INCH-POUND
A-A-55217A
March 16, 2007
SUPERSEDING
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 for all federal agencies.

1. SCOPE. This commercial item description covers the requirements for a spun staple, high temperature aramid thread. The thread is used in sewing protective combat apparel and flight safety equipment.

2. CLASSIFICATION.

Type I - Normal performance.
Type II - High performance.

3. SALIENT CHARACTERISTICS.

3.1 General description. The fiber used in the manufacture of the thread shall be 1.5 to 2.0 denier per filament aramid. The finished thread shall conform to the applicable requirements of Table I or II. Unless otherwise specified, the direction of the final twist shall be "Z" for all threads. 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 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.

Comments, suggestions, or questions on this document should be addressed to: Defense Supply Center Philadelphia, Clothing and Textiles Directorate, Attn: DSCP Standardization Team, 700 Robbins Avenue, Philadelphia, PA 19111-5096. Since contact information can change, you may want to verify the currency of this address information using Acquisition Streamlining and Standardization Information System (ASSIST) online database at http://assist.daps.dla.mil.

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3.2 Physical characteristics and requirements. The Type I and II threads shall conform to the physical characteristics specified in Tables I and II respectively, when tested in accordance with Table III as specified below.

Table I. Physical characteristics of Type I (normal performance)

Tex 1/	Ply	Length per pound, (yards) Min. Max.	Breaking strength, lbs.(min.)	Elongation % (max.)
24–27	2	18,000 – 19,700	1.6	30
35-40	3	11,500 – 13,600	2.0	30
50-60	3	8,200 – 9,600	3.0	30
70-80	4	6,200 – 7,100	4.5	30
90-100	4	4,700 – 5,200	5.5	30

1/ Tex size based on weight in grams/ 1,000 meters thread.

TABLE II. Physical characteristics of Type II (high performance)

Tex 1/	Ply	Length per pound (yards) Min. Max.	Breaking strength lbs. (min.)	Elongation % (max.)
21	2	21,800 – 23,400	1.5	20
27	2	16,200 – 18,000	2.2	20
45	2 or 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

1/ Tex size based on weight in grams/ 1,000 meters thread.

TABLE III. Physical requirements

Characteristic	Requirement	Test method
Fiber identification	Aramid	AATCC/20 or ASTM D/276
Denier per filament	1.5–2.0	ASTM D-1577
Tex	See Table I and II 1/	ASTM D204
Ply	Table I and II	ASTM D204
Length per pound (yards)	Table I and II	ASTM D1907 2/
Elongation (%)	Table I and II	ASTM D204 Procedure 19.4
Breaking strength		
Initial	Table I and II	ASTM D204 Procedure 19.1.1
After aging (min.)	85% of initial break strength	See 3.3, ASTM D 204 Procedure 19.1.1
Turns per inch	See 3.1	ASTM D204
Twist balance	See 3.1	ASTM D204
Direction of Twist	"Z"	ASTM D204
Colorfastness (min.) Laundering (after 3 cycles)	3-4	See 3.5 AATCC-61, 3/, 4/, 5/, 6/

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

2/ In case of dispute, a second determination (the length per pound of thread) may be determined on the thread after removal of finish. yards/lb= $\frac{453.6 \times \#\text{ of yards in specimen}}{\text{wgt of specimen in gm}}$

3/ Two to six grams of the yarn, 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 150 (± 5)^{0}F.

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

5/ AATCC Evaluation Procedure 2, Gray Scale for Staining- Only the stain on the nylon fiber of the color transfer cloth shall be evaluated for the color transfer evaluation.

6/ ATCC Evaluation Procedure 1, Gray Scale for Color Change.

3.3 Heat aging test. Five specimen skeins, of 15 yards each, shall be prepared as specified in ASTM D 1578 Option 1, using 20 turns. The five skeins shall be exposed in a hot air convection (circulating air) oven at a temperature of 550^o (± 10^o) F for a period of 20 (± 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 III. 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.

3.4 Color. The color shall be as specified in the applicable end item specification or in the contract order. The dyed thread shall be a good match to the applicable when examined in accordance with 3.6.

3.5 Finish removal procedure. Before evaluation for shade matching and testing for colorfastness, except for colorfastness to wet dry cleaning, the thread shall be wet dry cleaned in accordance with AATCC-132. Excess solvent shall be removed by centrifuging or wringing. The sample shall then be rinsed in distilled water at 120^o to 160^{o}F and dried at a temperature not exceeding 180^{0}F. The dried sample shall then be conditioned for a minimum of 4 hours prior to evaluation for shade matching or colorfastness.

3.6 Visual shade matching. The color and appearance of the finished thread, after removal of finish (see 3.5), shall match the standard sample when viewed using AATCC Evaluation Procedure 9, Option A, with sources simulating artificial daylight D75 illuminant with a 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 2856(± 200)K

3.7 Finishing materials. The finished thread shall have no chemical finishes or treatments other than those commonly used, i.e. water-repellent, etc., on commercial threads which have been demonstrated to have no harmful effects on the fiber, including effects of prolonged storage. No finish or treatment shall be applied for the purpose of increasing breaking strength. There shall be no noticeable wicking of the treatment on the thread to adjacent material when sewn. No finish shall be used that will diminished flame resistance.

3.8 Toxicity. The finished thread shall not present a health hazard and shall show compatibility with prolonged, direct skin contact when tested as specified in 3.7.1. Chemicals recognized by the Environmental Protection Agency (EPA) as human carcinogens shall not be used.

3.8.1 Toxicity test. When required (see 7.4), an acute dermal irritation study and a skin sensitization study shall be conducted on laboratory animals. When the results of the studies indicate the thread is not a sensitizer or irritant, a Repeat Insult Patch Test shall be performed in accordance with the Modified Draize Procedure. (See 7.2.5) If the toxicity requirement (see 3.8) can be demonstrated with historical use data, toxicity testing may not be required.

3.9 Put-up. Unless otherwise specified, the thread shall be put-up on holders such as commercial spools, cones, or tubes as specified in the contract. The thread shall be wound around the specified holder in one continuous piece, so each turn and layer is free of entanglement. The outside ending of the thread shall be secured to prevent unwinding, loosening, or slippage during handling, shipping, or storage.

3.10 Labeling. Each holder shall have a label, adhered securely so as to remain in place and be clearly legible until all thread has been removed. The label shall be printed and include information related to length in yards, direction of twist, color, size (TEX or ticket number), number of plies, NSN number, the contract or purchase order number, name of thread manufacturer, weight, yards/pound and nomenclature specifying type and construction.

3.11 Workmanship. The finished thread shall conform to the quality of product established by this document. TEX size 45 and finer shall average no more than one knot per 8 ounces in singles. All other thread sizes shall average not more than one full thread knot or splice per 1,000 yards. The occurrence of defects shall not exceed the contractor's own quality assurance standards and the quality assurance standards defined by the technical data in the bid package.

4. REGULATORY REQUIREMENTS. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

5. PRODUCT CONFORMANCE PROVISIONS.

5.1 Product conformance. The products provided shall meet the salient characteristics of this Commercial Item Description, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered in the commercial marketplace. The Government reserves the right to require proof of such conformance.

6. PACKAGING.

6.1 Packaging. Preservation, packing, and marking shall be specified in the contract or order.

7. NOTES.

7.1 Intended use. The thread is intended for sewing protective combat apparel and flight safety equipage. Type I is a normal performance thread. Type II is a higher performance thread for use on end-items that require use of a smaller sized sewing needle.

7.2 Sources of documents

7.2.1 Copies of government documents are available online at http://assist.daps.dla.mil/quicksearch/ or www.assist.daps.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

7.2.2 AATCC Standards are available online at www.aatcc.org or from the American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709-2215.

7.2.3 ASTM Standards are available online at www.astm.org or from ASTM INTERNATIONAL, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

7.2.4 Federal Acquistion Regulations are available online at http://acquisition.gov/far/index.html or by contacting the Superintendent of Documents at 202-512-1800.

7.2.5 Principles and Methods of Toxicology (fourth edition), A Wallace Hayes (editor),pp1057 - 1060, 2001 are available from Taylor and Francis, Philadelphia PA or http://www.taylorandfrancis.co.uk/.

7.3 Standard samples, patterns and drawings.

7.3.1 Standard samples and pattern drawings, address the contracting activity issuing the invitation for bids or request for proposal. Standard samples are also available at DSCP through http://warfighter.dla.mil under tab “Vendor Info” then “Specifications/Pattern Request” under “Special Instructions” provide color shade, roll number and solicitation/contract number.

7.4 Ordering data. The contract or order should specify the following:

a. CID document number, title and revision.
b. Type, size, twist, and ply of title thread required. (see 3.1)
c. Sewing finishes (see 3.1).
d. Color required (see 3.4).
e. Put-up required (see 3.8).
f. Labeling (see 3.9)
g. Product conformance provisions (see 5.1).
h. Packaging requirement (see 6.1).

7.5 Key words.

Anti-exposure
Drawers
Flyers
Undershirts

MILITARY INTERESTS:

Custodians:
Army – GL
Navy – NU
Air Force – 11

Review Activities:
Army – MD
Navy – AS
Air Force - 99

CIVIL AGENCY COORDINATING ACTIVITY:

GSA – FSS

Preparing Activity:
DLA-CT

Project No. 8310-2006-002

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST online database at http://assist.daps.dla.mil.