

[INCH-POUND]

A-A-55217

October 19, 1999

COMMERCIAL ITEM DESCRIPTION

THREAD, ARAMID, SPUN STAPLE

The General Services Administration has authorized the use of this commercial item description as a replacement for MIL-T-83193.

Abstract. This commercial item description covers the requirements for a spun staple, high temperature aramid thread for use in machine sewing of protective combat apparel and flight safety equipment. Type I typifies normal performance thread, whereas, Type II typifies higher performance thread for use on end-items that require use of a smaller sized sewing needle.

Classification

Type I - Normal performance

Type II - High performance

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Personnel Support Center, Clothing and Textiles Directorate, Attn: DPSC-FQSD, 2800 South 20th Street, Philadelphia, PA 19145-8419, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8310

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

A-A-55217

Salient characteristics. The fiber used in the manufacture of the thread shall be aramid of 1.5 to 2.0 denier per filament which shall not carbonize at a temperature below 675oF. The finished thread shall conform to the applicable requirements of Table I or Ia. Unless otherwise specified, the direction of final twist shall be "Z" for all thread. Each of the individual plies of yarn shall be initially twisted with no less than the number of turns per inch to be used in the final twist and in the opposite direction to the final twist. The color (shade) shall be as specified in the contract or purchase order and shall match the specified applicable approved shade standard. Tex size 45 and finer shall average not more than one knot per 8 ounces in singles. The thread shall have a soft finish and contain only the minimum amount of lubricant to facilitate sewing. Only non-staining and non-flame propagating finishes commonly used shall be permitted as sewing finishes unless prior approval is obtained from the Contracting Officer. The finish shall have no deleterious effect on the thread including effects of prolonged storage. No finish or treatment shall be applied for the purpose of increasing breaking strength.

Table I. Physical Requirements - Type I - Normal Performance

Nominal Tex	Plies Final	Yds per pound		Breaking Strength (pounds, min.)	Elongation Percent max
		Min	Max		
24	2	18,000 - 19,700		1.6	25
35	3	11,500 - 13,600		2.0	25
59	3	8,200 - 9,600		3.0	30
78	4	6,200 - 7,100		4.5	30
98	4	4,700 - 5,200		5.5	30

Table Ia Physical Requirements - Type II - High Performance

Nominal Tex	Plies Final	Yds per pound		Breaking Strength (pounds, min.)	Elongation Percent max
		Min	Max		
21	2	21,800	23,400	1.5	20
27	2	16,200	18,000	2.2	20
45	3	9,200	10,200	4.0	20
60	3	7,800	8,600	5.0	20
70	3	6,200	7,000	6.0	20
90	4	4,700	5,200	8.0	20

A-A-55217

Table II. End item test methods

Characteristic	Requirement	Test Method
Fiber identification	Aramid	<u>1/</u>
Denier per filament	1.5 - 2.0	ASTM D204
Melting point	Above 675oF	FED STD 191-1534
Number of plies	Table I	Visual <u>2/</u>
Yards per pound	Table I	ASTM D204
Elongation	Table I	ASTM D204
Breaking strength: Initial	Table I	ASTM D204 <u>3/</u>
Direction of twist	"Z"	ASTM D204
Colorfastness	Fastness after 3 laundering cycles equal to or better than standard or a rating of "4"	AATCC 61 <u>4/ 5/ 8/</u>
Color (shade) match	Standard sample	<u>6/ 7/</u>
Heat aging resistance	Minimum 85% of original breaking strength	ASTM D1578 <u>3/</u>

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

2/ One determination per sample unit shall be made and the result reported as "pass" or "fail".

3/ Five specimens each of the applicable size shall be used for the heat aging test. Five specimen skeins of 15 yards each shall be exposed in a hot air convection (circulating air) oven at a temperature of 550°F +10° for a period of 20 minutes +2 minutes. Upon removal, the specimens shall be conditioned at standard atmospheric conditions for 4 hours and then tested for breaking strength as specified in Table II. The heat aging resistance shall be the average of the breaking strength obtained from the specimens tested, and shall be reported to the nearest 1.0 percent of the original breaking strength.

A-A-55217

4/ The specimens must be dried after each of the three launderings.

5/ On the color transfer cloth evaluation, only the stain on the nylon fiber of the color transfer cloth shall be evaluated.

6/ If a sample contains finish, before evaluation for shade matching, the sample of thread shall be wet drycleaned according to AATCC 132. Excess solvent shall be removed by centrifuging or wringing. The sample shall be rinsed in distilled water at 120°F to 160°F, and dried at a temperature not exceeding 180°F. The dried sample shall then be conditioned for a minimum of 4 hours prior to evaluation for shade match.

7/ In the shade matching procedure, the sample shall be wound or prepared for examination in a manner similar to that for the standard shade sample. The color of the sample shall match the standard sample when viewed under filtered tungsten lamps that approximate artificial daylight and that have a correlated color temperature of $7500 \pm 200\text{K}$, with illumination of 100 ± 20 foot candles, and shall be a good match to the standard sample under incandescent lamplight at $2300 \pm 200\text{K}$.

8/ Two to six grams of the yarn, so held together to form a unit for testing. Unless otherwise specified in the procurement document, the laundering cycle of the Launder-O-Meter or similar machine shall be 30 minutes and the temperature of the container and its contents shall be maintained at $105^\circ \pm 5^\circ\text{F}$.

Labels. Except when acceptance of commercial identification markings are specified in the invitation to bid, each holder shall have a label attached in such a manner as to remain in place and be clearly legible until all thread has been removed. The label shall be printed with the information as specified below:

- Fiber type and construction (aramid, spun, staple)
- National stock number
- Approximate weight (net) per holder
- Direction of twist
- Tex size and ply
- Yards per pound
- Color
- Contract or purchase order number

Workmanship. After completion, the finished tubes of yarn shall be thoroughly cleaned, and all loose thread, lint, and foreign matter removed. The finished thread shall conform to the quality of product established by this commercial item description.

Quality assurance

Certification The contractor shall certify that the product offered meets the salient characteristics of this commercial item description and that the product conforms to the producer's specifications.

A-A-55217

standards and quality assurance practices. The Government reserves the right to require proof of such conformance prior to the first delivery and thereafter as may be otherwise provided for under the provisions of the contract or purchase order. Reliance on contractor quality assurance systems 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 or purchase order.

Examination Yarn tube lots shall be inspected in accordance with "Sampling Procedures and Tables for Inspection by Attributes", ANSI/ASQC Z1.4, published by the American Society for Quality Control.

Visual examination The thread shall be inspected on the tube, and examined for the defects listed below.

Defects. Any cut, or tear; chafe; slip affecting strength of thread or interfering with easy location of end, and initial unwinding; thread not in continuous lengths; more than the allowable thread knots; thread improperly or not firmly wound, resulting in kinks or knots; entangling or slippage during unwinding; strands that adhere to each other or to holder affecting unwinding tension; color not as specified; any material defects or poor workmanship; label missing; label incorrect or illegible; bar code omitted or not readable by scanner; human-readable interpretation (HRI) omitted or illegible; or item not packaged in accordance with the contract or purchase order.

Regulatory requirements. The offeror/contractor is encouraged to use recovered materials in accordance with Public Law 94-580 to the maximum extent practicable.

Preservation, packing, and marking. The preservation, packing, and marking shall be as specified in the contract or purchase order.

Source of Government documents. Copies of military and Federal documents are available from:

Standardization Documents Order Desk
Bldg. 4D
700 Robbins Avenue
Philadelphia, PA 19111-5094

Source of non-Government documents

ANSI Standards

American National Standards Institute, 1430 Broadway, New York, NY 10018-3308.

ASTM Test Methods

American Society For Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.

A-A-55217

AATCC Test Methods

American Association of Textile Chemists and Colorists (AATCC), P.O. Box 12215, Triangle Park, NC 27709-2215.

Custodian:

**Army - GL
Air Force - 45
Navy - NU**

Review Activity:

**Army - MD
Air Force - 82, 99, 32
Navy - AS**

**Civil Agency Coordinating
Activity:**

GSA - FSS

Preparing Activity:

DLA - CT

Project No. 8310-0210

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7, and send to preparing activity.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

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I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
A-A-55217

2. DOCUMENT DATE (YYYYMMDD)
19991019

3. DOCUMENT TITLE THREAD, ARAMID, SPUN STAPLE

4. NATURE OF CHANGE *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)*

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME *(Last, First, Middle Initial)*

b. ORGANIZATION

c. ADDRESS *(Include Zip Code)*

d. TELEPHONE *(Include Area Code)*
(1) Commercial
(2) AUTOVON
(if applicable)

7. DATE SUBMITTED
(YYYYMMDD)

8. PREPARING ACTIVITY

a. NAME DEFENSE PERSONNEL SUPPORT CENTER,
PHILADELPHIA

b. TELEPHONE *(Include Area Code)*
(1) Commercial (215) 737-2405 (2) AUTOVON 444-2405

c. ADDRESS *(Include Zip Code)*

DEFENSE PERSONNEL SUPPORT CENTER, CLOTHING AND
TEXTILES DIRECTORATE, ATTN: DPSC-FQSD, 2800 SOUTH 20TH
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IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:
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