

MIL-C-41831B
15 March 1985
SUPERSEDING
MIL-C-41831A
18 June 1971

MILITARY SPECIFICATION

CLOTH, KNITTED, NYLON, RASCHEL

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This document covers one type of raschel knitted nylon cloth.

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

FEDERAL

PPP-P-1133 - Packaging 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: U.S. Army Natick Research and Development Center, Natick, MA 01760-5014, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 8305

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MILITARY

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

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

OTHER GOVERNMENT DOCUMENTS

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

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

Chromatic Transference Scale

(Application for copies should be addressed to the American Association of Textile Chemists and Colorists, P.O. Box 12214, Research Triangle Park, NC 27709.)

(Technical society and technical association documents are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

2.3 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 shall take precedence.

3. REQUIREMENTS

3.1 Standard sample. The finished cloth shall match the standard sample for shade and appearance 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).

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3.2 Material.

3.2.1 Fiber. The fiber shall be multifilament nylon.

3.3 Color. The color of the finished cloth shall be Olive Green 106.

3.3.1 Matching. The color of the finished cloth shall match the standard sample under artificial daylight having a color temperature of 7000 \pm 500 K and shall be a good approximation to the standard sample under incandescent lamplight at 2850 \pm 100 K.

3.3.2 Colorfastness. The finished cloth shall show fastness to laundering, perspiration and crocking equal to or better than the standard sample. When no standard sample is available the finished cloth shall show good fastness to laundering and perspiration, and shall show an AATCC Chromatic Transference Scale rating for crocking not less than 3.5 when tested as specified in 4.2.3.

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

TABLE I. Physical requirements

Weight per square yard minimum	Wales and courses minimum per inch		Bursting strength minimum	Stiffness		(load pounds)	
Ounces	Wales	Courses	Pounds	<u>Wales (length)</u>		<u>Courses (width)</u>	
				(min)	(max)	(min)	(max)
10.5	20	28	200	0.300	0.450 ^{1/}	0.200	0.300 ^{1/}
				0.175	- ^{2/}	0.150	- ^{2/}

^{1/} Before laundering.

^{2/} After three launderings.

3.4.1 Width. The finished width shall be a minimum of 35 inches, inclusive of selvages.

3.4.2 Knit. The cloth shall be knitted on a single needle bar Raschel with three guide bars (one ground and two inlay) and with 18 needles per inch (36 gauge). The mesh cloth shall be single face with a knitted chain effect on the back and shall contain laid-in threads every other course. When counting the texture, the side of the cloth displaying the chain effect shall be used for this purpose. The mesh cloth shall be knit in a manner so as to reproduce the pattern (design) as reflected in the standard sample (see 6.3).

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3.5 Finish.

3.5.1 Treatment. The cloth shall be heat set and resin treated using a thermo-setting resin to provide a degree of stiffness equal to the requirements specified in table I.

3.5.2 Shrinkage. The finished cloth shall not shrink nor elongate more than 1.0 percent in either the length or width direction after three launderings when tested as specified in 4.2.3.

3.5.3 pH. The pH value of the water extract of the finished cloth shall be no less than 5.5 nor more than 8.5 when tested as specified in 4.2.3.

3.6 Length and put-up. Unless otherwise specified (see 6.2) the cloth shall be furnished in one continuous piece of not less than 50 yards in length and shall be put up in rolls, full width, as specified in 5.1.

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

3.8 Workmanship. The finished cloth shall conform to the quality of product established by this document. 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 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 document 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 inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

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

4.2.2 End item examination.

4.2.2.1 Yard-by-yard examination. The cloth shall be examined at normal inspection distance (3 feet) for the defects listed below. All defects found shall be counted regardless of their proximity to each other except where two or more defects represent a single local condition, in which case only the more serious defect shall be counted. A continuous defect shall be counted as one defect for each warpwise yard or fraction thereof in which it occurs. The lot size shall be expressed in yards. The sample unit shall be 1 linear yard. The inspection level shall be II and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 10.0. The number of rolls from which the sample yardage is to be selected shall be in accordance with table II. The sample yardage shall be apportioned equally among the selected rolls.

Defects

Hole, break, mend.
Loose or floated end.
Coarse yarns, more than twice the thickness of normal yarn.
Hard permanent crease.
End out for more than one course.
Spot, stain, or streak more than 1 inch in combined direction.
Width, less than specified.

4.2.2.2 Overall examination. The cloth shall be examined for the defects listed below. Each defect listed shall be counted not more than once in each roll examined. The sample size shall be the applicable number of rolls indicated in table II. Each roll in the sample shall be examined over its entire length. The lot shall be rejected if the total number of defects in the sample exceeds the acceptance number specified in table II.

Defects

Off shade.
Appearance different than the standard sample.
Overall uncleanness.
Not labeled in accordance with the Textile Fiber Products Identification Act.

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TABLE II. Sample size

<u>Lot size in yards</u>	<u>Sample size in rolls</u>	<u>Acceptance number</u>
Up to 1,300 1/	3	0
1,301 up to and including 3,200	5	0
3,201 up to and including 8,000	7	0
8,001 up to and including 22,000	10	1
22,001 and over	15	2

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

4.2.2.3 Length examination. Each roll of cloth used in the yard-by-yard examination shall be examined for the defects listed below. If the total number of defects in the sample rolls exceeds the acceptance number specified in table II or if the total of the actual lengths of the sample rolls is less than the total of the lengths marked on the roll tickets, the lot shall be rejected.

Defects

Any gross length less than the specified minimum length.

Any gross length more than 2 yards less than gross length marked on roll ticket.

4.2.3 End item testing. The cloth shall be tested for the characteristics listed in table III. The method of testing specified in FED-STD-191 wherever applicable and as listed in table III 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 method. The sample unit shall be 3-1/2 continuous yards full width of the finished cloth. The lot shall be unacceptable if one or more sample units fail to meet any test requirement specified. The sample size shall be in accordance with the following:

<u>Lot size (yards)</u>	<u>Sample size (no. of sample units)</u>
800 or less	2
801 up to and including 22,000	3
22,001 and over	5

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TABLE III. End item tests

Characteristic	Requirement paragraph	Test method
Material	3.2.1	<u>1/</u>
Colorfastness to:		
Laundering	3.3.2	5614
Perspiration	3.3.2	5680
Crocking	3.3.2	5651
Wales and courses per inch	3.4	5070 <u>2/</u>
Weight	3.4	5041
Bursting strength	3.4	5120
Stiffness:		
Before laundering	3.4	5202
After 3 launderings	3.4	5556 and 5202 <u>3/</u>
Knit	3.4.2	Visual <u>4/</u>
Thermo-setting resin	3.5.1	<u>1/</u>
Shrinkage in laundering	3.5.2	5556 <u>3/</u>
pH	3.5.3	2811

- 1/ Unless otherwise specified, a certificate of compliance shall be submitted and will be acceptable for the stated requirements.
- 2/ Texture shall be counted on the chain effect side of the cloth.
- 3/ The wool laundering procedure shall apply. The specimen shall not be pressed.
- 4/ One determination per sample unit and the results reported as "pass or fail".

4.2.4 Packaging inspection. The inspection shall be in accordance with the quality assurance provisions of PPP-P-1133.

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-1133.

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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-1133.

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-1133.

6. NOTES

6.1 Intended use. This cloth is intended for use as the front stiffener in field, hot weather caps.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number and date of this document.
- b. Put-up required if other than specified (see 3.6).
- c. Width required (see 3.4.1).
- d. Selection of applicable levels of preservation and packing (see 5.1 and 5.2).

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

6.4 Dye formulation. A suggested but not mandatory formulation for OG 106:

Acid Yellow 151
Neutral premetallized Olive Green B
Acid Red 345

6.5 Changes from previous issues. Asterisks 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 - 99

Preparing activity:

Army - GL
Project No. 8305-0250

Review activities:

Army - MD
Air Force - 82
DLA - CT

INSTRUCTIONS. In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, stapled along the loose edge (**DO NOT STAPLE**), and mailed. In block 5, be as specific as possible about particular problem-areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

NOTE This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification 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.

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1 DOCUMENT NUMBER MT-0-19310		2 DOCUMENT TITLE Cloth, mittel, Nylon, Raschel	
3a NAME OF SUBMITTING ORGANIZATION		4 TYPE OF ORGANIZATION (Mark one)	
b ADDRESS (Street, City, State, ZIP Code)		<input type="checkbox"/> VENDOR	
		<input type="checkbox"/> USER	
		<input type="checkbox"/> MANUFACTURER	
		<input type="checkbox"/> 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)	