

MIL-T-13452A(Ord)

29 July 1959

SUPERSEDING

MIL-W-13452(Ord)

21 May 1954

MILITARY SPECIFICATION

TAPE, TEXTILE, COTTON FOR BANDOLEERS

1. SCOPE

1.1 This specification covers one type of cotton textile tape suitable for use in making bandoleers for small arms ammunition.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue in effect on date of invitation, for bids, form a part of this specification.

SPECIFICATIONS

FEDERAL

CCC-T-191 - Textile Test Methods

MILITARY

MIL-P-3824 - Packaging of Webbing

STANDARDS

MILITARY

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

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring agency or as directed by the contracting officer.)

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2.2 Other publications. - The following publications, of the issue in effect on date of invitation for bids, form a part of this specification.

COLOR INDEX - Joint Publications
Society of Dyers and Colorists
and
American Association of
Textile Chemists and Colorists

(Application for copies of the above should be addressed to the Lowell Technological Institute, Lowell, Mass.)

3. REQUIREMENTS

3.1 Standard sample. - Unless otherwise specified the tape shall be equal to the standard in all respects not specifically covered by this specification (see 6.2).

3.2 Material. - The tape shall be woven from carded or combed cotton yarns, unbleached, using cotton of a suitable grade and staple length to meet the requirements of this specification.

3.3 Color. - The color shall be olive drab No. 7 and shall be produced by the use of vat dyes to match an approved shade standard. The use of sulfur dyes or dyes containing sulfur compounds capable of oxidation to sulfuric acid are prohibited (see 6.3). Chromium salts shall not be used for oxidation of the vat dyestuffs (see 4.5.1).

3.3.1 Matching. - The color shall be uniform and match an approved standard shade (see 6.2) under natural (north sky) daylight, or artificial daylight having a color temperature of 7500° Kelvin, and shall be a good approximation to the standard shade under incandescent lamplight at 2800° Kelvin (see 4.5.2).

3.3.2 Colorfastness.

3.3.2.1 Rating per "Standard shade sample". - The dyed tape shall show fastness to laundering, bleaching, crocking, and light after 40 standard fading hours equal to or better than the standard sample when tested as specified in 4.5.3.

3.3.2.2 Rating per "No standard sample". - When no standard shade sample is available the dyed tape shall show good fastness to laundering, bleaching, crocking and light, after 40 standard fading hours when tested as specified in 4.5.3.

3.4 Composition

3.4.1 Nonfibrous materials

3.4.1.1 Starch and protein content. - The starch and protein content shall be not more than 2.0 percent when tested as specified in 4.5.3.

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3.4.1.2 Acid hydrolyzable materials. - Nonfibrous acid-hydrolyzable materials shall not exceed an additional 1.0 percent of nonfibrous materials when tested as specified in 4.5.3.

3.4.2 Impurities. - If required the maximum permissible content of impurities in the finished tape shall be as specified in table I. The determination of the impurities content, if required, shall be specifically requested by the procuring agency (see 4.5.4 and 6.1).

Table I - Permissible limit of impurities in the tape

| Impurity | Allowed limits |
|---------------------|-----------------------|
| Chlorides (as NaCl) | .020% max. |
| Sulfur | not more than a trace |
| pH | 7-8 |

3.5 Physical. - The finished tape shall conform to the requirements specified in table II when tested as specified in 4.5.3.

Table II - Physical requirements

| Weight Ounces per lin. yd. | | Breaking strength Pounds per inch (min.) | |
|-------------------------------|---------|---|---------|
| Minimum | Maximum | Warp | Filling |
| 0.35 | 0.39 | 185 | 66 |

3.5.1 Weave. - Unless otherwise specified the weave shall be 2/2 herringbone twill (see 6.1).

3.6 Dimensions

3.6.1 Width. - The width of the tape shall be 1-3/8 inches with a minus tolerance of 1/8 inch and no plus tolerance when examined as specified in 4.4.3.

3.6.2 Rolls. - Each roll of finished tape shall contain not less than 72 nor more than 144 linear yards. Unless otherwise specified each roll of approximately 72 linear yards shall contain not more than two pieces of tape, while each roll of approximately 144 linear yards shall contain not more than four pieces. Furthermore, none of the individual pieces in a roll shall be less than 10 yards long. Each roll shall be evenly wound on a core having a hole 3/8 inch in diameter. The cores may be fabricated from suitable material, such as paper, fiber or wood.

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3.7 Workmanship. - The tape shall conform to the quality and grade of product established by this specification. The occurrence of defects shall not exceed that set as the acceptable quality levels.

4. QUALITY ASSURANCE PROVISIONS

4.1 Unless otherwise specified herein the supplier is responsible for the performance of all inspection requirements prior to submission for Government inspection and acceptance. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. Inspection records of the examinations and tests shall be kept complete and available to the Government as specified in the contract or order.

4.2 Lot. - Unless otherwise specified, a lot shall consist of not less than 10,000 linear yards nor more than 50,000 linear yards of tape offered for inspection at one time. Upon the contractor's request and approval by the procuring agency, a lot may contain less than 10,000 linear yards.

4.3 Sampling

4.3.1 For overall examination of rolls. - Selection of rolls for overall examination shall be made in accordance with the terms of MIL-STD-105. The number of rolls selected shall be in accordance with table III.

Table III - Number of rolls in sample

| Lot size in yards | Sample size in rolls |
|-------------------|----------------------|
| Up to 1300 | $\frac{1}{3}$ |
| 1301 to 3200 | 5 |
| 3201 to 8000 | 7 |
| 8001 to 22,000 | 10 |
| 22,001 to 110,000 | 15 |
| 110,001 and over | 25 |

$\frac{1}{3}$ If a lot contains fewer than 3 rolls, each roll in the lot shall be examined.

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4.3.2 For yard-to yard examination. - Samples of tape for yard-to-yard examination shall be selected in accordance with Standard MIL-STD-105 at inspection level II, table III. The lot size shall be expressed in units of 1 linear yard.

4.3.3 For tests. - Samples of tape for tests shall be selected in accordance with the appendix to Standard MIL-STD-105 at inspection level I-1, table VII. The lot size shall be expressed in units of 1 linear yard. The unit-of-product shall be 5 yards of the finished tape.

4.4 Examination.

4.4.1 Over^{all} examination. - Rolls of tape selected in accordance with 4.3.1 shall be examined for defects. Each defect listed below shall be counted no more than once in each roll examined. The maximum number of acceptable defects shall be 0 for a sample size of 10 rolls or less, and 1 for a sample size of 11 rolls or more.

Defects

- (a) Off shade, not within established tolerances.
- (b) Cloudy, mottled, or streaky throughout.
- (c) Poorly constructed, not firmly and tightly woven.
- (d) Poor color penetration
- (e) Objectionable odor
- (f) Overall uncleanness.

4.4.2 Examination for length

4.4.2.1 Examination for length of individual rolls. - Each roll selected for overall examination (see 4.3.1) shall be examined for gross length. Any gross length found to be less than the specified minimum length, or any gross length found to be more than 2 yards less than the gross length marked on the ticket, shall be considered a defect with respect to length. The unit of product for this examination shall be 1 roll. The maximum number of acceptable defects for length shall be 0 for 10 rolls or less, and 1 for 11 rolls or more.

4.4.2.1.1 Examination for total yardage in sample. - The lot shall be unacceptable if the total of the actual gross lengths of rolls in the sample is less than the total of the gross lengths marked on roll tickets.

4.4.3 Yard by yard examination. - The required yardage shall be inspected on both sides and visual defects classified as listed in table V. All defects found shall be counted regardless of their proximity one to another, except where two or more defects represent a single local condition of the tape, 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 acceptable quality level shall be 2.5 major and 6.5 total

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defects (major and minor combined) per 100 units (yards). The lot size shall be expressed in units of one linear yard each. An approximately equal number of yards shall be examined from each roll selected.

Table V - Classification of yard-by-yard defects.

| Defects | Classification | |
|--|----------------|-------|
| | Major | Minor |
| Abrasion mark - resulting in a weak place | X | |
| Broken or missing end or picks | | |
| Two or more contiguous | X | |
| Single | | X |
| Cut, hole or tear, any | X | |
| Fine or light filling bar, clearly visible ^{1/} | X | |
| Fine thread or drop ply, less than 1/2 the thickness of the normal yarns | | X |
| Float | | |
| Multiple, more than 1/2 inch in combined warp and filling directions | X | |
| Multiple, 1/2 inch or less in combined warp and filling directions | | X |
| Single more than 1/2 inch in length | | X |
| Heavy filling bar or heavy place, clearly visible ^{1/} | | X |
| Knot on surface or embedded, clearly visible ^{1/} | | X |
| Slack or tight end or ends, clearly visible ^{1/} | | X |
| Slub, slug, jerked-in filling, or slough-off, more than 3 times the thickness of the normal yarn | | X |
| Smash | X | |
| Weak or soft spot | X | |
| Wrong draw, more than 9 inches in length | | X |
| Spot, stain or streak, clearly visible ^{1/} | | X |
| Edges | | |
| Cut, frayed or torn | X | |
| Slack or poorly constructed | X | |
| Shade (when colors are specified) | | |
| Shade bar, clearly visible ^{1/} | | X |
| Dye streak, clearly visible ^{1/} | | X |
| Width, beyond specified tolerance | | X |

^{1/}At normal inspection distance (approximately 3 feet)

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4.4.4 Packaging, packing and marking for shipment. - Examination shall be made for compliance with the requirements of section 5.

4.5 Tests.

4.5.1 Certification of dyestuff. - The contractor shall certify that the tape has been dyed in accordance with 3.3. The certificate shall be signed by a responsible agent of the certifying organization and shall be accompanied by evidence of this agents authority to bind his principal. The Government, reserves the right to check-test the tape submitted by the contractor under certification.

4.5.2 Matching. - The color of the tape shall be visually compared with that of the standard sample. In cases of disagreement between the contractor and the procuring agency as to the correctness of the color, a sample of the tape under inspection and a portion of the sealed standard sample shall be submitted to the nearest Army Quartermaster laboratory for final decision.

4.5.3 Test methods. - The methods of testing specified in Specification CCC-T-191, wherever applicable, and as listed in Table VI below shall be followed. The physical and chemical values specified in section 3 apply to the average of the determinations made on a unit of product for test purposes as specified in the applicable test method. For each characteristic, the acceptable quality level shall be 6.5 test failures per 100 units.

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Table VI - Test methods

| Test | Specification requirements | Test Method | Number of determinations per unit of product | Results reported for each unit of product. |
|------------------------------|----------------------------|--------------------|--|---|
| Color | | | | |
| Matching | 3.3.1 | (see 4.5.2) | 1 | When standard available: satisfactory or unsatisfactory When no standard available: good, fair, or poor. |
| Laundering | 3.3.2 | 5610 | 1 | |
| Chlorine bleaching | 3.3.2 | 5600 | 1 | |
| Crocking | 3.3.2 | 5651 | 1 | |
| Light | 3.3.2 | 5660 | 1 | |
| Nonfibrous materials | | | | |
| Starch and protein content | 3.4.1.1 | 2611 | 2 | Average of the 2 determinations to nearest 0.1% |
| Acid hydrolyzable materials | 3.4.1.2 | 2610 | 2 | |
| Impurities (if required) | | | | |
| Chlorides | 3.4.2 | 4.5.4.1 | 1 | Pass or fail |
| Sulfur | 3.4.2 | 4.5.4.2 | 1 | Pass or fail |
| Neutrality | 3.4.2 | 2810 | 1 | Pass or fail |
| Weight | 3.5 | 5041 | 5 | Average of the 5 determinations to nearest 0.1 ounces. |
| Breaking strength (warpwise) | 3.5 | 5100 ^{1/} | 5 | Average of the 5 determinations to nearest 1.0 pound. |
| Weave | 3.5.1 | Visual | 3 | Pass or fail |

^{1/} Breaking strength shall be determined on the full width of the tape, and jaw dimensions shall be greater than the width of the tape.

4.5.4 Impurities.

4.5.4.1 Chlorides. - The chlorides in the tape shall be determined by the following procedure. Select a 10 ± 0.1 gram specimen of tape and cut it into pieces approximately $1/2$ by $1/2$ inch. Extract the specimen with 100 ± 1 milliliters of distilled water by agitating gently for $1/2$ hour at room temperature in a stoppered Erlenmeyer flask. The solution shall then be decanted and adjusted to a temperature of 24 to 26°C. (75 to 79°F.). Pipet 25 ml. of test solution into a 250 ml. Erlenmeyer flask, add 1 ml. of indicator solution (a 5 percent solution of potassium chromate in water) and slowly titrate with 0.1 N silver nitrate solution, swirling the liquid constantly, until the first permanent color deviation from the pure yellow of the suspension is obtained. Determine the indicator blank by adding 1 ml. of the indicator to 50 ml. of water, or better, to 50 ml. of a suspension of a little chloride-free calcium carbonate (a few hundred mg.), and then add silver nitrate until the color of the blank matches that of the solution titrated. The indicator blank, which should not amount to more than 0.03-0.05 ml. of 0.1 N silver nitrate shall be deducted from the volume of silver nitrate used in the titration. Calculate the percent chlorides (as NaCl) as follows:

$$\text{Percentage of chlorides (as NaCl)} = (0.023) (\text{ml.})$$

where ml. = milliliters of silver nitrate solution.

4.5.4.2 Presence of sulfur.

4.5.4.2.1 Solutions.

4.5.4.2.1.1 Acid stannous chloride. - One hundred gm. of stannous chloride crystals shall be dissolved in 100 ml. hydrochloric acid (concentrated 35 percent) and 50 ml. distilled water added.

4.5.4.2.1.2 Lead acetate solution. - Five gm. of lead acetate shall be dissolved in water and made up to 100 ml. with water. Add one drop of glacial acetic acid to clear up the solution if it is cloudy.

4.5.4.2.2 Procedure. - One to 1.5 gm. of the dyed tape cut in small pieces shall be taken for the test. Cover the sample in a test tube of ordinary size with acid stannous chloride solution. Place a filter paper, upon which is put one drop of lead-acetate solution, over the mouth of the test tube. The test tube is heated slowly over a low flame, then brought up to boiling. A brown stain on the paper indicates the presence of sulfur. Prolonged boiling will reduce the sensitivity of the test.

5. PREPARATION FOR DELIVERY

5.1 Packaging. - Packaging shall be level A, B, or C as specified (see 6.1).

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5.1.1 Levels A and B. - Tape shall be packaged in accordance with the requirements of Specification MIL-P-3824.

5.1.2 Level C. - Tape shall be packaged in accordance with the manufacturer's normal practice.

5.2 Packing. - Packing shall be level A, B, or C as specified (see 6.1).

5.2.1 Level A. - Tape packaged as specified in 5.1.1, shall be packed in accordance with the requirements of Specification MIL-P-3824 for overseas shipment.

5.2.2 Level B. - Tape packaged as specified in 5.1.1, shall be packed in accordance with the requirements of Specification MIL-P-3824 for domestic shipment.

5.2.3 Level C. - Tape packaged as specified in 5.1.2, shall be packed in a manner acceptable to common carriers for safe transportation to point of destination specified in shipping instructions at the lowest transportation rate for such supplies.

5.3 Marking. - Interior packages and shipping containers shall be marked in accordance with Specification MIL-P-3824.

6. NOTES

6.1 Ordering data. - Procurement documents should specify the following:

- a. Title, number and date of this specification.
- b. Quantity of tape to be furnished.
- c. Whether impurities tests are required (see 3.4.2).
- d. Whether a weave other than herringbone twill is required (see 3.5.1).
- e. Levels of packaging and packing required (see 5.1 and 5.2).

6.2 Standard sample. - For access to the standard sample, address the procuring activity

6.3 A suggested but not mandatory dye stuff formulation for Olive Drab No. 7 is as follows (see 2.2):

Vat Black 25 - Color Index No. 69525.

Vat Green 3, Color Index No. 69500 or Vat Green 19.

Vat Green 8, Color Index No. 71050.

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shaded with either or both of the following:

Vat Brown 3 C. I. No. 69015 or Vat Brown 1, color Index No. 70800.

Vat Yellow of suitable fastness.

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