

MIL-C-43307A

28 January 1972

SUPERSEDING

MIL-C-43307A

5 September 1969

MILITARY SPECIFICATION

CORD, NYLON, SOLID BRAID, GENERAL PURPOSE

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

1. SCOPE

1.1 Scope.- This specification covers requirements for solid braided nylon cord.

1.2 Classification.- The cord shall be braided in the size (diameter) specified (see table I and 6.2).

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

SPECIFICATIONS

FEDERAL

UU-T-81 - Tags, Shipping and Stock

MILITARY

MIL-C-3131 - Cordage; Preparation for Delivery of

STANDARDS

FEDERAL

FED-STD-191 - Textile, Test Methods

MILITARY

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

FSC 4020

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

3. REQUIREMENTS

3.1 Government and supplier purchases.- The requirements specified in 3.6 and 3.7 apply only to cord purchased directly by the Government. All other requirements apply to cord purchased by a supplier as a component for an end item and to cord purchased directly by the Government.

3.2 Standard sample.- The cord shall match the standard sample for shade 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).

* 3.3 Material.- The yarn used in the fabrication of the cord shall be a bright, multi-filament nylon yarn.

3.4 Construction and physical requirements.- The cord shall be of solid braid construction (see 6.4) and the natural or dyed cord shall conform to the requirements specified in table I when tested as specified in 4.2.5.

TABLE I.- Physical requirements

| Diameter (size) + 1/64 Inches | Number of strands (minimum) | Breaking strength pounds (minimum) | Length per pound feet (minimum) |
|--|--------------------------------------|---|--|
| 3/32 | 9 | 250 | 380 |
| 1/8 | 9 | 400 | 220 |
| 5/32 | 12 | 540 | 144 |
| 3/16 | 12 | 720 | 99 |
| 7/32 | 12 | 900 | 72 |
| 1/4 | 12 | 1100 | 57 |
| 5/16 | 12 | 1900 | 36 |
| 3/8 | 12 | 2700 | 24 |

3.5 Color.- Unless otherwise specified, the color of the cord shall be natural. When a specific color is required, it shall be as specified (see 6.2) and shall match the standard sample when available for the applicable shade when tested as specified in 4.2.5.

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3.5.1 Colorfastness.— The dyed cord shall show fastness to weathering equal to or better than the standard sample when tested as specified in 4.2.5. When no standard sample has been established the dyed cord shall show good fastness to weathering when tested as specified in 4.2.5.

3.6 Put-up and length.— Unless otherwise specified (see 6.2), the cord shall be furnished without knots or splices on spools (reels) in the minimum lengths specified in table II. Each spool (reel) shall contain no more than three pieces and no piece shall be less than 100 feet length or no more than two pieces with no minimum length applicable. The cord shall be wound on the spools (reels) so that each turn and layer is free from entanglement. The ends of the cord shall be heat sealed to prevent fraying. A plus tolerance of 10 percent shall be allowed on the length on spool (reel) specified.

TABLE II.— Length on spool (reel)

| Diameter size | Feet (minimum) |
|------------------|-------------------|
| 3/32 | 3,000 |
| 1/8 | 3,000 |
| 5/32 | 3,000 |
| 3/16 | 3,000 |
| 7/32 | 2,000 |
| 1/4 | 2,000 |
| 5/16 | 1,000 |
| 3/8 | 1,000 |

3.7 Identification.— Each spool (reel) of cord shall have a ticket (identification tag) or label attached to it for identification purposes. The ticket shall conform to the requirements for type B, class 1, size 4 or 5 of UU-T-81. The ticket shall be made of not less than 15-point paper stock and shall have a minimum tearing resistance of both directions (total)

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of 850 grams when tested as specified in UU-T-81. When labels are used, the label shall be attached in such a manner as to remain in place and be clearly legible until all cord has been removed. The ticket or label shall be legibly printed, stamped or typed with water insoluble ink. The ticket or label shall contain the following information:

Stock number
Item description
Specification number
Length
Contract number and date
Supplier's name

3.8 Workmanship.- The braided cord shall conform to the quality and grade of product established by this specification. 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 supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier 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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Certificate of compliance.- Where certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

4.2 Inspection.- Sampling for inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated hereinafter.

* 4.2.1 Component and material inspection.- In accordance with 4.1 above, components and materials shall be tested in accordance with all requirements of referenced specifications, drawings, and standards unless otherwise excluded, amended, modified or qualified in the specification or applicable purchase document. In addition, inspection shall be performed for the requirements in table III.

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TABLE III.- Component test

| Characteristics | Requirement reference | Test method |
|-----------------|-----------------------|-------------|
| Material | 3.3 | <u>1</u> / |
| Filament | 3.3 | <u>1</u> / |

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

- * 4.2.2 Examination of the end item for visual defects.- The defects listed in table IV shall be counted regardless of their proximity to each other. The sample unit for this examination shall be one spool (reel). Not less than 100 feet on each sample unit (spool, reel) shall be subjected to the visual examination. The lot size for this examination and testing shall be expressed in units of 1,000 foot spools (reels). When cord is put up in 2,000 and 3,000 foot spools (reels), the number of spools (reels) in the lot shall be multiplied by 2 for 2,000 foot lengths and by 3 for 3,000 foot lengths. This number shall then be used as the basic lot size in determining sample size, rejection and acceptance numbers for put-up in lengths of 2,000 and 3,000 foot spools (reels). The acceptable quality level shall be 1.5 major defects and 4.0 total defects (major and minor combined) per 100 units. The inspection level shall be level I.

TABLE IV.- Visual examination

| Examine | Defect | Classification | |
|----------------------------|--|----------------|-------|
| | | Major | Minor |
| Appearance and workmanship | Any cut | X | |
| | Abraded surface, chafed or damaged | X | |
| | Kinks or unevenly braided resulting in open place, break in continuity of braid, or soft spots | | X |
| | Broken, loose, or projecting strand or end (yarn slice excluded) | X | |
| | Loosely braided | X | |
| | Character of cord not round, even or firm | | X |
| | | | |

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TABLE IV.- Visual examination (cont'd)

| Examine | Defect | Classification | |
|-----------------------------------|--|----------------|-------|
| | | Major | Minor |
| Color | Other than specified | X | |
| | Not uniform | | X |
| Cleanness | Spots or stains clearly visible <u>1/</u> | | X |
| Identification ticket or label | Omitted, incorrect, illegible, insecurely attached | | X |
| | Ticket or label not as specified | | X |

1/ At normal inspection distance (approximately 3 feet).

4.2.3 Examination for length and winding.- The sample unit for this examination shall be one spool (reel). The determination of the lot size shall be as specified in 4.2.2. The inspection level shall be level S-3 and the acceptable quality level shall be 4.0 percent defective. For lots consisting of 500 or fewer units, the sample size shall be 10 and the acceptance number 1. The lot size shall be expressed in units of 1000 foot spools (reels). Defects shall be as listed in 4.2.3.1 and 4.2.3.2. The length on the spool (reel) (see table II) shall be determined by measuring or by using the following formula:

$W \times L$ = Length per spool (reel) in feet

When: W is the net weight of the spool (reel) in 0.1 pounds
L is the lot average of the weight-length relationship
(length/pound) as determined in 4.2.5.

4.2.3.1 Defects with regard to length.- Defects shall be considered to exist if any of the following are determined during inspection.

- (a) The length of cord is less than specified or more than 10 percent in excess of the length specified.
- (b) Length of cord on spool (reel) is more than 6 feet less than length marked on ticket or label.

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4.2.3.2 Defects with regard to winding.- Defects shall be considered to exist if any of the following are determined during inspection.

- (a) Improperly or not firmly wound resulting in kinking, knotting, entangling or slippage during unwinding or otherwise affecting free unhampered unwinding of cord.
- (b) Put-up not as specified.
- (c) Any end not heat sealed.
- (d) Any spool (reel) found to contain more than three pieces.
- (e) Any piece less than 100 feet in length (except when there are only two pieces per spool).
- (f) Any knot or splice.

4.2.4 Examination of preparation for delivery requirements.- An examination shall be made to determine that packaging, packing, and markings complies with Section 5 requirements. The examination shall be in accordance with provisions of MIL-C-3131, except that the inspection level shall be S-2 and the AQL shall be 2.5 defects per 100 units.

* 4.2.5 Testing of the end item.- The methods of testing specified in FED-STD-191, wherever applicable and as listed in table VI 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 sample size shall be in accordance with table V. The sample unit for testing shall be one spool (reel). The lot size shall be expressed in units of 1,000 foot spools (reels). The determination of the lot size shall be as specified in 4.2.2. All test reports shall contain the individual values utilized in expressing the final result. The lot shall be unacceptable if one or more units fail to meet any requirement. Tests to determine compliance with specification requirements, including quantity of delivery, may be made under prevailing atmospheric conditions. In case of dispute, tests shall be made upon material which has reached equilibrium under standard conditions as defined in FED-STD-191.

TABLE V.- Sampling for tests

| No. of units in lot | Sample size |
|--------------------------------|-------------|
| 800 or less | 2 |
| 801 up to and including 22,000 | 3 |
| 22,001 and over | 5 |

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TABLE VI.- Test methods

| <u>Characteristic</u> | <u>Requirement reference</u> | <u>Test method</u> |
|---------------------------------|------------------------------|--------------------------|
| Construction (solid braid) | 3.4 | Visual <u>1/</u> |
| No. of strands | Table I | Visual <u>1/</u> |
| Diameter | Table I | 6002 |
| Length per pound | Table I | 6004 |
| Breaking strength | Table I | 6016 |
| Color matching | 3.5 | 4.2.5.1 |
| Color fastness to weathering | 3.5.1 | 5671 <u>1/</u> <u>2/</u> |

1/ One determination shall be made per sample unit and the results shall be reported as pass or fail.

2/ The time of exposure shall be 40 standard fading hours.

- * 4.2.5.1 Determination of color matching.- The shade of the dyed cord shall match the standard sample under natural (nocth sky) daylight or artificial daylight having a color temperature of 7500° Kelvin and shall be a good approximation to the standard sample under incandescent lamplight at 2800° Kelvin (see 6.3).

5. PREPARATION FOR DELIVERY

5.1 Packaging.- Packaging shall be level A or C as specified (see 6.2).

5.1.1 Levels A and C.- Cord shall be packaged in accordance with the applicable requirements of MIL-C-3131.

5.2 Packing.- Packing shall be level A, B or C as specified (see 6.2).

5.2.1 Levels A, B and C.- Cord shall be packed in accordance with the applicable requirements of MIL-C-3131.

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5.2 Packing.- Packing shall be level A, B or C as specified (see 6.2).

5.2.1 Levels A, B and C.- Cord shall be packed in accordance with the applicable requirements of MIL-C-3131.

5.3 Marking.- In addition to any special marking required by the contract or order, interior packages and shipping containers shall be marked in accordance with MIL-C-3131.

6. NOTES

6.1 Intended use.- Cord covered by this specification is intended for use in miscellaneous tentage and equipage applications.

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

- (a) Title, number and date of this specification.
- (b) Size (diameter) required (see 1.2).
- (c) Color (shade) required if other than natural (see 3.5).
- (d) Put-up if other than specified (see 3.6).
- (e) Length required if other than specified (see 3.6).
- (f) Selection of applicable levels of packaging and packing (see 5.1 and 5.2).

6.3 Standard sample.- For access to the standard sample, address the procuring office issuing the invitation for bids.

6.4 Suppliers may use filler core yarns in the construction of the cord as long as the finished cord is constructed to form a round, even, solid cord conforming to all other specified requirements.

6.5 Marginal identification.- The margins of this specification 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 suppliers are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodian:

Army - GL

Review activities:

Army - ID
DSA-IS

User activities.

Army - IE, WC
Navy - MC

Preparing activity:

Army - GL

Project No. 4020-0183

| SPECIFICATION ANALYSIS SHEET | | Form Approved Budget Bureau No. 22-R255 |
|--|--|--|
| <p>INSTRUCTIONS: This sheet is to be filled out by personnel, either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.</p> | | |
| <p>SPECIFICATION Cord, Nylon, Solid Braid, General Purpose MIL-C-43307B</p> | | |
| <p>ORGANIZATION</p> | | |
| <p>CITY AND STATE</p> | | <p>CONTRACT NUMBER</p> |
| <p>MATERIAL PROCURED UNDER A <input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT </p> | | |
| <p>1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE? A. GIVE PARAGRAPH NUMBER AND WORDING. </p> | | |
| <p>B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES</p> | | |
| <p>2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID</p> | | |
| <p>3. IS THE SPECIFICATION RESTRICTIVE? <input type="checkbox"/> YES <input type="checkbox"/> NO (If "yes", in what way?) </p> | | |
| <p>4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)</p> | | |
| <p>SUBMITTED BY (Printed or typed name and activity - Optional)</p> | | <p>DATE</p> |

DD FORM 1426
1 JAN 56

REPLACES EDITION OF 1 OCT 54 WHICH MAY BE USED.