

CLOTH, COTTON, UNIFORM, TWILL, 8.2 OZ.

A. APPLICABLE SPECIFICATIONS.

A-1. The following specifications, of the issue in effect on date of invitation for bids, shall form a part of this specification:

- A-1a. Federal Specification -
CCC-T-191 - Textiles; general specifications, test methods.
- A-1b. U. S. Army Specification -
100-2 - Standard specifications for marking shipments.

B. TYPES AND GRADE.

B-1. Types - Cloth, cotton, uniform twill, 8.2 oz., shall be of five types as specified herein.

B-2. Grade - Shall be "Firsts".

C. MATERIAL AND WORKMANSHIP.

C-1. Material - The material shall conform to the following:

C-1a. Cotton - The cotton shall be of suitable length of staple and grade to meet the requirements of this specification. When irrigation-grown cotton is used, it shall not be blended with other cottons at any stage in the manufacture of this fabric.

C-1b. Yarn - The cotton used in the manufacture of the yarn shall be thoroughly cleaned, well carded, evenly drawn and spun. The yarn shall be carded or combed and single or plied as indicated in Table I.

C-2. Workmanship - The finished cloth shall be clean, evenly woven and free from any defects which may affect appearance or serviceability.

D. GENERAL REQUIREMENTS.

D-1. See Section E.

E. DETAIL REQUIREMENTS.

E-1. Color - Shall be of khaki, olive drab, or any other color as specified in invitation for bids, of the same shade as shown by the standard sample. The cloth shall be evenly dyed with vat dyes and shall show good fastness when subjected to the following tests:

E-1a. Fastness to Weather - Samples to be exposed for 30 days.

E-1b. Fastness to Laundering - Test to be conducted by washing procedure as outlined in paragraphs 1 and 2 of Section XIV, Federal Specification CCC-T-191.

E-1c. Fastness to Bleaching - Test to be conducted as described in Paragraph F-3a.

E-2. Physical Requirements - The physical requirements for each type shall be:

TABLE I

Type	Yarns	Ply of Yarns	Threads per inch (Minimum)	Breaking Strength (minimum) 1x1x3 grab method Pounds	Weight per square yard Ounces			
		Warp	Filling	Warp	Filling	Min.	Max.	
I	Combed	2	2	116	56	180	130	8.2
II	Combed	2	1	116	56	180	110	7.8 : 8.6
III	Combed	2	1	90	54	140	90	7.8 : 8.6
IV	Carded	1 or 2	1 or 2	116	56	155	105	7.8 : 8.6
V	Combed	2	2	116	56	160	115	7.8 : 8.6

E-3. Width - The width, exclusive of the selvage, shall not be less than 28 inches nor more than 57 inches.

E-4. Weave - The weave shall be a four-harness twill to the right, three up and one down.

E-5. Shrinkage - The cloth shall be preshrunk and when subjected to "Tests for shrinkage in laundering" as outlined in Section XIV of Federal Specifications CCC-T-191, shall not shrink more than 1 percent in either the direction of the warp or the filling.

E-6. Finish - The cloth shall be closely singed, bleached, fully mercerized and contain no sizing. The use of finishing or loading materials to increase the weight or breaking strength is prohibited.

E-7. Water Repellency - When specified in the invitation for bids, the cloth shall be given a water repellent treatment to meet the following minimum requirements:

	<u>Spray Rating</u>
Initially.....	90
After 3 launderings.....	80
After 3 dry cleanings.....	80

F-3b.

The cloth shall be tested for water repellency as outlined in paragraph

When the fabric is given a water repellent treatment, the breaking strength of Types III and IV shall conform to the following minimum requirements:

	<u>Warp</u>	<u>Filling</u>
Type III	110	80
Type IV	135	90

E-8. Length - Unless otherwise specified in invitation for bids, the cloth shall be continuous pieces, each of not less than 50 yards.

E-9. Tickets- Each bolt shall have a ticket attached to the selvage at one end with not finer than five fold cotton string doubled to not less than 8 inches long. The ticket shall be made of heavy cardboard and be provided with a reinforced eyelet for attaching the tying cord. The ticket shall have legibly printed on it the following information:

Cloth, cotton, uniform twill, Type _____ Color _____ Width _____
Contractor's name
Contract number and date
Specification Number
Stock Number
Name of contracting office
Contractor's piece number
Actual yards
Net yards
Inspector

E-10. Contractor's Inspection - The contractor shall thoroughly inspect the cloth for compliance with this specification, prior to delivery to the United States Government for final inspection.

F. METHODS OF SAMPLING, INSPECTION, AND TESTS.

F-1. Sampling - Samples of any materials, components, etc., not furnished by the United States Government, entering into the manufacture of the articles covered herein, shall be selected from time to time by the Government inspector, and carefully examined and tests made to determine if they are in accordance with this specification.

F-2. Inspection - Inspection may be made throughout the entire process of manufacture. The passing as satisfactory of any detail of construction or material shall not relieve the contractor of responsibility for faulty workmanship or material which may be discovered at any time prior to final acceptance. Final inspection of the finished article shall be made either at point of production or at point of delivery designated in the contract or purchase order of the procuring agency. In case of factory inspection, every facility shall be afforded inspectors, by the manufacturer, for the prosecution of their work.

F-3. Tests - The methods of testing described in Federal Specification CCC-T-191, wherever applicable, shall be followed, except that the test for fastness to laundering agents containing active chlorine shall be made as described hereafter:

F-3a. Fastness to Bleaching -

F-3a(1). Two solutions are required, as follows:

Sodium Hypochlorite Solution (Bleach)

Any commercial preparation of Sodium Hypochlorite (NaOCl-Bleach Solution) is diluted with a buffer solution and/or distilled water to an available chlorine content of 0.3% and a Hydrogenion concentration (pH) of 11.0 plus or minus 0.2. A distilled water solution of C. P. Sodium Hydroxide (NaOH), C. P. Sodium Bicarbonate (NaHCO₃) or C. P. Sodium Carbonate (Na₂CO₃), or any combination of the three may be used as buffering agents

Sodium Bisulfite Solution (Anti-Chlor)

5G. C. P. Sodium Bisulphite (NaHSO₃), Anhydrous

Make up to 1 Liter with water.

F-3a(2). A specimen of the colored material weighing from 2 - 6 grams is taken for test. The specimen is wet out thoroughly in distilled water, or in the event that it has been given a water repellent finish it is wet out in a 0.5% neutral soap solution at 90° , plus or minus 5° F. and rinsed free of soap with distilled water. The surplus liquid is removed and the specimen is placed in a one pint glass jar with glass cover and rubber washers containing 50 times the dry weight of specimen of Sodium Hypochlorite (NaOCl) Solution at 80° F. plus or minus 5° F.

F-3a(3). The jar containing the specimen and Sodium Hypochlorite Solution is placed without delay and agitated for one hour at 80° plus or minus 5° F. in a Launderometer or similar machine which will maintain the required temperature the requirements for which are given in XIII - 4. (The time is measured from time of entry of specimen into the jar to time of removal from the jar and entry into rinse water).

F-3a(4). The specimen is removed from the jar, rinsed thoroughly in cold, running tap water for five (5) minutes, squeezing at intervals. The surplus water is removed by any convenient means after which the specimen is placed in the Sodium Bisulfite Solution at 80° plus or minus 5° F. for 10 minutes at the end of which time the specimen is rinsed in cold, running tap water, squeezing at intervals. After removal of the surplus water by any convenient means, the specimen is dried by pressing with a hot iron having a temperature of not over 325° F.

F-3a(5). In the event of dispute a specimen weighing 4 grams shall be tested with the above conditions, except that no tolerance in temperature or pH are permitted.

F-3b. Spray Resistance - Fit a small spray nozzle with approximately 20 holes .035 inch in diameter to a funnel. The test specimen is clamped to a suitable frame which is mounted at an angle of 45° so that the center of the specimen is 6

inches directly below the nozzle. Pour 250 cc of water at 80° F. in the funnel. After the spray, tap one edge of the frame against a solid object, then rotate 180° and once more tap at point where previously held. Rate sample visually as follows:

- 100 - No sticking, spotting, or wetting of upper surface.
- 90 - Slight random sticking or spotting of upper surface.
- 80 - Wetting of upper surface at a majority of points where water sprays impinge.
- 70 - Partial wetting of whole of upper surface subjected to spray patterns.

F-3c. Laundering Test - The methods of testing described in Section XIV-1 and 2, Federal Specification CCC-T-191, followed by two additional hot water rinses, shall be employed.

F-3d. Dry Cleaning Test - Employ a machine such as described in Section XIII - paragraph 4, Federal Specification CCC-T-191. A 7" x 7" test sample of fabric is placed in a 1 pint jar with 200 cc clean Stoddard Solvent and run for 20 minutes at 80° F. Sample is then removed, air dried and ironed or hot pressed.

G. PACKING AND MARKING.

G-1. Packing - Unless otherwise specified in invitation for bids, shall be commercially packed so as to insure acceptance by common carriers, for safe transportation, at the lowest rate, to point of delivery.

G-2. Marking - Unless otherwise specified in invitation for bids, or contract, or other order under which shipment is made, shipping containers shall be marked in accordance with U. S. Army Specification No. 100-2.

H. NOTES.

H-1. Before production is commenced, a sample of the cloth shall be submitted to the contracting officer for approval.

H-2. This cloth is to be used in the manufacture of cotton uniform items for the personnel of the United States Army.

H-3. For access to standard sample, address Procuring Office issuing the Invitation for Bids.

H-4. The use of this specification, wherever applicable, is mandatory upon the procuring agencies of the United States Army.

NOTICE:- When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication, or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

NOTE: Unless otherwise specified in invitation for bids, or purchase order, copies of this specification may be obtained at the following points:

- Jersey City Quartermaster Depot, 34 Exchange Place, Jersey City, N. J.
- Chicago Quartermaster Depot, 1819 West Pershing Road, Chicago, Ill.
- California Quartermaster Depot, Clay and 15th Streets, Oakland, Calif.
- San Antonio Quartermaster Depot, Fort Sam Houston, Texas.
- Jeffersonville Quartermaster Depot, Jeffersonville, Ind.
- Kansas City Quartermaster Depot, Kansas City, Mo.
- Philadelphia Quartermaster Depot, 2800 So. 20th St., Philadelphia, Pa.