INCH-POUND
MIL-DTL-44436D
10 March 2020
SUPERSEDING
MIL-DTL-44436C
15 October 2018

DETAIL SPECIFICATION

CLOTH, WIND RESISTANT POPLIN, NYLON/COTTON BLEND

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

1. SCOPE

1.1 Scope. This specification covers wind resistant poplin nylon/cotton blend cloth, dyed and overprinted with the specified camouflage pattern.

1.2 Classification. The following classes are covered in this document.

Class 1 - Woodland Camouflage Pattern
Class 2 - Woodland Camouflage Pattern, Water Repellent Treated
Class 3 - Desert Camouflage Pattern
Class 4 - DELETED
Class 5 - Black 357
Class 6 - DELETED
Class 7 - DELETED
Class 8 - DELETED
Class 9 - DELETED
Class 10 - DELETED
Class 11 - DELETED
Class 12 - Operational Camouflage Pattern, (OCP)
Class 13 - Operational Camouflage Pattern, (OCP) Water Repellent Treated
Class 14 - Operational Camouflage Pattern, (OCP) Wrinkle Free Finish
Class 15 - 3-Color Insignia Pattern

Comments, suggestions, or questions on this document should be addressed to: Attn: DLA Troop Support Standardization Team, 700 Robbins Avenue, Philadelphia, PA 19111-5096. Since contact information can change, you may want to verify the currency of the address information using Acquisition Streamlining and Standardization Information System (ASSIST) online database https://assist.dla.mil/.

AMSC N/A FSC 8305

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD 3064 - Evaluation of Quality of Textile Materials

(Copy of this document is available online at https://quicksearch.dla.mil.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation or contract.

DRAWINGS

U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND SOLDIER CENTER

2-1-1516 - Woodland Camouflage Pattern
2-1-2240 - Desert Camouflage Pattern
2-1-2592 - Operational Camouflage Pattern (OCP)
2-1-2597 - 3-Color Insignia Pattern

(Copies of drawings are available from the U.S. Army Combat Capabilities Development Command (CCDC), Soldier Center, ATTN: FCDD-SCP-WC, 10 General Greene Avenue, Natick, MA 01760-5019.)

FEDERAL TRADE COMMISSION

Rules and Regulations under the Textile Fiber Products Identification Act

(Copies of this document is available online at https://www.ftc.gov.)

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

AATCC EP1	- Evaluation Procedure for Gray Scale for Color Change
AATCC EP2	- Evaluation Procedure for Gray Scale for Staining
AATCC EP5	- Evaluation Procedure for Fabric Hand
AATCC EP8	- Evaluation Procedure for AATCC 9-Step Chromatic Transference Scale
AATCC EP9	- Evaluation Procedure for Visual Assessment of Color Difference of Textiles
AATCC TM8	- Test Method for Colorfastness to Crocking: Crockmeter
AATCC TM15	- Test Method for Colorfastness to Perspiration
AATCC TM16.3	- Test Method for Colorfastness to Light: Xenon Arc
AATCC TM20	- Test Method for Fiber Analysis: Qualitative
AATCC TM20A	- Test Method for Fiber Analysis: Quantitative
AATCC TM22	- Test Method for Water Repellency: Spray
AATCC TM61	- Test Method for Colorfastness to Laundering: Accelerated
AATCC TM70	- Test Method for Water Repellency: Tumble Jar Dynamic Absorption
AATCC TM81	- Test Method for pH of the Water-Extract from Wet Processed Textiles
AATCC TM118	- Test Method for Oil Repellency: Hydrocarbon Resistance
AATCC TM135	- Test Method for Dimensional Changes of Fabrics after Home Laundering
AATCC TM143	- Test Method for Appearance of Apparel and Other Textile End Products after Home Laundering

(Copies of these documents are available on line at https://www.aatcc.org.)

AMERICAN SOCIETY FOR QUALITY (ASQ)

ASQ/ANSI Z1.4 - Sampling Procedures and Tables for Inspection of Attributes

(Copies of this document are available online at https://asq.org.)

ASTM INTERNATIONAL

ASTM D737	- Standard Test Method for Air Permeability of Textile Fabrics
ASTM D1424	- Standard Test Method for Tear Resistance of Fabrics by Falling-Pendulum (Elmendorf-Type) Apparatus
ASTM D1907/D1907M	- Standard Test Method for Linear Density of Yarn (Yarn Number) by the Skein Method
ASTM D3775	- Standard Test Method for End (Warp) and Pick (Filling) Count of Woven Fabrics
ASTM D3776/D3776M	- Standard Test Methods for Mass per Unit Area (Weight) of Fabric

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

ASTM D5034 - Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)

(Copies of these documents are available online at https://www.astm.org.)

INFORMA HEALTHCARE

Repeat Insult Patch Test – Modified Draize Procedure
Principles and Methods of Toxicology, A Wallace Hayes (editor).

(Copies of these documents are available online at https://www.crcpress.com.)

SDL ATLAS

Part Number 402985 - Slub/Knot Replica Set

(Replica set is available for purchase from SDL Atlas Customer Service, 1-803-329-2110.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 4.2).

3.2 Standard sample. The finished cloth shall match the standard sample for shade and appearance, and shall, unless otherwise indicated, be equal to or better than the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.4).

3.3 Recycled, recovered, or environmentally preferable or biobased materials. Recycled, recovered, or 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.

3.4 Materials.

3.4.1 Cotton. The cotton shall be carded and combed.

3.4.2 Nylon. The nylon shall be first quality, high tenacity, semi-dull staple having a nominal cut length of 1-1/2-inches and a round cross-section with a nominal denier of 1.6 to 1.8. The use of any form of nylon waste is prohibited. Testing shall be as specified in 4.5.

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

3.4.3 Yarn. The warp and filling yarn shall be made from a blend of 50 (± 5) percent nylon with the remaining percentage cotton based on the dry weight of the desized cloth. The warp yarn shall be 2-ply and the filling yarn shall be either 2-ply or singles.

3.5 Color.

3.5.1 Visual shade matching (all classes). The color and appearance of the dyed and camouflage printed cloth(s) shall match the standard sample when tested as specified in 4.5.

3.5.1.1 Class 1 and 2, Woodland Camouflage Pattern. The cloth shall be either dyed to a ground shade matching Light Green 354 and then overprinting with the remaining three (3) colors for the Dark Green 355, Brown 356, and Black 357 areas of the camouflage pattern or when the ground shade is not dyed to match Light Green 354, all four (4) colors of the camouflage pattern shall be printed to match all four (4) colors of the pattern.

3.5.1.2 Class 3, Desert Camouflage Pattern. The finished cloth shall be either dyed to a ground shade matching Light Tan 492 and then overprinted with the remaining two (2) colors for the Light Brown 493 and Light Khaki 494 areas of the camouflage pattern or when the ground shade is not dyed to match Light Tan 492, then all three (3) colors of the camouflage pattern shall be printed to match all three (3) colors of the pattern.

3.5.1.3 Class 5, Black 357. The cloth shall be dyed to match Black 357 in the Class 1 and 2 Woodland Camouflage print.

3.5.1.4 Class 12, 13 and 14, Operational Camouflage Pattern (OCP). The finished cloth shall be either dyed to a ground shade matching Dark Cream 559 and then overprinted with the remaining six (6) colors Tan 525, Light Sage 560, Olive 527, Dark Green 528, Brown 529, and Bark Brown 561 areas of the camouflage pattern or when the ground shade is not dyed to Dark Cream 559 all seven (7) colors of the camouflage pattern shall be printed to match all seven (7) colors of the pattern.

3.5.1.5 Class 15, 3-color insignia pattern. The finished cloth shall be either dyed to a ground shade matching Dark Cream 559 and then overprinted with the remaining two (2) colors Tan 525 and Olive 527 areas of the insignia pattern or when the ground shade is not dyed to Dark Cream 559 all three (3) colors of the pattern shall be printed to match all three (3) colors of the pattern.

3.5.2 Colorfastness (all classes). The finished cloth(s) shall conform to the colorfastness requirements listed below in Table I when tested as specified in 4.5 and 4.6.2.

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

TABLE I. Colorfastness requirements (all Classes).

Colors Evaluation	Laundering (Color Change and Staining) (4 cycles) (min.)	Light (40 AFU or 170kJ/(m^{2}nm)@ 420 nm) 1/, (min.)	Perspiration (Acid and Alkaline) (Color Change and Staining) (min.)	Crocking (Wet and Dry) (min.)
All colors	--	--	3-4	--
All except Black 357	3-4	--	--	--
Black 357	3	--	--	2.0
Dark Green 355, Brown 356, Dark Green 528, Brown 529, and Bark Brown 561	--	3-4	--	3.0
Light Green 354, Light Tan 492, Light Brown 493, Light Khaki 494, Tan 525, Olive 527, Dark Cream 559 and Light Sage 560	--	3	--	3.5

1/AFU - AATCC Fading Units

3.5.3 Labile sulfur. Dyes and compounds containing elementary sulfur capable of oxidation to sulfuric acid shall not be used. The dyed cloth shall be "Free" of labile sulfur when tested as specified in 4.5.

3.5.4 Pattern execution (all Classes except Class 5). The pattern on the printed finished cloth(s) shall match the standard sample in respect to design, colors and registration of the respective areas. The various areas of the pattern shall be properly registered in relation to each other and shall present definite sharp demarcations and/or feathering as required for each color. Each pattern area shall show full coverage; skitteriness, feathering, haloing or trapping and off register exceeding that shown on the standard sample in any of the printed areas will not be acceptable. When the standard sample is not available for pattern execution, a pattern drawing will be provided (see 6.4) and the pattern on the finished cloth shall match that of the drawing (see 2.2.2 and 6.4) when tested as specified in 4.5.

The pattern repeat for each class shall be as follows:

Class 1 and 2, Woodland Camouflage Pattern - 27.25 (+1.25, -2.50) inches in the warp direction.
Class 3, Desert Camouflage Pattern - 16.75 (+1.25, -1.75) inches in the warp direction.
Class 12, 13 and 14, Operational Camouflage Pattern - 25.255 (+1.25, -2.50) inches in the warp direction and 68-inches maximum camouflage printed area in the filling direction.
Class 15, 3-color Insignia Pattern - 24.5 (+1.75, -1.75) inches in the warp direction and 68-inches maximum camouflage printed area in the filling direction.

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

3.6.1 Class 1 and 2, Woodland Camouflage Pattern. The spectral reflectance values shall conform to the requirements specified in Table II, when tested as specified in 4.5.

TABLE II. Spectral reflectance requirements, Classes 1 and 2.

Wavelength, Nanometers (nm)	Light Green 354		Dark Green 355 and Brown 356		Black 357	
	Min.	Max.	Min.	Max.	Min.	Max.
600	8	18	3	9	-	10
620	8	18	3	9	-	10
640	8	18	3	9	-	10
660	8	18	3	12	-	10
680	10	22	3	14	-	10
700	18	33	5	18	-	10
720	22	45	7	20	-	10
740	30	55	12	28	-	10
760	35	65	18	36	-	10
780	40	75	26	44	-	10
800	45	80	34	52	-	10
820	50	86	42	60	-	10
840	55	88	50	68	-	10
860	60	90	56	74	-	10

3.6.2 Class 3, Desert Camouflage Pattern. The spectral reflectance values shall conform to the requirements specified in Table III, when tested as specified in 4.5.

TABLE III. Spectral reflectance requirements, Class 3.

Wavelength, Nanometers (nm)	Light Tan 492		Light Brown 493		Light Khaki 494	
	Min.	Max.	Min.	Max.	Min.	Max.
700	38	53	19	41	25	44
720	38	54	20	41	25	45
740	39	55	20	42	25	46
760	40	56	21	42	26	47
780	41	57	21	42	27	48
800	43	58	22	43	28	50
820	45	59	23	45	30	52
840	48	62	24	46	33	55
860	50	65	25	48	36	58

3.6.4 Class 5, Black 357. The spectral reflectance values shall conform to the requirements specified, in Table IV, when tested as specified in 4.5.

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

TABLE IV. Spectral reflectance requirements, Class 5.

Wavelength, Nanometers (nm)	Black 357	
	Min.	Max.
600	2	10
620	2	10
640	2	11
660	2	13
680	2	15
700	4	20
720	9	30
740	14	40
760	18	49
780	23	55
800	29	60
820	34	64
840	39	69
860	45	75

3.6.5 Class 12, 13 and 14, Operation Camouflage Pattern (OCP). The spectral reflectance values for Class 12, 13 and 14 cloth(s) shall conform to the requirements specified in Table V, when tested as specified in 4.5.

TABLE V. Spectral reflectance requirements, Classes 12, 13 and 14.

Wavelength, Nanometers (nm)	Dark Cream 559 & Tan 525		Light Sage 560, Olive 527 & Brown 529		Dark Green 528 & Bark Brown 561	
	Min.	Max.	Min.	Max.	Min.	Max.
600	22	44	12	30	3	11
620	24	45	12	30	3	12
640	24	45	12	32	4	13
660	25	45	12	32	4	14
680	28	45	14	34	4	17
700	28	48	14	36	6	23
720	30	52	16	39	6	23
740	32	55	18	41	10	25
760	36	56	20	43	14	30
780	38	57	22	45	18	35
800	40	57	22	45	21	40
820	44	58	24	46	24	42
840	46	59	26	47	26	43
860	48	60	28	48	28	45

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

3.6.6 Class 15, 3-Color Insignia Pattern. The spectral reflectance values for Class 15 cloth shall conform to the requirements specified in Table VI, when tested as specified in 4.5.

TABLE VI. Spectral reflectance requirements, Class 15.

Wavelength, Nanometers (nm)	Dark Cream 559 & Tan 525		Olive 527	
	Min.	Max.	Min.	Max.
600	22	44	12	30
620	24	45	12	30
640	24	45	12	32
660	25	45	12	32
680	28	45	14	34
700	28	48	14	36
720	30	52	16	39
740	32	55	18	41
760	36	56	20	43
780	38	57	22	45
800	40	57	22	45
820	44	58	24	46
840	46	59	26	47
860	48	60	28	48

3.7 Physical requirements. The finished cloth(s) shall conform to the physical requirements specified in Table VII, when tested as specified in 4.5.

TABLE VII. Physical requirements.

Characteristic	Classes 1, 3, 5, 12 & 15	Classes 2, & 13	Class 14
Weight, oz./sq.yd.			
Minimum	6.0	6.0	6.0
Maximum	7.0	7.0	7.0
Yarns per inch, (min.)			
Warp	104	104	104
Filling	52	52	52
Breaking strength (pounds), (min.)			
Warp	200	200	190
Filling	90	90	80
Tearing strength (pounds), (min.)			
Warp	7.0	7.0	7.0
Filling	5.0	5.0	5.0

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

TABLE VII. Physical requirements. - Continued

Characteristic	Classes 1, 3, 5, 12 & 15	Classes 2, & 13	Classes 14
Air permeability, (cu.ft./min./sq.ft.) (max.)	15.0	10.0	10.0
Fabric appearance, (smoothness rating) After 20 launderings	N/A	N/A	4.5

3.7.1 Weave. The weave shall be a plain weave with reinforcement ribs in both the warp and filling directions forming a uniform pattern. The ribs shall be formed by having every twenty-fourth warp end contain two (2) ends weaving as one (1) and every thirteenth filling contain two (2) picks weaving as one (1). Testing shall be as specified in 4.5.

3.7.2 Width. For government procurements only, the width of the finished cloth shall be as specified (see 6.2), and shall be the minimum acceptable width, inclusive of selvages.

3.8 Finish. The cloth shall be dyed and printed with the warp effect side as the face. The Class 2, and 13 cloth(s) shall be given a durable water repellent treatment as specified in 3.8.1. The Class 14 cloth shall be given a wrinkle free finish as specified in 3.8.2.

3.8.1 Water repellency (Classes 2, and 13). The Classes 2, and 13 cloth(s) shall be given a durable water repellent treatment and meet the requirements of Table VIII, when tested as specified in 4.5.

TABLE VIII. Water repellency (Classes 2, and 13).

	Dynamic absorption (percent)		Spray rating 2/	Resistance to organic liquid (min.)
	Max. lot avg.	Max. 1/		
Initial	25	30	90, 90, 80	No wetting by n-tetradecane
After 15 launderings	25	30	---	No wetting by n-tetradecane

1/ No individual specimen shall exceed 30 percent

2/ The results of the three individual determinations.

3.8.2 Wrinkle free finish (Class 14). The Class 14 cloth shall be given a wrinkle free finishing treatment to match the “hand” crispness, fabric appearance and smoothness of the guide sample provided when tested as specified in 4.5.

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

3.9 pH. The pH value of the water extract of the finished cloth(s) shall be not less than 5.0 and not greater than 8.5 when tested as specified in 4.5.

3.10 Dimensional stability. The shrinkage or elongation both in the warp and in the filling of the finished cloth shall not be greater than 3.5 percent for the individual sample unit and not greater than 3.0 percent for the lot average when tested as specified in 4.5.

3.11 Toxicity. The finished cloth shall not present a health hazard and shall show compatibility with prolonged, direct skin contact when tested as specified in 4.6.5. The use of chemicals recognized by the Environmental Protection Agency (EPA) as human carcinogens shall not be used.

3.12 Face identification. The warp side shall be identified as the face side by stamping that side with the word "Face" at each end of the roll.

3.13 Length and put-up. For Government procurements only, unless otherwise specified (see 6.2), the cloth shall be furnished in continuous lengths, each not less than 50 yards. Each length shall be put-up full width on a roll as specified in 5.1.

3.14 Fiber identification. Each roll of the finished cloth shall be labeled or ticketed for fiber content in accordance with the Rules and Regulations under the Textile Fiber Products Identification Act.

3.15 Workmanship. The finished cloth shall conform to the quality of product established on this specification. The occurrence of defects shall not exceed the acceptance quality levels as specified in the contract or purchase order.

4. VERIFICATION

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

a. First article inspection (see 4.2).
b. Conformance inspection (see 4.3).

4.2 First article inspection. A first article, submitted in accordance with 3.1, shall be inspected, examined for appearance, color and visual defects listed in Table IX and tested for the characteristics as specified in 4.5.

4.3 Conformance inspection. Conformance inspection shall include the visual examination of 4.4 and the tests of 4.5 through 4.6.5 as applicable. Sampling for inspection shall be performed in accordance with ASQ/ANSI Z1.4 and with acceptance quality levels (AQL) as specified in the contract and/or order, except where otherwise indicated.

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

4.3.1 Inspection conditions. In accordance with 4.1 above, the material shall be inspected in accordance with all the requirements of referenced documents, unless otherwise excluded, amended, modified or qualified in this specification or applicable procurement documents.

4.4 Visual examination. Each roll in the sample shall be examined yard-by-yard on the face side for defects in accordance with MIL-STD-3064, Type I.

4.4.1 Roll identification and marking examination. During the yard-by-yard examination, each roll in the sample shall be examined for defects as specified in MIL-STD-3064.

4.4.2 Shade variation examination. During the yard-by-yard examination, each roll in the sample shall be examined for shade variation as specified in MIL-STD-3064.

4.4.3 Length examination. For Government procurements only, during the yard-by-yard examination, each roll in the sample shall be examined for length as specified in MIL-STD-3064.

4.5 End item testing. The cloth shall be tested for the characteristics listed in Table X. The methods of testing as specified wherever applicable and as listed in Table X shall be followed. All test reports shall contain the individual values utilized in expressing the final results. The sample unit shall be five (5) continuous yards full width of the finished cloth for all physical and chemical tests. The lot shall be unacceptable if one (1) or more tests fail to meet the requirement specified. The sample size shall be in accordance with the following:

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

TABLE X. End item tests.

Characteristic	Requirement paragraph	Test method
Cotton identification	3.4.1	AATCC TM20 (see 6.5)
Nylon identification	3.4.2	AATCC TM20 (see 6.5)
Denier, nylon	3.4.2	ASTM D1907/D1907M
Fiber content (cotton and nylon)	3.4.3	AATCC TM20A (see 6.5)
Yarn ply	3.4.3	Visual
Visual shade matching	3.5.1	4.6.1
Colorfastness:		4.6.2
Light	3.5.2	AATCC TM16.3, Option 3 1/
Laundering	3.5.2	AATCC TM61, Test 3A 2/, 3/
Perspiration	3.5.2	AATCC TM15 2/, 3/
Crocking	3.5.2	AATCC TM8 4/
Presence of labile sulfur	3.5.3	4.6.3
Pattern execution	3.5.4	Visual and linear measurement using a precision steel ruler

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

TABLE X. End item tests. - Continued

Characteristic	Requirement paragraph	Test method
Spectral reflectance:		
Class 1 & 2	3.6.1	4.6.4
Class 3	3.6.2	4.6.4
Class 5	3.6.3	4.6.4
Class 12, 13 &14	3.6.4	4.6.4
Class 15	3.6.5	4.6.4
Weight	3.7	ASTM D3776/D3776M
Yarns per inch	3.7	ASTM D3775
Breaking strength	3.7	ASTM D5034
Tearing strength	3.7	ASTM D1424
Air permeability	3.7	ASTM D737
Fabric appearance treatment (Class 14) After 20 Launderings	3.7	AATCC TM143, (3)(V)Aiii
Weave	3.7.1	Visual
Water repellency (Class 2 & 13):		
Dynamic absorption:		AATCC TM70
Initial	3.8.1	AATCC TM135 (3)(V)(A)iii and
After 15 launderings		AATCC TM70
Spray rating:	3.8.1	AATCC TM22
Resistance to organic liquids:		
Initial	3.8.1	AATCC TM118
After 15 launderings		TMAATCC 135 (3)(V)(A)iii and AATCC TM118
Fabric hand attribute (Class 14)	3.8.2	5/
pH	3.9	AATCC TM81
Dimensional stability After three (3) cycles	3.10	AATCC TM135 (3)(V)(A)iii
Toxicity	3.11	4.6.5

1/ Rated using the AATCC EP1, Evaluation Procedure for Gray Scale for Color

2/ Rated using the AATCC EP1, Evaluation Procedure for Gray Scale for Color Change and AATCC EP2, Evaluation Procedure for Gray Scale for Staining.

3/ Only the stain on the nylon and cotton fibers of the color transfer cloth shall be evaluated.

4/ Rated using the AATCC EP8, Evaluation Procedure for AATCC 9-step Chromatic Transference Scale.

5/ The hand “crispness” of the sample shall be compared to the guide sample when evaluated in accordance with AATCC EP5.

4.6. Methods of testing or inspection.

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

4.6.1 Visual shade matching evaluation. The color and appearance of the dyed and printed cloth shall match the standard sample when viewed using the AATCC EP9, Option C see (6.7), with sources simulating artificial daylight D75 illuminant with a color temperature of 7500 (± 200) K illumination of 100 (± 20) foot candles, and shall be a good match to the standard sample under incandescent A illuminant with a color temperature of 2856K (± 200).

4.6.2 Colorfastness evaluation testing. When testing for colorfastness properties, each color shall be evaluated, whenever possible, separately and reported as such. In cases where the print pattern does not allow for the evaluation of each color separately, the test results should indicated which colors were evaluated together.

4.6.2.1 Operation Camouflage Pattern (OCP) (Classes 12, 13 and 14). All colorfastness testing for OCP (Classes 12, 13 and 14) shall be performed on the solid color area and not the tonal area.

4.6.3 Presence of labile sulfur test. In the determination of presence of labile sulfur in textile materials with lead acetate, two (2), 1.50 (± 0.01) gram samples from each material submitted for evaluation shall be tested. Each of the two samples shall be cut into very small pieces and placed into separate test tubes. The samples shall be submersed in a stannous chloride solution that contains 100 grams of stannous chloride crystals ACS in 100 milliliters of hydrochloric acid ACS (35 percent concentration) and 50 milliliters of distilled water. A filter paper wet out with a 5.0 percent lead acetate solution shall be placed over the top of the test tube. The lead acetate solution contains 5.0 grams of lead acetate CP reagent grade and enough distilled water to make up a 100 milliliter solution; if the solution is not clear add a few drops (one at a time) of glacial acetic acid until the solution is clear. The test tube containing the textile sample, stannous chloride and wet filter paper shall be heated over a low flame until the solution is boiling. The solution should not be heated for more than 15 seconds. A brown to black stain on the filter paper should be evaluated as follows:

Free - The filter paper shows no discoloration or staining of any kind.
Slight - The filter paper shows a light tan to light brown discoloration stain.
Moderate - - The filter paper shows a dark brown discoloration stain.
Severe - The filter paper shows a black color stain.

The rating shall be recorded. The results shall be recorded as “pass” or “fail”.

4.6.4 Spectral reflectance test. Spectral reflectance data shall be obtained from 600 to 860 nanometer (nm) for Classes 1, 2, 3, 12, 13, 14, and 15 and 700 nm to 860 nm for Class 5 at 20nm intervals on a spectrophotometer relative to the polytetrafluoroethylene (PTFE) family of compounds, the preferred white standard. Other white reference materials may be used provided they are calibrated to absolute white or vitrolite tiles. The spectral band width shall be less than 20 nm at 860 nm. Reflectance measurements shall be made by either the monochromatic or polychromatic mode of operation. When the polychromatic mode of operation is used, the spectrophotometer shall operate with the specimen diffusely illuminated with the full emission of a continuous source that simulates in the visible spectrum either CIE Source A or CIE Source

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

D65. The specimen shall be viewed at an angle of no greater than 10º from normal, the specular component included. Measurements shall be taken on a minimum of two (2) different areas and the data averaged. The Woodland Camouflage Pattern (Classes 1 and 2) and Class 5 cloth shall be measured as a single layer using three (3) backing layers of the same shade for Light Green 354, Dark Green 355 and Brown 356 colors and two (2) backing layers of the same shade for Black 357. The Desert Camouflage Pattern (Class 3), Operational Camouflage Pattern (OCP) (Classes 12, 13 and 14), and 3-Color Insignia Pattern (Class 15) , shall be measured as a single layer backed with four (4) layers of the same shade cut from the standard. The spectral reflectance on OCP shall be measured on the mostly solid color area not the tonal area. Specimens shall be oriented in different directions during testing. When possible, the specimens tested shall not contain the same warp and filling yarns. The diameter for standard aperture size used in the color measurement device shall be 1.0 to 1.25-inches for Classes 1, 2, 3 and 5, and 0.3725-inches or larger for the Classes 12, 13, 14 and 15. The measured areas should be at least 6-inches away from the selvage. Photometric accuracy of the spectrophotometer shall be within one (1) percent and wavelength accuracy within two (2) nm. Any color having spectral reflectance values falling outside the limits at four (4) or more of the wavelengths specified shall be considered a test failure.

4.6.5 Toxicity test. When required, (see 6.2) an acute dermal irritation study and a skin sensitization study shall be conducted. When the results of these studies indicate the material is not a sensitizer or irritant, a Repeat Insult Patch Test shall be performed in accordance with the Modified Draize Procedure (see 2.3). If toxicity requirement (see 3.11) can be demonstrated with historical use data, on the finishing treatments used, toxicity testing may not be required (see 6.2).

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Department or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES.

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The cloth is intended for use in wind resistant clothing and insignia, and depending on the class are water repellent and wrinkle free.

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification
b. Classes required (see 1.2)
c. The specific issue of individual documents referenced (see 2.2)
d. Camouflage pattern drawing, if required (see 2.2.2)
e. When first article is required (see 3.1, 4.2 and 6.3)
f. Width of cloth required (see 3.7.2)
g. Length required if other than specified (see 3.13)
h. Conformance inspection acceptance quality limits (AQL) (see 4.3)
i. Inspection conditions (see 4.3.1)
j. When toxicity testing is required (see 4.6.5)
k. Packaging (see 5.1)

6.3 First article. When a first article inspection is required (see 3.1), it will be inspected and approved under the appropriate provisions of FAR 52.209-4. The first article should be a pre-production sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 Standard sample. For access to samples and pattern drawings, address the contracting activity issuing the invitation for bids or request for proposal.

6.5 Certificate of compliance. The contracting activity may select to accept a certificate of compliance for stated requirement.

6.6 Replica set. The SDL Atlas Slub/Knot Replica Set is not available from their website at this time. Recommend calling customer service, 1-803-329-2110.

6.7 Visual shade matching. In 2019, Option A of AATCC Evaluation Procedure 9, Visual Assessment of Color Difference of Textiles 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 (± 5°) angle relative to the horizontal. The observer will view the specimens at a 90° angle, relative to the plane of the specimens”.

6.8 Deleted classes (Classes 4, 6, 7, 8, 9, 10 and 11). Class 4, Desert Camouflage Printed Permethrin Treated has been deleted. The cloth is no longer treated with permethrin before garments are constructed; it is only applied to a completed end item. Classes 6, 7, and 8, Universal Camouflage Pattern (UCP) has been deleted without replacement as the wear-out date (September 30, 2019) per (ALARACT 085/2015) has passed. Classes 9, 10 and 11 Operation Enduring Freedom Camouflage Pattern (OEF-CP) has been deleted without replacement.

6.9 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issues, due to the extensiveness of the changes.

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.

6.10 Subject term (key word) listing.

Desert
Insignia
Operational Camouflage Pattern (OCP)
Toxicity
Water repellent treated
Wrinkle free
Woodland

Custodians:
Army - GL
Air Force 11

Preparing activity:
DLA – CT

Review activities:
Army - MD

(Project: 8305-2020-005)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using ASSIST Online database at https://assist.dla.mil.

Source: https://assist.dla.mil -- Downloaded: 2026-11-09T15:31Z
Check the source to verify that this is the current version before use.