visual defects as defined in MIL-STD-1491 shall be classified as listed. All defects found shall be counted regardless of their proximity to each other, except where two or more defects represent a single local condition of the cloth, in which case only the more serious defect shall be counted. A continuous defect shall be counted as one defect for each wale-wise (lengthwise) yard (0.91m) or fraction thereof in which it occurs. The sample unit for this examination shall be one linear yard (0.91m). The acceptable quality levels for this examination shall be 2.5 major defects and 6.5 total defects (major and minor combined) per 100 units (yards) (91.4m). The sample size shall be based upon inspection level II of MIL-STD-105. The lot size shall be expressed in units of one yard (0.91m). The number of rolls from which the sample is to be selected shall be in accordance with Table II. An approximately equal number of yards (meters) shall be examined from each roll in the sample.

Defect	Classification Major	Minor
Any hole, cut, tear, run	X	
Dropped stitch, end out	X	
Tuck stitch, pulled stitch or needle streak		X
Mend (any)	X	
Coarse or fine yarn 1/	X	
Foreign matter 1/		X
Knot oversize, extending above the surface of cloth	X	
Kink or untrimmed end		X
Crease or wrinkle, embedded		X
Stretch (stitch tension) knitting tension too tight or too loose	X	

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Defect	Classification Major	Minor
Shade bar 1/		X
Spot or stain	X	
Barre' marks, broken yarns or dye stains 1/	X	

1/ Clearly visible at normal inspection distance (approximately 3 feet (0.91m).

4.4.2.2 Overall examination Each defect shall be counted no more than once in each roll examined. The sample unit shall be one roll. The sample size (number of rolls selected as sample) and the number of defects acceptable shall be as shown in Table II.

Defects

Face side of cloth not on inside
Width less than specified
Overall uncleanness
Uneven knitting throughout the piece
Off shade, shaded end to end, side to side, side to center, or throughout the roll
Poor dye penetration, mottled, streaky or cloudy
Cut edge is not parallel to wales in finished cloth
Not labeled in accordance with the Textile Fiber Products Identification Act
Face marking missing from either or both ends of the roll
Face marking on wrong side
Hand and finish not equal to standard

Table II - Sample sizes

Lot size (yards) (0.91m)	Sample size (rolls)	Acceptance number
Up to 1200 1/	3	0
1201 up to and including 3200	5	0
3201 up to and including 10,000	8	0
10,001 up to and including 35,000	13	0
35,001 up to and including 150,000	20	1
150,001 and over	32	2

1/ If a lot contains fewer than three rolls, each roll in the lot shall be examined.

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4.4.2.3 Length examination

4.4.2.3.1 Individual rolls The rolls shall be examined for gross length. Any gross length found to be less than the minimum specified or more than 2 yards (1.8m) less than the gross length marked on the ticket shall be considered a defect with respect to length. The sample unit shall be one roll. The sample size (number of rolls selected as sample) and the acceptance number shall be as shown in Table II.

4.4.2.3.2 Total yardage in sample The lot shall be unacceptable if the total of the actual gross length of rolls in the sample is less than the total of the gross lengths marked on the roll tickets. The rolls examined shall be those selected for the examination of individual rolls.

4.4.3 Examination of packaging requirements An examination shall be made in accordance with the provisions of PPP-P-1133 to determine that packaging, packing and marking comply with the 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 IV shall be followed. The physical and chemical values specified in Section 3 apply to the average of the determinations made on a sample unit for test purposes as specified in the applicable test methods. The sample unit shall be 2 1/2 yards (2.3m) full width of the finished cloth. The sample size shall be as listed in Table III. The lot size shall be expressed in units of 1 yard (0.91m). The lot shall be unacceptable if one or more sample units fail to meet any requirement specified. All test reports shall contain the individual values utilized in expressing the final results.

Table III - Sample size

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

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Table IV - Test methods

Characteristic	Requirement paragraph	Test method
Material identification	3.3.1	1/
Yarn denier and filament	3.3.2	1/
Weight	3.4	5041
Strength (Bursting) lbs (N)	3.4	5120
Wales per inch (cm)	3.4	5070
Courses per inch (cm)	3.4	5070
Type of knit	3.4.1	1/
Knit pattern	3.4.2	1/
Width	3.4.3	
Discoloration to:		
Combined laundering & bleaching	3.5.2	5605
Light	3.5.2	5660
Perspiration	3.5.2	5680
Wet-dry cleaning	3.5.2	5622
Dimensional stability	3.6	4.5.1
Non-fibrous material	3.7	2611
pH	3.9	2811

1/ Unless otherwise specified in the contract or purchase order, the supplier shall submit a certificate of compliance for this characteristic. The certificate shall be accompanied by actual test, inspection, or other verifiable data.

4.5.1 Test for dimensional stability The finished cloth shall be tested after 5 wash cycles according to AATCC Test Method 135-1973, Method II (120 ± 5°F /, 49 ± 3°C), Drying Procedure "B" (Tumble).

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 applicable 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 as a lining material in the Navy women's summer white skirt.

* 6.2 Ordering data Procurement documents should specify the following:

a. Title, number and date of this specification.
b. When first article sample is required (see 3.2 and 4.3).
c. Width and length, if other than specified (see 3.4.2).
d. Levels of packaging and packing required (see 5.1 and 5.2).

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

6.4 The standard sample was manufactured on a 32 gauge machine, using DuPont Type 685A Antron III, 30 denier nylon for the front bar and DuPont Type 865A Antron III, 40 denier nylon for the back guide bar.

Custodian:
Navy - SA

Reviewing activity:
DLA - CT

Preparing Activity:
Navy - SA

Project No. 8305-N702

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DOCUMENT IDENTIFIER *(Number)* AND TITLE

MIL-C-87059(SA) CLOTH, KNITTED, NYLON, TRICOT

NAME OF ORGANIZATION AND ADDRESS OF SUBMITTER

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