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15 May 1987
SUPERSEDING
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#### MILITARY SPECIFICATION

## BRAID, TEXTILE, TUBULAR

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

#### SCOPE

- 1.1 Scope. This document covers tubular textile braid to be used with various articles of clothing.
- 1.2 Classification. The braid shall be of the following types and classes as specified (see 6.2).

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- 4/32 inch diameter, with core
Type I
Type II
            - 5/32 inch diameter, with core
Type III
            - 6/32 inch wide, flat
Type IV
            - 4/32 inch diameter, solid
Type V
            - 6/32 inch diameter, solid
Type VI
            - 4/32 inch diameter, solid
Type VII
            - 11/32 inch wide, flat
Type VIII
            - 4/32 inch wide, flat
Type IX
            - 1/8 to 3/16 inch wide, flat (minimum breaking strength
               50 lb)
Type X
            - 1/8 to 3/16 inch wide, flat (minimum breaking strength
               75 1b)
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Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5014, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 8315

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

| Class 1 |          | - Natural finish                                        |
|---------|----------|---------------------------------------------------------|
| Class 2 | <u>.</u> | - Water-repellent finish                                |
| Class 3 | ,        | - Water and mildew-resistant finish                     |
|         |          | (copper-8-quinolinolate)                                |
| Class 4 |          | - Water and mildew-resistant finish 2, 2' methylene bis |
|         |          | (4-chlorophenol)                                        |

# 2. APPLICABLE DOCUMENTS

# 2.1 Government documents.

\* 2.1.1 <u>Documents</u>. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

## **SPECIFICATIONS**

#### **FEDERAL**

| A-A-203<br>PPP-B-636<br>PPP-T-45 | <ul> <li>Paper, Kraft, Untreated</li> <li>Boxes, Shipping, Fiberboard</li> <li>Tape, Gummed, Paper, Reinforced and Plain, for<br/>Sealing and Securing</li> </ul> |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MILITARY                         |                                                                                                                                                                   |
| MIL-T-3530                       | <ul> <li>Thread and Twine: Mildew Resistant or Water<br/>Repellent Treated</li> </ul>                                                                             |
| MIL-L-35078                      | - Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification For                              |

# **STANDARDS**

# FEDERAL .

## **MILITARY**

| MIL-STD-105 | - Sampling Procedures and Tables for Inspection      |
|-------------|------------------------------------------------------|
|             | by Attributes                                        |
| MIL-STD-129 | <ul> <li>Marking for Shipment and Storage</li> </ul> |

MIL-STD-147 - Palletized Unit Loads

MIL-STD-731 - Quality of Wood Members for Containers and Pallets

(Copies of documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.1.2 Other Government documents. The following other Government documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

Rules and Regulations Under the Textile Fiber Products Identification Act

(Application for copies should be addressed to the Federal Trade Commission, Pennsylvania Avenue at Sixth Street, N.W., Washington, DC 20580.)

2.2 Other publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issues of the nongovernment documents which are current on the date of the solicitation.

# AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3951 - Standard Practice for Commercial Packaging

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

(Technical society and technical association documents are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

\* 2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document shall take precedence. Nothing in this document, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

- 3.1 <u>Standard sample</u>. The braid shall match the standard sample for shade and appearance and shall be equal to or better than the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.3).
- 3.2 First article. When specified in the contract or purchase order, a sample shall be subjected to first article inspection (see 4.3, 6.2, and 6.4).

## 3.3 Materials.

- 3.3.1 Cotton yarn (for all types of braid). The cotton used in the fabrication of the yarn shall be carded, spun, and twisted into ply yarns.
- 3.3.2 Rayon yarn (as alternative for types VIII, IX, and X braid). The yarn shall be multifilament (cuprarmonium or viscose) of a suitable denier to meet the requirements of this document.
- \* 3.3.3 Polypropylene yarn (as an alternative for types III, IV, V, and VII braid). The yarn shall be textured polypropylene of suitable denier to meet the requirements of this document.
- \* 3.3.4 Polyester/cotton blend (as an alternative for type V, class 1 braid). The yarn shall be a blend of not more than 65 percent polyester with the remaining percentage carded cotton, spun, and twisted into ply yarns.
- \* 3.4 Color. The color of the braid shall be as specified (see 6.2). The yarns for the braid shall be yarn dyed (see 6.5). The rayon and polypropylene yarns may be solution dyed. The use of dyes and compounds containing elementary sulfur capable of oxidation to sulfuric acid is prohibited. The dyestuff shall be chosen and applied so that the dyed and finished braid shall contain no more labile sulfur than shown by the standard sample when tested as specified in 4.4.3. When a standard sample is not available, the dyed and finished braid shall show no more than a slight trace of labile sulfur when tested as specified in 4.4.3.
- \* 3.4.1 Matching. The color and appearance of the dyed and finished braid shall match the standard sample when viewed under filtered tungsten lamps that approximate artificial daylight and that have a correlated color temperature of 7500 ± 200 K, with illumination of 100 ± 20 foot candles and shall be a good match to the standard sample under incandescent lamplight at 2300 ± 200 K.

- 3.4.2 Colorfastness. The colorfastness of the dyed and finished braid shall be as specified in the applicable end item document or as set forth in the contract or purchase order (see 6.2). When the colorfastness requirements are not specified in the end item document, contract, or purchase order, they shall be as specified in 3.4.2.1, 3.4.2.2, and 3.4.2.3.
- \* 3.4.2.1 Class 1. The dyed braid for all types except types IX and X shall show fastness to light, laundering (after 3 cycles), crocking, and wet-dry cleaning equal to or better than the standard sample or equal to or better than a rating of "good" when tested as specified in 4.4. The dyed types IX and X braid shall show fastness to crocking and wet-dry cleaning equal to or better than the standard sample or equal to or better than a rating of "good" when tested as specified in 4.4.3.
- \* 3.4.2.2 Class 2. The dyed and finished braid shall show fastness to laundering (after 3 cycles), crocking, and light equal to or better the standard sample or equal to or better than a rating of "good" when tested as specified in 4.4.3.
- \* 3.4.2.3 Classes 3 and 4. The dyed and finished braid shall show fastness to laundering (after 3 cycles), crocking, and light equal to or better than the standard sample or equal to or better than a rating of "good" for laundering (after 3 cycles), crocking, and "fair" for light when tested as specified in 4.4.3.

## 3.5 Finish.

- 3.5.1 Class 1 (natural finish). Natural finish shall denote a braid for which no consistency or luster other than that inherent in the basic fiber is required.
- 3.5.2 Class 2 (water-repellent finish). The water-repellent treatment shall be obtained by the use of metallic salt wax emulsions. As a result of treatment, the dynamic absorption of the braid shall be not more than 40 percent when tested as specified in 4.4.3.
- 3.5.3 Class 3. The class 3 braid shall be water-repellent treated as specified in 3.5.2 and mildew-resistant treated in conformance with type I, class 1 of MIL-T-3530.
- 3.5.4 Class 4. The class 4 braid shall be water-repellent treated as specified in 3.5.2 and mildew-resistant treated in conformance with type I, class 2 of MIL-T-3530.

- \* 3.6 Physical requirements. The finished braid shall conform to the requirements in table I or table II, as applicable, when tested as specified in 4.4.3.
  - 3.6.1 Braiding type. Types I, II, IV, V, and VI shall be braided with a basket type braiding. Types III and VII shall be braided with a plain type braiding. Any braiding type may be used for types VIII, IX, and X.

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TABLE I. Physical requirements

| Туре | Diameter<br>(inches)       | Weight per<br>144 yards<br>(ounces),<br>minimum | Number<br>of<br>carriers | Ends<br>per<br>carrier | Number<br>of ends<br>in core | Yarn ply<br>Braid Co | ply<br>Core | Picks per<br>inch,<br>minimum | Breaking<br>strength<br>(pounds),<br>minimum |
|------|----------------------------|-------------------------------------------------|--------------------------|------------------------|------------------------------|----------------------|-------------|-------------------------------|----------------------------------------------|
| H    | 4/32 1/                    | 14.0                                            | 16                       | 1                      | 10                           | 2                    | 3           | 16                            | 60 2/                                        |
| II   | $5/32 \frac{1}{2}$         | 28.0                                            | œ                        | <b>&amp;</b>           | œ                            | 2                    | က           | 10                            | 75 2/                                        |
| 111  | $6/32 \frac{1}{2}$ (width) | 16.5                                            | 24                       | 2                      | ſ                            | 7                    | ı           | 22                            | 75 <u>2</u> /                                |
| IV   | $4/32 \frac{1}{2}$         | 21.0                                            | 80                       | 2                      | 1                            | က                    | ł           | 10                            | 80 2/                                        |
| ^    | $6/32 \frac{1}{2}$         | 26.0                                            | <b>∞</b>                 | 2                      | 1                            | 4                    | ı           | <b>∞</b>                      | $100 \ \underline{2}/$                       |
| VI   | $4/32 \frac{1}{2}$         | 25.0                                            | 80                       | 9                      | ı                            | 7                    | 1.          | 80                            | $100 \frac{2}{}$                             |
| VII  | $11/32 \frac{1}{2}$        | 25.0                                            | 44                       | 7                      | ı                            | 7                    | ı           | 22                            | $140 \frac{2}{}$                             |
| VIII | (4/32)                     | ı                                               | ı                        | t                      | ı                            | ľ                    | 1           | ı                             | 50 <u>2</u> /                                |
| IX   | 1/8 to<br>3/16<br>(width)  | ı                                               | 1                        | 1                      | i                            | 1                    | ı           | I                             | 50                                           |
| ×    | 1/8 to<br>3/16<br>(width)  | I                                               | ı                        | ı                      | 1                            | ı                    | ı           | ı                             | 75                                           |

 $\frac{1}{1}$  Plus or minus 1/32 inch tolerance.

Classes 3 and 4 to 20 percent (includes loss for water and mildew-resistant treatment). Class 2 to 15 percent

<sup>2/</sup> A loss in breaking strength, based on the minimum specified for the untreated braid, shall be permitted for the applicable class as follows:

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TABLE II. Physical requirements for polypropylene braid

| Diameter<br>(inches) <u>1</u> / | Weight per<br>144 yards<br>(ounces),<br>minimum | Number<br>of<br>carriers                                    | Ends<br>per<br>carrier                                                 | Picks per<br>inch,<br>minimum                                                   | Breaking<br>strength<br>(pounds),<br>minimum                                                                                                                                                                                    |
|---------------------------------|-------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6/32                            | 18.0                                            | 22                                                          | 2                                                                      | 17                                                                              | 160                                                                                                                                                                                                                             |
| 4/32                            | 15.0                                            | 8                                                           | 2                                                                      | 10                                                                              | 180                                                                                                                                                                                                                             |
| 6/32                            | 24.0                                            | 8                                                           | 3                                                                      | 8                                                                               | 240                                                                                                                                                                                                                             |
| 11/32                           | 16.0                                            | 44                                                          | 1                                                                      | 22                                                                              | 180                                                                                                                                                                                                                             |
|                                 | 6/32<br>4/32<br>6/32                            | Diameter (ounces), minimum  6/32 18.0  4/32 15.0  6/32 24.0 | Diameter (ounces), of carriers  6/32 18.0 22  4/32 15.0 8  6/32 24.0 8 | Diameter (ounces), of per carrier  6/32 18.0 22 2  4/32 15.0 8 2  6/32 24.0 8 3 | 144 yards (ounces), (inches)1/       Number Ends per inch, per inch, minimum         6/32       18.0       22       2       17         4/32       15.0       8       2       10         6/32       24.0       8       3       8 |

 $<sup>\</sup>frac{1}{2}$  Plus or minus 1/32 inch tolerance.

- 3.7 Put-up and length. Unless otherwise specified (see 6.2), the braid shall be put up on commercial size spools, flat-head type, as follows:
  - a. Types I, II, IV, V, VI, VIII, and IX 288 yards minimum (plus 10 percent) to a spool.
  - b. Types III, VII, and X 432 yards minimum (plus 10 percent) to a spool.
  - c. There shall be not more than three lengths per spool for 288-yard spools and not more than four lengths per spool for 432-yard spools. No single length shall be less than 10 yards.
  - 3.8 Marking. Each spool shall have the following information on one end.

Stock number
Item description
Type and class, diameter or width, and color
Document number
Name of contractor
Number and date of contract
Name of contracting agency
Total yards

- 3.9 Fiber identification. Each spool shall be labeled, ticketed, or invoiced for fiber content in accordance with the Textile Fiber Products Identification Act.
- 3.10 Workmanship. The finished braid shall conform to the quality of product established by this document and the occurrence of defects shall not exceed the applicable acceptable quality levels.

## 4. QUALITY ASSURANCE PROVISIONS

- 4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this document where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.
- \* 4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirement in the document shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.
  - 4.1.2 <u>Certificates of compliance</u>. When certificates of compliance are submitted, the Government reserves the right to inspect such items to determine the validity of the certification.
  - 4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:
    - a. First article inspection (see 4.3).
    - b. Quality conformance inspection (see 4.4).
  - 4.3 First article inspection. When a first article is required (see 6.2), it shall be examined for the defects specified in 4.4.2 and tested for the defects specified in 4.4.3. The presence of any defect or failure to pass any test shall be cause for rejection of the first article.

- 4.4 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.
- 4.4.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this document or applicable purchase document.
- \* 4.4.1.1 Certification. Components listed below shall be accepted on the basis of a contractor's certificate of compliance with the indicated requirements.

| Component          | Requirement paragraph |
|--------------------|-----------------------|
| Cotton yarn        | 3.3.1                 |
| Rayon yarn         | 3.3.2                 |
| Polypropylene yarn | 3.3.3                 |
| Polyester          | 3.3.4                 |

# 4.4.2 End item examination.

4.4.2.1 Yard-by-yard examination. The braid shall be examined at normal inspection distance (3 feet) for the defects listed in table IV. All defects found shall be counted regardless of their proximity to each other, except where two or more defects represent a single local condition, 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 lot size shall be expressed in yards. The sample unit shall be 1 yard of braid. The inspection level shall be II and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 1.5 for major defects and 4.0 for total (major and minor combined) defects. The number of spools from which the sample is to be selected shall be in accordance with table III. The sample yardage shall be apportioned equally among the selected spools.

TABLE III. Sample size and acceptance criteria

| Lot sizes (yards)                                                                                         | Sample size (spools) | Acceptance number $1/$ |
|-----------------------------------------------------------------------------------------------------------|----------------------|------------------------|
| Up to and including $3,200 \frac{2}{}$ , 3,201 to and including $8,000$ , 8,001 to and including $22,000$ | 5<br>7<br>10         | 0<br>0<br>0            |

TABLE III. Sample size and acceptance criteria - Continued

| ple size (spools)                                                                                                          | Acceptance number $1/$        |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------|--|--|--|--|--|
| 22,001 to and including 110,000 15 1<br>110,001 or over 25 1                                                               |                               |  |  |  |  |  |
| 1/ Applicable to overall examination (see 4.4.2.2). 2/ If a lot contains fewer than 5 rolls, each roll in the lot shall be |                               |  |  |  |  |  |
|                                                                                                                            | 15<br>25<br>on (see 4.4.2.2). |  |  |  |  |  |

TABLE IV. End item visual defects

| Defects                                                                                                                                           | Classification   |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Abrasion mark Cut, broken, or missing yarn Core not completely covered (types I and II and II)                                                    | Major Minor<br>X |
| Core not completely covered (types I and II only) Braiding loose or tight causing distortions or loopiness, uneven tension resulting in thick and | X                |
| thin places                                                                                                                                       | X                |
| Spot or stain                                                                                                                                     | X                |

<sup>\* 4.4.2.2</sup> Overall examination. The braid shall be examined for the defects listed below. The sample unit shall be one spool. The sample size shall consist of the applicable number of spools indicated in table III. The lot shall be rejected if the total number of defects in the sample exceeds the acceptance number specified in table III.

# Defects

Not ticketed or labeled in accordance with The Textile Fiber Products Identification Act
Identification marking missing, illegible or incorrect
Off shade, mottled, or uneven color
Not clean throughout
Objectionable odor
Insecurely wound and tangled spools, will not readily unwind

\* 4.4.2.3 Length examination. The braid shall be examined for defects listed below. The sample unit shall be one spool. The sample size shall consist of the applicable number of spools indicated in table III. The presence of any defect shall be cause for rejection of the lot.

## Defects

Length less than specified minimum length or more than specified maximum length

Length more than 2 yards less than length marked on spool

Any piece less than the allowable minimum length of piece

Any spool containing more than the allowable number of pieces permitted for the applicable type of braid

Total of the actual lengths on the spools is less than the total of the lengths marked on the spools

\* 4.4.2.4 Shade and appearance examination. The braid shall be examined for the defects listed below. The sample unit shall be one spool. The sample size shall consist of the applicable number of spools indicated in table III. The presence of any defect shall be cause for rejection of the lot.

## Defects

Shaded end to end Does not match the standard sample for shade and appearance Mottled or uneven color

4.4.3 End item testing. The end item shall be tested as indicated in table V. The methods of testing specified in FED-STD-191, wherever applicable, and as listed in table V shall be followed. The physical and chemical values specified in section 3 apply to the average of the determinations made on a sample unit for test purposes as specified in the applicable test methods. The lot shall be unacceptable if one or more units fail to meet any specified requirement. The lot size shall be expressed in units of linear yards. The sample unit for testing shall be 6 yards for class 1; 9 yards for class 2; and 12 yards for classes 3 and 4. The sample size shall be as follows:

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| Lot size (yards)                                                 | Sample size (sample unit) |
|------------------------------------------------------------------|---------------------------|
| 800 or less<br>801 up to and including 22,000<br>22,001 and over | 2<br>3<br>5               |
| •                                                                |                           |

TABLE V. End item tests

| Characteristic                 | Document requirement | Referenced test method     |
|--------------------------------|----------------------|----------------------------|
| Material identification        |                      |                            |
| Cotton                         | 3.3.1                | 1200 <u>1</u> /            |
| Rayon                          | 3.3.2                |                            |
| Cuprammonium                   | 3.3.2                | 1520 $\frac{1}{2}$         |
| Viscose                        | 3.3.2                | 1500 $\frac{1}{2}$         |
| Polypropylene                  | 3.3.3                | $1600 \frac{1}{2}$         |
| Polyester                      | 3.3.4                | 1600 <u>1</u> /            |
| Labile sulfur                  | 3.4                  | 2020                       |
| Colorfastness to               |                      |                            |
| Fastness to light              | 3.4.2.1, 3.4.2.2,    |                            |
|                                | 3.4.2.3              | 5660                       |
| Fastness to laundering         | 3.4.2.1, 3.4.2.2,    | . 2/2/                     |
| (after 3 cycles)               | 3.4.2.3              | 5610 <u>2</u> / <u>3</u> / |
| Fastness to crocking           | 3.4.2.1              | 5651                       |
| Fastness to wet-dry            | 3.4.2.1              | 5622                       |
| cleaning                       |                      |                            |
| Fastness to sublimation        | 3.3.4.6.6            | 5642 <u>6</u> /            |
| Water absorption               | 3.5.2                | 4500                       |
| Braiding type                  | 3.6.1                | Visual                     |
| Width or diameter $\frac{4}{}$ | Table I              | 6002                       |
| Weight                         | Table I              | 4.5.1                      |

TABLE V. End item tests - Continued

| Characteristic                     | Document requirement | Referenced test method |
|------------------------------------|----------------------|------------------------|
| Number of carriers                 | Table I              | Visual                 |
| Ends per carrier                   | Table I              | Visual                 |
| Ends per core (type I and II only) | Table I              | Visual                 |
| Yarn ply                           | Table I              | Visual                 |
| Picks per inch                     | Table I              | Visual                 |
| Breaking strength $\frac{5}{}$     | Table I              | 6016                   |

<sup>1</sup>/ Unless otherwise specified, a certificate of compliance shall be submitted and will be acceptable for the stated requirements.

<sup>2/</sup> The specimen must be dried after each of the 3 laundering cycles.

<sup>3/</sup> Only the stain on that part of the color transfer cloth of the same material of the specimen being tested shall be evaluated for staining (i.e., cotton braid on the cotton portion of the transfer cloth).

<sup>4</sup>/ Except that the braid shall be measured under a tension of 3-ounce weight.

<sup>5/</sup> Except that the number of specimens tested from each sample unit shall be 5 and that the machine shall have smooth grips of the drum type not less than 2 inches in diameter. The distance between the center of the drums at the beginning of the tests shall be 6 inches.

 $<sup>\</sup>underline{6}'$  When dyed polyester/cotton braid is used for clothing items requiring pressing, sublimation fastness shall be "good" when tested at 376°  $\pm$  6°F.

4.4.4 Packaging examination. The fully packaged end items shall be examined for the defects listed below. The lot size shall be expressed in units of shipping containers. The sample unit shall be one shipping container fully packaged. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

| Examine                         | Defect                                                                                                                                                                      |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking (exterior and interior) | Omitted; incorrect; illegible; of improper size, location, sequence, or method of application                                                                               |
| Materials                       | Any component missing, damaged, or not as specified                                                                                                                         |
| Workmanship                     | Inadequate application of components, such as incomplete sealing or closure of flap, improper taping, loose strapping, or inadequate stapling Bulged or distorted container |
| Weight                          | Weight of contents of each container exceeds requirements                                                                                                                   |

4.4.5 Palletization examination. The fully packaged and palletized end items shall be examined for the defects listed below. The lot size shall be expressed in units of palletized unit loads. The sample unit shall be one palletized unit load, fully packaged. The inspection level shall be S-1, and the AQL, expressed in terms of defects per hundred units, shall be 6.5.

Defect

Examine

| Examine             | Delect                                                                                                                   |
|---------------------|--------------------------------------------------------------------------------------------------------------------------|
| Finished dimensions | Length, width, or height exceeds specified maximum requirement                                                           |
| Palletization       | Pallet pattern not as specified Interlocking of loads not as specified Load not bonded with required straps as specified |
| Weight              | Exceeds maximum load limits                                                                                              |
| Marking             | Omitted; incorrect; illegible; of improper size, location, sequence, or method of application                            |

# 4.5 Methods of inspection.

4.5.1 Weight. Three specimens shall be cut in excess of one yard each. Three specimens of braid in the relaxed state shall be cut to exactly one yard each. While in a standard condition as defined in FED-STD-191, each yard shall be weighed separately on a balance or scale accurate to 0.01 ounce (a scale or balance graduated in grams may be used and results converted to ounces). The weight of the three specimens shall be averaged and this average value multiplied by 144 to determine the ounces per gross (144) yards.

#### PACKAGING

- 5.1 Preservation. Preservation shall be level A or Commercial, as specified (see 6.2).
- \* 5.1.1 Level A. Each spool of braid, put-up as specified, shall be completely wrapped with transparent plastic film or 30-pound minimum basis weight kraft paper conforming to A-A-203. The wrap shall be securely sealed with pressure-sensitive tape or 2-inch minimum width gummed paper tape conforming to type III, grade B of PPP-T-45.
  - 5.1.2 Commercial. Braid shall be preserved in accordance with ASTM D 3951.
  - 5.2 <u>Packing</u>. Packing shall be level A, B, or Commercial, as specified (see 6.2).
- 5.2.1 Level A. Spools of braid of one type, class, and color only, preserved as specified in 5.1, shall be compactly packed in a snug-fitting fiberboard shipping container conforming to style RSC-L, grade V2s of PPP-B-636. The inside of each shipping container shall be fitted with a taped box liner conforming to type CF, class weather-resistant, variety DW, grade V15c of PPP-B-636. Each shipping container shall be closed in accordance with method III, waterproofed in accordance with method V, and reinforced with strapping or tape banding in accordance with the appendix of PPP-B-636, except that the inspection shall be as specified in 4.4.4. The weight of the contents of each shipping container shall not exceed 65 pounds. Shipping containers shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class of load specified (see 6.2). Strapping shall be limited to nonmetallic strapping, except for type II, class F loads.
  - 5.2.2 Level B. Spools of braid of one type, class, and color only, preserved as specified in 5.1, shall be compactly packed in a snug-fitting fiberboard shipping container conforming to style RSC-L, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. The inside of each container shall be fitted with a taped box liner conforming to type CF, class domestic, grade 275, variety DW, of PPP-B-636. Each container shall be closed in

accordance with method II as specified in the appendix of PPP-B-636, except that the inspection shall be as specified in 4.4.4. The weight of the contents of each shipping container shall not exceed 65 pounds.

- 5.2.2.1 Weather-resistant shipping container. When specified (see 6.2), the shipping container shall be a grade V3c, V3s, or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with method III as specified in the appendix of PPP-B-636, except that the inspection shall be as specified in 4.4.4.
- 5.2.3 Commercial packing. Braid, preserved as specified in 5.1, shall be packed in accordance with ASTM D 3951.
- \* 5.3 Palletization. When specified (see 6.2), braid, packed as specified in 5.2.2 and 5.2.3, shall be palletized on a 4-way entry pallet in accordance with load type Ia of MIL-STD-147. Pallet type shall be type I (4-way entry), type IV or type V in accordance with MIL-STD-147. Pallets shall be fabricated from wood groups I, II, III, or IV or MIL-STD-731. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L or film bonding means O or P. Pallet pattern shall be in accordance with appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the pattern of each course.
- \* 5.4 Marking. In addition to any special marking required by the contract or purchase order, unit packs, shipping containers, and palletized unit loads shall be marked in accordance with MIL-STD-129 or ASTM D 3951, as applicable.

# 6. NOTES

- 6.1 <u>Intended use</u>. The braid is intended for use with various items of clothing as tie cords, lacing cords, and hangers.
  - 6.2 Ordering data. Acquisition documents should specify the following:
    - a. Title, number, and date of this document.
    - b. Type and class required (1.2).
    - c. When a first article is required (see 3.2, 4.3, and 6.4).
    - d. Color required (see 3.4).
    - e. Colorfastness properties required (see 3.4.2).
    - f. Put-up if other than specified (see 3.7).
    - g. Selection of applicable levels of preservation and packing (see 5.1 and 5.2).
    - h. Type and class of unit load required (see 5.2.1).
    - i. When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).
    - j. When palletization is required (see 5.3).

- 6.3 Standard sample. For access to samples, address the contracting activity issuing the invitation for bids.
- 6.4 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209. The first article should be a preproduction 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 all acquisition instruments regarding arrangements for selection, inspection, and approval of the first article.
- 6.5 <u>Dyed yarn washing</u>. It is suggested that dyed yarn and braid be well soaped and washed after dyeing to preclude interference with a possible water repellent and mildew-proof treatment.
- \* 6.6 Type IX and X braid. Type IX and X braid requirements specified in the body of this document can be used in the following documents:

# Type IX braid

# Type X braid

MIL-C-40143(GL) Coats, Women's Wool, and Polyester Wool

MIL-C-43368(GL) Coats, Men's, Tropical and Serge, Polyester/Wool Army Green 344

MIL-S-43602 Skirts, Women's, Summer

MIL-0-21086(MC) Overcoat, Women's: Wool, Serge, Green

MIL-S-21087(MC) Skirts, Women's: Wool; Polyester/Wool

MIL-S-40128(GL) Skirts, Women's, Wool, and Polyester/Wool

\* 6.7 Types III and VII polypropylene braid. Types III and VII polypropylene braid are used in the following documents:

## Type III

Type VII

MIL-B-3108 Bag, Clothing Waterproof

MIL-B-43290 Bag, Flyer's Helmet

MIL-B-43366 Body Armor, Fragmentation Protective, Groin

6.8 Subject term (key word) listing.

Braid, tubular Cord, tie and lacing Clothing hangers

6.9 Changes from previous issus. The margins of this document are marked with an asterisk (\*) to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only, and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content, as written, irrespective of the marginal notations and relationship to the last previous issue.

Custodians:

Preparing activity:

Army - GL

Army - GL

Navy - NU

Project No. 8315-0326

Review activities:

Army - MD, EA

Navy - MC

DLA - CT

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| 1. DOCUMENT NUMBER<br>MIL-B-371, F               | 2. DOCUMENT TITLE<br>Braid, Text      | ile, Tubula       | r       |                            |                   |             |
| 3a. NAME OF SUBMITTING ORGA                      | ANIZATION                             |                   |         | 4. TYPE OF                 | ORGANIZATION (Me  | t one)      |
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| 6. REMARKS                                       |                                       |                   |         |                            |                   |             |
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