

INCH POUND

A-A-MC041

PROPOSED

COMMERCIAL ITEM DESCRIPTION

CLOTH, KNITTED, NYLON/SPANDEX, FOUR-WAY STRETCH

The General Services Administration has authorized the use of this commercial item description by all federal agencies.

1. **SCOPE.** This commercial item description covers the requirements for a four-way stretch knitted cloth made from nylon and spandex. The cloth is intended for use in the manufacture of uniform items such as a belly panel for wear by pregnant female personnel of the U.S. Military. Because the intended use of the cloth includes wear by pregnant personnel, some additional requirements (see 3.1.1) may be imposed that might not be applicable for other uses of the cloth.

2. **CLASSIFICATION.** The cloth is available in one class, in a shade as specified in the contract or order (see 7.3).

2.1 Class.

Class 1 – 7.2 ounces per square yard

3. **SALIENT CHARACTERISTICS.**

3.1 Physical requirements. The cloth shall be a knitted four-way stretch cloth meeting the requirements of [table I](#). The shade of the cloth shall be as specified in the contract (see 7.3).

TABLE I. Physical requirements.

Characteristic	Requirement	Test method
Fiber content (percent)		
Nylon	59±3	AATCC TM20A
Spandex	41±3	
Nylon yarn		
Denier	40	ASTM D1907/D1907M
Number of filaments	46	Visual
Texturization	Yes	Visual
Spandex yarn		
Denier	105	ASTM D1907/D1907M
Number of filaments	1	Visual
Knit construction	Tricot	Visual
Yarns per inch (minimum)		
Wales	57	ASTM D3775
Courses	105	

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ATTN: SEAL-SE-STDS or emailed to USMC_STDZ@usmc.mil, with the subject line "Document Comment".
Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>

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TABLE I. Physical requirements – Continued.

Characteristic	Requirement	Test method
Weight, ounces per square yard	7.25± 0.35	ASTM D3776/D3776M, option C
Elongation, percent (minimum)		
Wales	126	ASTM D4964
Courses	80	ASTM D4964
Burst strength, pounds (minimum)	70	ASTM D3787
pH	6.75±1.75	AATCC TM81
Colorfastness, rating (minimum)		
Laundering		
Color change	3.0	AATCC TM61, test 3A ^{1/}
Staining	3.0	AATCC TM61, test 3A ^{1/}
Perspiration		
Color change	3.0	AATCC TM15 ^{2/}
Staining	3.0	AATCC TM15 ^{2/}
Light (40 hours/170 kilojoules)		
10 hours	3.0	AATCC TM16.2 or AATCC TM16.3 ^{3/}
20 hours	3.0	AATCC TM16.2 or AATCC TM16.3 ^{3/}
Crocking		
Dry	4	AATCC TM8 ^{4/}
Dimensional change, percent (maximum)		
Wales	5	AATCC TM135 (1) V Ai ^{5/}
Courses	5	AATCC TM135 (1) V Ai ^{5/}
NOTES:		
^{1/} The specimen shall be laundered and dried three complete cycles. Rated using the AATCC EP 1, Gray Scale for Color Change and AATCC EP 2, Gray Scale for Staining. Only the stain on the polyester fibers of the multifiber transfer swatch shall be evaluated.		
^{2/} Rated using AATCC EP 1, Gray Scale for Color Change, and AATCC EP 2, Gray Scale for Staining. Only the stain on the polyester fibers of the multifiber transfer swatch shall be evaluated.		
^{3/} Rated using AATCC EP 1.		
^{4/} Rated using AATCC EP 8, AATCC 9-Step Chromatic Transference Scale. For class 1, the black crock cloth shall be used.		
^{5/} The test specimens shall be subjected to five washing and drying cycles before the shrinkage or elongation values are calculated.		

3.1.1 Toxicity. When tested as specified in 5.5.1, the finished cloth shall not present a health hazard and shall show compatibility with prolonged, direct skin contact, as specified in 40 CFR § 798.2250, Dermal Toxicity, and 40 CFR § 798.4100, Dermal Sensitization, as well as 40 CFR § 799.9370, TSCA Prenatal Developmental Toxicity (see 7.6). Chemicals recognized by the Environmental Protection Agency as human carcinogens shall not be used.

3.2 Visual examination for shade and finish. The color and appearance of each roll in the finished lot of cloth shall match the required shade, as specified (see 7.3), when viewed using AATCC EP 9, Visual Assessment of Color Difference of Textiles, option C (see 7.5), with a primary light source simulating the spectral quality of average daylight, CIE Illuminant D65, with a color temperature of 6500±200 Kelvin (K) illumination of 100 ±20 foot candles. Alternatively, the color and appearance of the cloth shall match the standard sample with a primary light source simulating artificial daylight, CIE Illuminant D75, with a color temperature of 7500±200K illumination of 100±20 foot candles in lieu of D65 (see 7.5.1). The cloth shall also be a good match to the standard sample with a secondary source simulating the spectral quality of incandescent lamplight, CIE Illuminant A, with a color temperature of 2856±200K. The sample unit shall be a 4-inch (warp) by 24-inch (filling) swatch of cloth. The results shall be reported as pass or fail.

3.3 Face identification. The face side of the cloth shall be identified by stamping on that side with the word “Face” at each end of the roll (see 5.4.4).

3.4 Workmanship. The finished cloth shall be uniform in quality and free from irregular defects that can affect usage or durability and the defects specified in 5.4 and ASTM D3990, Standard Terminology Relating to Fabric Defects.

4. REGULATORY REQUIREMENTS.

4.1 Recycled, recovered, environmentally preferable, or biobased materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

4.2 Fiber identification. Each roll shall be labeled or ticketed for fiber content in accordance with 16 CFR § 303, Rules and Regulations Under the Textile Fiber Products Identification Act.

5. PRODUCT CONFORMANCE PROVISIONS.

5.1 Product conformance. The finished cloth provided shall meet the salient characteristics of this commercial item description, conform to the producer’s own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial marketplace. The government reserves the right to require proof of such conformance. The fiber content specified in [table I](#) may be addressed by a certificate of compliance.

5.2 Market acceptability. The finished cloth shall have been sold to the commercial market or the government (see 7.4).

5.3 Sampling for inspection. Sampling for inspection shall be in accordance with ASQ/ANSI Z1.4, Sampling Procedures and Tables for Inspection by Attributes. The sample unit shall be 5 continuous yards of full-width cloth per roll of finished cloth. The number of samples per lot size shall be as specified in [table II](#). If the lot includes fewer rolls than the sample size cited in [table II](#), all rolls in the lot shall be inspected.

TABLE II. Sampling.

Lot size (yards)	Sample size (rolls)
500 or less	8
501 up to and including 3,200	13
3,201 to 35,000	20
35,001 and over	32

5.4 Visual examination. The finished cloth shall be examined on the face side only for the defects listed in 5.4.2 as defined in ASTM D3990, which are clearly visible at a normal inspection distance of 3 feet. The fabric shall be scored and assigned demerit points as specified herein, except that in the case of slubs and knots, only those that exceed the limits shown on the SDL Atlas Slub/Knot Replica Fabric Defect Scale (“D” or “3-1/2” for slubs and “C” for knots) shall be scored. No linear yard (increment 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 lot shall be unacceptable if the points per 100 square yards of the total yardage examined exceed 30 points. The lot shall be unacceptable if the points per 100 square yards of two or more individual rolls exceed 45 points. If one roll exceeds the point level per 100 square yards, a second sample of 20 rolls shall be examined only for the individual roll quality. If one or more rolls in the second sample of 20 exceeds the individual point value, the lot shall be rejected. Point computation for the lot quality and individual roll quality shall be as follows:

5.4.1 Demerit point computation.

$$\text{Points per 100 square yards} = \frac{3600 \times T}{(W \times Y)}$$

where:

T = total number of points scored in the sample

W = width (in inches) of the cloth purchased

Y = total number of yards inspected

5.4.2 Demerit points.

a. For defects other than those cited in 5.4.2.b, demerit points shall be assigned based on their dimensions as follows:

- (1) For defects up to and including 3 inches in any dimension – one point.
- (2) For defects exceeding 3 inches but not exceeding 6 inches in any dimension – two points.
- (3) For defects exceeding 6 inches but not exceeding 9 inches in any dimension – three points.
- (4) For defects exceeding 9 inches in any dimension – four points.

b. The following defects, when present, shall be scored four points for each yard in which they occur regardless of the dimensions specified in 5.4.2.a:

- (1) Baggy, ridgy, or wavy cloth in an area greater than 6 inches in any dimension.
- (2) Non-uniformity of shade (poor dye penetration, mottled, streaky, or cloudy) greater than 1 inch in any dimension.
- (3) Excessive nippiness.
- (4) Holes, cuts, tears, or open places greater than 1/2 inch.

5.4.3 In-process inspection. Visual and dimensional examinations of the cloth shall be made at any phase of the manufacturing process to determine whether construction details, which cannot be examined in the finished product, are in accordance with the requirements specified in section 3. Materials that can be classified as containing defects in excess of the Acceptance Quality Limits (AQL) specified in the contract or order (see 7.3) when inspected in accordance with 5.3 shall be removed from production.

5.4.4 Face identification and nonconformance with 16 CFR § 303. During the visual examination, each roll in the sample shall be examined for nonconformance to the face identification and 16 CFR § 303. The lot shall be unacceptable if two or more rolls in the sample have face identification missing from either or both ends or if two or more rolls in the sample are not labeled or ticketed in accordance with 16 CFR § 303.

5.4.4.1 Examination for length. Rolls shall be examined for gross length. When total yardage in the roll exceeds 100 yards, only the first 100 yards shall be examined.

5.4.4.2 Total yardage in sample. The lot shall be unacceptable if the total of the actual lengths of rolls in the samples is less than 99 percent of the total of the lengths marked on the ticket, or if the length of any individual roll is less than 97 percent of the marked length. The rolls examined shall be those selected for the examination of individual rolls (see 5.3).

5.5 Finished cloth tests. The cloth shall be tested as specified in [table I](#). The finished cloth shall be conditioned as directed in ASTM D1776/D1776M, Standard Practice for Conditioning and Testing Textiles. To facilitate the assessment of the results, all test reports should contain the individual values used in calculating the final results.

5.5.1 Toxicity test. When the toxicity requirement (see [3.1.1](#)) can be demonstrated with historical use data, toxicity testing may not be required on the finishing treatments used. If dermal toxicity testing is required (see [7.3](#)), it shall be conducted in accordance with 40 CFR § 798.2250 and 40 CFR § 798.4100, which are consistent with OECD Guidelines for the Testing of Chemicals, Section 4, Test Nos. 404 and 406 (see [7.6](#)).

6. PACKAGING. Preservation, packing, and marking shall be as specified in the contract or order (see [7.3](#)).

7. NOTES.

7.1 Source of documents. Unless otherwise specified (see [7.3](#)), the most current versions of all referenced documents will be used.

7.1.1 AATCC test methods. AATCC test methods are available from www.aatcc.org or AATCC, P.O. Box 12215, Research Triangle Park, NC 27709.

7.1.2 ASQ standards. ASQ standards are available from www.asq.org or American Society for Quality, 600 North Plankinton Ave., Milwaukee, WI 53203.

7.1.3 ASTM standards. ASTM standards are available from www.astm.org or ASTM International, 100 Barr Harbor Dr., P.O. Box C700, West Conshohocken, PA 19428.

7.1.4 Code of Federal Regulations (CFR). The CFR is available from www.ecfr.gov or the Superintendent of Documents, U.S. Government Publishing Office, Washington, DC 20401.

7.1.5 OECD guidelines. OECD guidelines are available from www.oecd-ilibrary.org or OECD Washington Center, 1776 I St NW, Suite 450, Washington, DC 20006.

7.1.6 SDL Atlas. Samples of the replica scales for knots and slubs are available from the United States Army Development Command, Textile Material Evaluation Team, Building 5, 15 General Greene Avenue, Natick, MA 01760.

7.2 Informational requests. Requests for information such as purchase descriptions, patterns, drawings, or standard shade samples of cloth can be made by completing and submitting the Defense Logistics Agency Troop Support's Clothing and Textile Specification/Drawing/Pattern Request Form online at <https://www.dla.mil/TroopSupport/ClothingandTextiles/SpecRequest.aspx>. Requests to use equivalent materials or components or to make changes to the pattern should be sent to the contracting officer for approval by the military services.

7.3 Ordering data. The contract or order should specify the following:

- a. CID document number and revision.
- b. Class of cloth required (see [2](#)).
- c. Shade of finished cloth (see [3.1](#) and [3.2](#)).
- d. AQLs (see [5.4.3](#)).
- e. When toxicity testing is required (see [5.5.1](#)).
- f. Packaging requirements (see [6](#)).
- g. The specific issue of individual documents referenced (see [7.1](#)).

7.4 Known sources. Cloth from the following manufacturer has been shown to meet the requirements of this purchase description:

Darlington (The Moore Company)
 36 Beach Street, PO Box 538
 Westerly, RI 02891
 Phone: 401-596-2816
 Email: info@themooreco.com

7.5 Visual shade matching. In 2017, option A of AATCC EP9 was changed to option C. NOTE: In case of confusion, the viewing geometry should be, “The specimen plane and illumination source will be parallel to each other and aligned so that the light flux is incident at the center of the specimen plane, which is set at a 35 ($\pm 5^\circ$) angle relative to the horizontal. The observer will view the specimens at a 90° angle, relative to the plane of the specimens.”

7.5.1 Use of D75 illuminant. The use of D75 illuminant with a color temperature of 7500 \pm 200K and illumination of 100 \pm 20 foot candles in lieu of the specified D65 illuminant is permitted.

7.5.2 Shade criticality. Some items may be deemed “non-shade-critical” by the contracting agency and alternative shade standards or information regarding shade may be specified in the contract or order (see 7.1). It is recommended that manufacturers refer to the contract or order to determine the criticality of the shade matching or alternate shade standards that are acceptable.

7.6 Toxicity testing. OECD Guidelines for the Testing of Chemicals, Section 4, Test Nos. 404 and 406 are recommended by the Office of the Surgeon General to assess the requirement of 3.1.1, but other test methods may be used. It is recommended that alternative test methods are assessed by the contracting agency prior to being used to address the toxicity requirements.

7.7 Key words.

Belly panel
Maternity
Prenatal
Toxicity

CONCLUDING MATERIAL

MILITARY INTERESTS:

Custodians:

Army – GL
Navy – MC
Air Force – 11

Preparing activity:

Navy – MC
(Project 8305-2023-012)

Review activities:

Army – AV, CR, IH, MI
Navy – NU, CG, AS, CG1
Air Force – 03
DLA – CT
GSA – FAS