

MIL-C-1145W
 23 April 1973
 SUPERSEDING
 MIL-L-1145D
 10 March 1967
 (See 6.5)

MILITARY SPECIFICATION

CORD, FIBROUS

(LINES, LEAD)

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

1. SCOPE

1.1 Scope. This specification covers the requirements for one type of braided cotton line suitable for use as a component of lead line.

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue on date of invitation for bids or request for proposal, form a part of the 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.

(Copies of specifications, standards, drawings, and publications 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 Materials.

3.1.1 Fiber. The fiber employed in the manufacture of the core and the component yarns shall be 100 percent cotton. It shall be of sufficient staple length and of such grade that the braided line fabricated therefrom shall meet the requirements of this specification.

3.1.2 Prohibited materials. The application of any of the following finishing materials to the line for the purpose of affecting the breaking strength and the length per pound is prohibited: Casein glue, starch, dextrin, water-soluble materials, paint dryers, resin or vegetable oils, oxidizing oils or resins modified with such oils.

3.2 Manufacture. Twelve strands, each consisting of yarns of fourteen ply, shall be braided around a core of cotton.

3.3 Physical requirements. The finished line shall conform to the requirements specified in table I, when tested as specified in 4.2.4.

3.4 Color. Unless otherwise specified (see 6.2), the color of the finished line shall be natural.

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Table I - Physical requirements.

Circumference size	Length per pound (min)	Breaking strength (min)	Elongation at 200 pound load (max)
Inch	Feet	Pounds	Percent
3/4 ± 1/3	60	200	16

3.5 Non-fibrous material. The finished braided line shall contain not more than 5.0 percent total non-fibrous material when tested as specified in 4.2.4.

3.6 Put-up. Unless otherwise specified (see 6.2), the line shall be furnished in coils whose minimum length shall be 200 feet. However, a plus tolerance of 10 percent will be permitted when such excess is due to manufacturing contingencies. The length of line shall be continuous and shall have no splices, knots or loose ends. It shall be so wound that each turn and layer will be free from encumbrance. The ends shall be cut off squarely and taped or served to prevent fraying.

3.7 Identification. Each coil shall have a ticket or identification tag securely attached thereto. The ticket or tag shall conform to the requirements of type 2, class 1, size 4 or 5 of UU-T-41. The ticket or tag shall be made of not less than 15 point paper stock, and have a total bi-directional tearing resistance of 350 grams minimum. Hand written entries shall not be made on the ticket or tag. Water insoluble ink shall be employed in the printing of the following information on the ticket which shall be legible:

STOCK NUMBER
 ITEM DESCRIPTION
 SPECIFICATION NUMBER
 TYPE
 LENGTH FT.
 SIZE (CIRCUMFERENCE) INCH
 CONTRACT NUMBER AND DATE
 SUPPLIER'S NAME

3.8 Workmanship. The finished line 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 established by this specification.

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 facility 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 Material certification. Certificates showing conformance with the requirements of this specification shall be furnished the inspector for each lot. Certification shall contain actual test, examination or other verifiable quality data.

4.2 Sampling inspection. Sampling inspection shall be in accordance with MIL-STD-105 and the AQL specified, except when otherwise indicated hereinafter.

4.2.1 Sampling inspection of the end item for visual defects. The defects listed in table II shall be counted regardless of their proximity to each other, except when two or more defects represent a single local condition in which case only the more serious defect shall be counted. The lot size for this examination shall be expressed in units of coils. The sample unit for this examination shall be one coil. Not less than 100 feet of a sample unit shall be subjected to visual examination. The acceptable quality level (AQL) 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.

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4.2.2 Sampling inspection for length and winding. The sample unit for this examination shall be one coil. The inspection level shall be level S-3, and the AQL shall be 4.0 percent defective. Minimum sample size shall be 13 with acceptance number 1.

4.2.2.1 Defects with regard to length. Defects shall be considered to exist if any of the following are found during inspection:

- (a) Length of unit less than specified.
- (b) Length of unit in excess of allowable tolerance (see 3.6).
- (c) Length of unit less than marked on ticket.
- (d) Any unit not in a continuous length.

Table II - Visual examination.

Examine for:	Defect	Classification	
		Major	Minor
Appearance and Workmanship	Any cut.	X	
	Chafed or damaged.	X	
	Missing core.	X	
	Kink, knot, broken or projecting end unevenly braided, resulting in open places, breaks in continuity of braid or soft spots.	X	
	Evidence of prohibited finishing materials having been applied.	X	
Color	Other than specified	X	
Cleanness	Spot or stain, clearly visible ^{1/}		X
Identification	Omitted, incorrect, illegible, insecurely attached.		X
	Ticket, not as specified		X
	Handwritten entries.		X

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

4.2.2.2 Defects with regard to winding. Defects shall be considered to exist if any of the following are found during inspection:

- (a) Improperly or not firmly wound resulting in kinks, knots, entangling or slippage during unwinding or otherwise affecting free, unhampered unwinding of line.
- (b) Knotting, splicing or otherwise joining of ends to make a continuous length.
- (c) Ends not cut off squarely.
- (d) Any end not taped or served.

4.2.3 Inspection of preparation for delivery. An examination shall be made to determine that packaging, packing, and marking conform to section 5 of this specification. The examination shall be in accordance with the provisions of MIL-C-3131, except that the inspection level shall be S-2 and the AQL shall be 2.5 percent.

4.2.4 Testing of the end item. The methods of testing specified in FED-STD-191, wherever applicable, and as listed in table IV shall be followed. Exceptions to these procedures shall be noted in the appropriate paragraphs of this section. The numerical limitations for each physical property established in section 3 shall be the average of the number of determinations made in accordance with table IV. All test reports shall contain each observed numerical value utilized in computing the final result. The sample size shall be in accordance with table III. The lot size shall be expressed in units of coils. The sample unit shall be one coil. The unit of product for testing shall be 45 feet. The lot shall be unacceptable if one or more sample units fails to meet any specified test requirement.

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Table III - Sampling for tests.

Lot size (coils)	Sample size (units)
3 and under	1
4 - 50	2
51 - 500	3
501 and over	5

Table IV - Test methods.

Characteristic	Requirement reference	Test method	No. of determinations per individual unit of product	Results reported as:
Material (Fiber for core and strands)	3.1.1	See 4.1.1	---	---
Prohibited materials	3.1.2		---	---
Number of strands	3.2	Visual	1	Pass or fail
Ply of strand yarns	3.2	Visual	1	Pass or fail
Circumference	3.3	4.2.4.2	3	Avg. of 3 determinations to nearest 1/16 inch
Length per pound	3.3	4.2.4.3	3	Avg. of 3 determinations to nearest 0.1 ft./lb.
Breaking strength	3.3	4.2.4.1	3	Avg. of 3 determinations to nearest 0.5 lb.
Elongation	3.3	4.2.4.1	3	Avg. of 3 determinations to nearest 0.1 percent
Non-fibrous material	3.5	2611	1	Pass or fail

NOTE: Tests to determine compliance with specification requirements may be made under prevailing atmospheric conditions, except in settlement of disputes, in which case tests shall be made upon material which has reached equilibrium under the Standard Conditions defined in FED-STD-191.

4.2.4.1 Determination of elongation and breaking strength. The elongation determination shall be conducted concurrently with the breaking strength determination. Both tests shall be made in accordance with the requirements of method 6016 of FED-STD-191 with the following exceptions:

- (a) The distance between the spools or drums shall be 12 inches.
- (b) A gage length, whose distance between marks shall be imprinted on the line when a load of 7.8 pounds has been attained.
- (c) The speed of the pulling spool or drum shall be 12 inches per minute.
- (d) The distance between the gage marks shall be measured when a load of 200 pounds has been reached.
- (e) Three specimens shall be tested from each sample unit.

4.2.4.2 Determination of circumference. The circumference shall be determined in accordance with method 6003 of FED-STD-191 except each measurement shall be made on the same specimen utilized in the elongation and breaking strength tests. The measurement shall be taken following the accomplishment of the procedure outlined in step (b) of 4.2.4.1. Three determinations shall be made per sample unit.

4.2.4.3 Determination of length per pound. Method 6004 of FED-STD-191 shall be employed in the length per pound determination with the following exceptions:

- (a) The minimum length of the specimen shall be 5 feet.
- (b) A load of 7.8 pounds shall be applied prior to the imprinting of the specified gage length.
- (c) Three determinations shall be made per sample unit.

5. PREPARATION FOR DELIVERY

(The preparation for delivery requirements specified herein apply only for direct Government procurements. For the extent of applicability of the preparation for delivery requirements of referenced documents listed in section 2, see 6.3.)

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

5.1.1 Levels A and C. The line 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. The line shall be packed in accordance with the applicable requirements of MIL-C-3131.

5.3 Marking. In addition to any special markings required by the contract or order (see 6.2), interior packages and shipping containers shall be marked in accordance with MIL-C-3131.

6. NOTES

6.1 Intended use. The braided cotton line is intended for use as lead line.

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Color, if other than natural (see 3.4).
- (c) Put-up, if other than specified (see 3.6).
- (d) Selection of applicable levels of packaging and packing (see 5.1 and 5.2).
- (e) Special marking, if required (see 5.3).

6.3 Sub-contracted material and parts. The preparation for delivery requirements of referenced documents listed in section 2 do not apply when material and parts are procured by the supplier for incorporation into the equipment and lose their separate identity when the equipment is shipped.

6.4 The requirements contained in 3.6 and 3.7 relative to packaging data and identification of product shall apply only when purchased directly by the Government as an end item.

6.5 THE MARGINS OF THIS SPECIFICATION ARE MARKED "*" TO INDICATE WHERE CHANGES (ADDITIONS, MODIFICATIONS, CORRECTIONS, DELETIONS) FROM THE PREVIOUS ISSUE HAVE BEEN 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 IRRESPECTIVE OF THE MARGINAL NOTATIONS AND RELATIONSHIP TO THE LAST PREVIOUS ISSUE.

Custodians:

- Army - GL
- Navy - SH
- Air Force - 82

Review activities:

- Army - GL, MD
- Navy - SH
- Air Force - 82
- OSA - IS

User activity:

- Army - ME

Preparing activity:

- Navy - SH
- (Project 4020-0231)

