

[INCH-POUND]
A-A-59510
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Superseding
MIL-C-43677
12 June, 1981

COMMERCIAL ITEM DESCRIPTION

CLOTH, COATED, FOR HEAT SEAL PATCHING

The General Services Administration has authorized the use of this commercial item description in preference to types I and II of MIL-C-43677 for all federal agencies.

1. Scope. This document covers two types of coated heat sealable cloth. The cloth is intended for use in the repair of holes and tears in the following items:

Type I cloth

Sleeping bag, mountain

Sleeping bag, arctic

Interiors of the sleeping bag, intermediate cold and sleeping bag, extreme cold

Type II cloth

Exteriors of the sleeping bag, intermediate cold and sleeping bag, extreme cold

2. Classification.

Type I Cloth, Balloon

Type II Cloth, Wind Resistant

3. Salient Characteristics.

3.1 Description.

3.1.1 Base cloth. The base cloth for type I shall be cotton plain weave, conforming to the requirements specified in Table I. The base cloth for type II shall be cotton oxford, conforming to the requirements specified in Table II.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Supply Center Philadelphia, Clothing and Textiles Directorate, Attn: DSCP-COCT, 700 Robbins Ave, Philadelphia PA., 19111-5092.
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AMSC N/A

FSC 8305

A-A-59510

TABLE I. Physical requirements of type I base cloth

Characteristic	Requirement
Weight, (oz/yd ²) (maximum)	3.9
Yarns per inch	
Warp	126
Filling	112
Breaking strength, lbs. (minimum)	
Warp	63
Filling	63
Spray rating (minimum)	90, 90, 80
Dimensional stability % (maximum)	
Warp & Filling	2.0

TABLE II. Physical requirements of type II base cloth

Characteristic	Requirement
Weight, (oz/yd ²) (maximum)	7.1
Yarns per inch	
Warp	130
Filling	48
Breaking strength, lbs. (minimum)	
Warp	240
Filling	90
Spray rating (minimum)	90, 90, 80
Resistance to organic liquid	
Initial	No wetting by n-tetradecane
After 5 launderings	No wetting by n-tetradecane
Dimensional stability % (maximum)	
Warp	3.5
Filling	2.5

3.2 Coating. The material for coating shall be polyvinylchloride and shall be applied to one side of the base cloth. The face side of the finished cloth shall be comparatively

A-A-59510

smooth and the back side may be rough (areas located over the points at which the yarns cross will be raised and the areas between the yarns will be depressed). The physical properties of the finished cloth (and the strip in cloth form prior to being cut into strip) shall conform to the requirements specified in Table III.

3.3 Color. The color of the type I and type II cloths shall be Camouflage Green 483.

The color of the finished cloth shall match the approved color standard for the color specified where such a sample is applicable. The color of the finished cloth shall match the standard sample when viewed under filtered tungsten lamps that approximate artificial daylight and that have a correlated color temperature of $7500^{\circ}\text{K} \pm 200^{\circ}\text{K}$, with illumination of 100 ± 20 footcandles and shall be a good match to the standard sample under incandescent lamplight at $2300^{\circ}\text{K} + 200^{\circ}\text{K}$.

3.4 Physical Requirements of finished cloth The finished cloth shall conform to the requirements listed in Table III.

TABLE III. Physical requirements

Characteristic	Types I and II
Coating weight, (oz/yd ²)	2.5 ± 0.5
Dry adhesion, (lbs./inch (min)	4.5
Wet adhesion, (lbs./inch) (min)	3.5
Blocking, scale rating, (max)	No. 3

3.5 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.

3.5 Length and put-up. The cloth shall be put up on rolls as specified. Splicing of the cloth is prohibited.

3.4 Width. All selvages of the coated cloth shall be trimmed. After trimming, the width of the finished coated cloth shall be as specified in the contract or order.

4. REGULATORY REQUIREMENTS

4.1 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable 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.

A-A-59510

5. QUALITY ASSURANCE PROVISIONS

5.1 Product conformance. The products provided shall meet the salient characteristics of this commercial item description and conform to the producer's own drawings, specifications, standards and quality assurance practices. The Government reserves the right to require proof of such conformance.

5.2 Acceptance criteria. Acceptance criteria shall be as specified in the contract or purchase order.

5.3 End item tests. The finished cloth shall be tested for the characteristics listed in Table IV. The methods of testing specified shall be followed. The physical values specified apply to the average of determinations made on a sample unit for test purposes as specified in the applicable test methods. The sample unit shall be 3, continuous yards full width of the finished cloth. The lot shall be unacceptable if one or more sample units fail to meet any test requirements specified. The lot size shall be expressed in units of one yard each. All test reports shall contain the individual values utilized in expressing the final result.

TABLE IV. Testing of type I base cloth

Characteristic	Requirement	Test Method
Weight, (oz/yd ²) (maximum)	Table I	ASTM-D-3776 Method C (small swatch of fabric method)
Yarns per inch Warp Filling	Table I	ASTM-D-3775
Breaking strength, lbs. (minimum) Warp Filling	Table I	ASTM-D-5034 (G-E or G-T)
Spray rating (minimum)	Table I	AATCC-22
Dimensional stability % (maximum)	Table I	AATCC-96 Test Vc, D <u>1</u> /

A-A-59510

TABLE V. Testing of type II base cloth

Characteristic	Requirement	Test Method
Weight, (oz/yd ²)	Table II	ASTM-D-3776 Method C (small swatch of fabric method)
Breaking strength	Table II	ASTM-D-5034 (G-E or G-T)
Colorfastness to: Laundering (after 3 cycles) Crocking Perspiration Light	Table II	AATCC-61 Test 3A AATCC-8 AATCC-15 AATCC-16 Opt. A
Spray rating	Table II	AATCC-22

Table VI. End item testing of the finished coated cloth

Characteristics	Requirement	Test method
Weight of coating	Table III	5.4
Resistance to penetration	Table III	5.5 and 5.6
Dry adhesion	Table III	5.7
Wet adhesion	Table III	5.8
Blocking	Table III	5.9

5.4 Weight of coating. The weight of the coated cloth shall be obtained by ASTM-D-3776 Method C (small swatch of fabric method). The weight of the uncoated cloth shall also be obtained by the same method, using a sample of the uncoated cloth retained for this purpose. The weight of the coating shall be the difference between the two values.

5.5 Preparation of test specimens for adhesion and resistance to penetration. The test specimen shall be a 2 by 7 inch piece of coated cloth heat sealed, as indicated below, to a 2 by 7 inch piece of uncoated backing cloth. The backing cloth for type I and type II

A-A-59510

cloth shall conform to 3.1.1. The pieces of cloth shall be cut with the warp threads running in the length dimension of the cut pieces. The coated piece shall be placed coated side down on the uncoated backing piece so the center lines running in the length direction of the two pieces are aligned. While in this position, place the two pieces flat on the bottom platen of an industrial grade heat sealing machine. Care shall be taken to assure there are no wrinkles in the cloth. Allow the temperature of the heating platen to reach 390°F. The full width and 4 to 5 inches of the length of the two pieces shall then be heat sealed using the industrial grade heat sealing machine and subjecting the pieces to a pressure of 2.5 psi of platen surface at a temperature of 390°F for a dwell time of 8 seconds. The specimen shall be allowed to cool in place undisturbed for not less than 1 minute. The sample shall be carefully removed without stressing the bonded area, then allowed to remain at room temperature for not less than 1 hour before further testing.

5.6 Resistance to penetration. Five Specimens from each sample unit shall be visually examined for evidence of adhesive material penetrating through the cloth to the surface of the specimen. The specimens to be examined shall be prepared as specified in 5.5.

5.7 Dry adhesion. Five specimens from each sample unit shall be tested. The specimens shall be prepared as specified in 5.5 and shall be tested for adhesion according to ASTM-D-751 except that the heat sealed portion of the specimen shall not be separated by hand prior to inserting the ends of the specimen in the clamps of the test apparatus. The test specimen shall be the full width of the seam prepared by separating the layers of the seam at one end by hand for a distance of approximately 5 cm (2 in.). The remainder of the test specimen shall then be separated by the testing machine in accordance with the specified procedure using a pulling clamp speed of 5 mm/sec (12 in/min). The adhesion shall be the average of the five highest peaks of force divided by the width of the seam. Five specimens shall be tested.

5.8 Wet adhesion. Five specimens from each sample unit shall be tested. The specimens, prepared as specified in 5.5 shall be submerged for 1 hour in 500ml of hot soapy water maintained at $160 \pm 5^\circ\text{F}$, without agitation. The soap shall be ASTM-D-496 or ASTM-D-498; detergents shall not be used. At the end of one hour the specimens shall be removed and rinsed for 2 minutes in a beaker kept overflowing with hot tap water at 130-140°F. The specimens shall then be given a final rinse in cold water at 70°F. Immediately after the final rinse, the specimens, while wet, shall be tested for adhesion in accordance with ASTM-D-751 as described in 5.7.

5.9 Blocking. ASTM D 751, Blocking Resistance at Elevated Temperatures, except that the test shall be performed at a temperature of $180 \pm 2^\circ\text{F}$ for 30 minutes. Evaluate the resistance of the specimen to blocking by the scale given below:

- 1 -- *No Blocking*. Cloth surfaces are free and separate without any evidence of cohesion or adhesion.
- 2 -- *Trace Blocking*. Cloth surfaces show slight cohesion or adhesion.
- 3 -- *Slight Blocking*. Cloth surfaces must be lightly peeled to separate.

A-A-59510

4 -- *Blocking*. Cloth surfaces separate with difficulty or coating is removed during separation

5.10 Yard-by-yard examination. The required yardage of each roll in the sample shall be examined on one side only for the defects listed below, however the side shall be alternated for every other roll examined. The 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 warpwise yard or fraction thereof in which it occurs. The sample unit shall be 1 linear yard.

5.11 Defects. The cloth shall be examined for the following defects: Any hole, cut, tear, Any blister or delamination; Any lump; Any crease or wrinkle resulting in fold, pleat or doubling or adhesion of surfaces that cannot be corrected by manual pressure; Any film or coating missing to expose the base cloth; Any spot, stain or streak more than 1 inch in combined directions, clearly visible at normal inspection distance (3 feet); Any objectionable odor (odors of chemicals commonly used in coating compounds shall not be regarded as objectionable); Color not as specified; Any evidence of uncleanness, Any dimensional distortion, Uneven thickness of film or coating clearly noticeable. Any tackiness (film or coating shall not block so as to cause surfaces to adhere and not unroll readily); Edges rolled, folded, scalloped, or corded; Edges not trimmed uniformly.

5.12 Acceptance criteria. Acceptance criteria shall be as specified in the contract or purchase order.

6. PACKAGING

6.1 Preservation, packing, put-up, and marking. The preservation, packing, put-up and marking shall be as specified in the contract or order.

7. NOTES

7.1 Sources of Nongovernment Documents.

AMERICAN SOCIETY FOR TESTING AND MATERIALS

ASTM-D-496	-	Standard Specification for Chip Soap
ASTM-D-498	-	Standard Specification for Powdered Soap
ASTM-D-751	-	Standard Test Methods for Coated Fabrics
ASTM-D-2165	-	pH of Aqueous Extracts of Wool and Similar Fibers
ASTM-D-3375	-	Fabric Count of Woven Fabric

A-A-59510

- ASTM-D-3776 - Mass Per Unit Area (Weight) of Fabric
- ASTM-D-5034 - Breaking Force, and Elongation of Textile Fabrics

(Applications for copies should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19426-2959.)

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC) TECHNICAL MANUAL

- AATCC – 8 - Colorfastness to Crocking
- AATCC-15 - Colorfastness to Perspiration
- AATCC-16 - Colorfastness to Light of Textile Materials
- AATCC-61 - Colorfastness to Laundering, Home and Commercial: Accelerated
- AATCC-22 - Water Repellancy, Spray Test
- AATCC-70 - Water Repellancy: Tumble Jar Dynamic Absorption Test
- AATCC-81 - pH of Water Extracted from Bleached Textiles
- AATCC-96 - Dimensional Changes in Commercial Laundering of Woven and Knitted Fabrics except Wool
- AATCC-127 - Water Resistance: Hydrostatic Pressure Test

(Applications for copies of referenced documents should be addressed to the American Association of Textile Chemists and Colorists, PO Box 12215, Research Triangle Park, NC 27709-2215.)

7.5 Sources of Supply. Manufactures Whose Products are know to meet the requirements of this CID are listed below, but these manufactures may not produce all types; however, competition is not limited to these companies.

Durcote Corporation
350 N. Diamond Street
Ravenna OH 44266-2155

Eliscu & Co., Inc.
8 List RD
Kearney, NJ 07030

A-A-59510

Custodian:
Army - GL

Civil Agency Coordinating
Activity:
GSA - FSS

Review Activities:
Army - MD

Preparing Activity:
DLA – CT

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