

INCH-POUND

T-R-571E
March 13, 1990
SUPERSEDING
Fed. Spec. T-R-571D
January 30, 1980

FEDERAL SPECIFICATION

ROPE, COTTON, OR COTTON AND POLYESTER

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers cotton or cotton/poyester rope.

1.2 Classification. The rope shall be of the following classes and sizes, as specified (see 6.2).

Class 1 - Natural

Class 2 - Mildew-resistant treated

Sizes, (circumference, inches): 3/8; 5/8; 3/4; 1-1/8; 1-1/2; 2-1/4; 3

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

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 4020

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T-R-571E

Federal Specifications:

T-T-616 - Treatment: Mildew Resistant, for Rope and Cord
UU-T-81 - Tags, Shipping and Stock

Federal Standards:

FED-STD-191 - Textile Test Methods

(Activities outside the Federal Government may obtain copies of Federal specifications, standards, and commercial item descriptions as outlined under General Information in the Index of Federal Specifications, Standards, and Commercial Item Descriptions. The Index, which includes cumulative bimonthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001.)

(Single copies of this specification, and other Federal specifications and commercial item descriptions required by activities outside the Federal Government for bidding purposes, are available without charge from General Services Administration Business Service Centers in Boston, MA; New York, NY; Philadelphia, PA; Washington, DC; Atlanta, GA; Chicago, IL; Kansas City, MO; Fort Worth, TX; Denver, CO; San Francisco, CA; Los Angeles, CA; and Seattle, WA.)

(Federal Government activities may obtain copies of Federal standardization documents and the Index of Federal Specifications, Standards, and Commercial Item Descriptions from established distribution points in their agencies.)

Military Specifications:

MIL-C-3131 - Cordage; Packaging of

Military Standards:

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

(Unless otherwise indicated, copies of Federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

Federal Regulations:

Federal Trade Commission

Rules and Regulations Under the Textile Fiber Products Identification Act

T-R-571E

(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001. When indicated, reprints of certain regulations may be obtained from the Federal agency responsible for issuance thereof).

2.2 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 takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.3.

3.2 Government or contractor purchases. The requirements specified in 3.7 and 3.8 apply only to rope purchased directly by the Government. All other requirements apply to rope procured by a contractor as a component of an end item and to rope purchased directly by the Government.

3.3 Materials. The rope shall be fabricated of carded cotton fiber or a cotton and polyester blend of suitable staple length and grade to meet the requirements of this specification. The polyester content shall not exceed 65 percent of the total blend. It is encouraged that recycled material be used when practical as long as it meets the requirements of this specification. Testing shall be as specified in 4.4.4.

3.4 Physical requirements. Class 1 and class 2 rope shall conform to the physical requirements specified in table I. The rope shall be of three-strand construction and shall utilize the "ZSZ" twist pattern. Testing shall be as specified in 4.4.4.

TABLE I. Physical requirements

Nominal Inches	Circumference		Approximate diameter 1/ Inches	Length per pound 2/ (minimum) Feet	Breaking strength (minimum)	
	Minimum Inches	Maximum Inches			Class 1 Pounds	Class 2 Pounds
3/8	5/16	7/16	1/8	200.0	120	105
5/8	9/16	11/16	3/16	90.0	250	225
3/4	5/8	7/8	1/4	52.0	420	375
1-1/8	1	1-1/4	3/8	23.5	890	800
1-1/2	1-3/8	1-5/8	1/2	13.5	1,450	1,305
2-1/4	2-1/16	2-7/16	3/4	6.0	3,100	2,790
3	2-3/4	3-1/4	1	3.5	5,100	4,590

1/ This column is included for information only and is not a specification requirement.

T-R-571E

2/ A ten percent minus tolerance is permitted for class 2 rope only.

3.5 Finishes.

3.5.1 Natural. Unless otherwise specified (see 6.2), class 1 rope shall be natural only, having color consistent with the fiber itself.

3.5.2 Mildew-resistant treated. Class 2 rope shall be natural color prior to treatment and shall be mildew-resistant treated in accordance with T-T-616. The shade imparted by this treatment shall be considered acceptable.

3.6 Nonfibrous material. Ropes in the natural condition shall contain not more than 5.0 percent starch and protein content, including chloroform soluble and water soluble material, when tested as specified in 4.4.4.

3.7 Put-up. Unless otherwise specified (see 6.2), the ropes shall be furnished on tubes for sizes up to and including 3/4 inch circumference and in coils for the remaining sizes and in the minimum lengths specified in table II. Tubes or coils shall contain not more than two pieces and no piece shall be less than 100 feet in length. A plus tolerance of 10 percent shall be allowed on the length per tube or coil specified. The ends of the rope shall not be knotted or otherwise joined to make a continuous length and shall be served to prevent the ends from unlaying or untwisting. The rope shall be so wound that each turn and layer is free from entanglement.

TABLE II. Put-up

Circumference (nominal)	Weight per tube or coil (approximate)	Length per tube or coil (minimum)
<u>Inches</u>	<u>Pounds</u>	<u>Feet</u>
3/8	10	2,000
5/8	30	2,700
3/4	30	1,600
1-1/8	51	1,200
1-1/2	89	1,200
2-1/4	100	600
3	171	600

3.8 Identification.

3.8.1 Label. Each tube shall have a label attached in such a manner as to remain in place and be clearly legible until all rope has been removed.

T-R-571E

3.8.2 Ticket. Each coil shall have a ticket (identification tag) attached to it for identification purposes. The ticket shall conform to the requirements for type B, class 1, size 3 or 4 of UU-T-81. The ticket shall be made of not less than 15 point paper stock and shall have a minimum tearing strength in both directions (total) of 850 grams when tested as specified in UU-T-81.

3.8.3 Marking. All entries on the ticket or label shall be legibly printed, stamped, or typed with water insoluble ink.

3.8.4 Marking information. The ticket or label shall contain the following information:

- National stock number (NSN)
- Nomenclature
- Specification number
- Length
- Date of manufacture (month and year)
- Contract number and date
- Contractor's name

3.9 Workmanship. The finished rope 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 contractor is responsible for the performance of all inspection requirements (examinations and tests) 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 specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

T-R-571E

4.1.2 Responsibility for dimensional requirements. Unless otherwise specified in the contract or purchase order, the contractor is responsible for ensuring that all specified dimensions have been met. When dimensions cannot be examined on the end item, inspection shall be made at any point, or at all points in the manufacturing process necessary to ensure compliance with all dimensional requirements.

4.1.3 Certificates of compliance. 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 3.1 and 6.2), it shall be examined for the defects specified in 4.4.2 and 4.4.3, and tested for the characteristics specified in 4.4.4.

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 specification or applicable purchase document.

4.4.2 End item visual examination. The rope shall be examined for the defects listed in table III. 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. Ten percent of the length contained on each sample unit, but not less than 100 feet, shall be examined. The lot size shall be expressed in units of tubes or coils. The sample unit shall be one tube or coil. The inspection level shall be I, 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.

TABLE III. End item visual defects

Examine	Defect	Classification	
		Major	Minor
Appearance and workmanship	Cut, any	101	
	Chafed or damaged	102	
	Kinks, broken or loose ends, bulged strands, strand knots	103	
	Not three-strand construction	104	

T-R-571E

TABLE III. End item visual defects (cont'd)

Examine	Defect	Classification	
		Major	Minor
Identification ticket or label	Omitted, incorrect, illegible, or insecurely attached		201
	Not as specified		202
	Handwritten entries		203

4.4.3 End item dimensional examination. The rope shall be examined for the defects listed below. The lot size shall be expressed in units of tubes or coils. The sample unit shall be one tube or coil. The inspection level shall be S-3, and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

- (a) Length less than specified minimum.
- (b) Length in excess of the specified minimum plus tolerance of 10 percent.
- (c) Improperly or not firmly wound resulting in kinks, knots, entangling or slippage during unwinding.
- (d) Knots or otherwise joining of ends to make a continuous length.
- (e) Tube or coil contains more than two pieces.
- (f) Piece less than 100 feet in length.
- (g) End(s) not served.

4.4.4 End item testing. The rope shall be tested for the characteristics listed in table V. The methods of testing specified in FED-STD-191 wherever applicable and as listed in table V shall be followed. All test reports shall contain the individual values utilized in expressing the final result. The sample unit for all testing shall be 35 feet for ropes less than 1-1/8 inches in circumference, and shall be 55 feet for ropes 1-1/8 inches and over in circumference. The lot shall be rejected if one or more sample units fail to meet any requirement specified. The sample size shall be in accordance with table IV.

TABLE IV. Sampling for tests

Lot size (types or coils)	Sample size (sample units)
800 or less	2
801 up to and including 22,000	3
22,001 and over	5

T-R-571E

TABLE V. End item tests 1/

Characteristic	Requirement paragraph	Test method	No. of determinations per sample unit	Results reported as
Material identification	3.3	1200 1600		Pass or fail
Direction of twist (yarn, strand, rope)	3.4	4050	1	Pass or fail
Size circumference	3.4	6003	1	Avg. of 1 determination to nearest 1/16 inch
Length per pound	3.4	6004	1	Nearest 0.1 ft.
Breaking strength	3.4	6016	5	Avg. of 5 determinations to nearest 1 pound
Number of strands	3.4	Visual	1	Pass or fail
Nonfibrous material	3.6	2611	2	Avg. of 2 determinations to nearest 0.1 percent

1/ Tests to determine compliance with specification requirements may be performed under prevailing atmospheric condition except in settlement of a dispute, in which case the tests shall be made on material which has reached equilibrium under conditions as defined in FED-STD-191.

4.4.5 Packaging inspection. The inspection shall be in accordance with the quality assurance provisions of MIL-C-3131 except that the inspection level shall be S-2, and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

5. PACKAGING

5.1 Levels A, B, and C. Preservation, packing, palletization, and marking for each level of protection shall be in accordance with the applicable requirements of MIL-C-3131 (see 6.2).

T-R-571E

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The rope is intended for general purpose use.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this document.
- b. Class and size required (see 1.2).
- c. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1).
- d. When a first article is required (see 3.1, 4.3, and 6.3).
- e. Color of class 1 rope, if other than natural (see 3.5.1).
- f. When put-up other than specified is required (see 3.7).
- g. Levels of preservation and packing (see 5.1).

6.3 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 also include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

MILITARY INTERESTS:

Custodians:

Army - GL
Air Force - 99

Review activities:

Army - MD, SM
Air Force - 82
DLA - IS

User activities:

Army - ME, AV
Navy - MC

CIVIL AGENCY COORDINATING ACTIVITIES:

DOE
GSA-FSS
JUS-FPI

PREPARING ACTIVITY:

Army - GL

(Project 4020-0313)

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NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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