

INCH-POUND

A-A-52094A

March 30, 2007

SUPERSEDING

A-A-52094

March 15, 1991

COMMERCIAL ITEM DESCRIPTION

THREAD, COTTON

The General Services Administration has authorized the use of this commercial item description as a replacement for V-T-276 or all federal agencies.

1. **SCOPE.** This commercial item description covers the requirements for cotton thread used for sewing various cloth, clothing, and equiptage items.

2. **CLASSIFICATION.**

- Type I – Machine thread, soft finish
- Type II – Machine thread, glazed finish
- Type III – Machine thread, mercerized finish
- Type IV - Shoe thread, soft finish
- Type V – Shoe thread, glazed finish

3. **SALIENT CHARACTERISTICS.**

3.1 General description. The thread shall be spun from combed cotton and shall have a soft, glazed, or mercerized finish as specified in the contract or purchase order (see 7.3). The glazing compound may be any commercially available agent intended for this purpose. The final direction of the thread twist shall be “Z” twist. Types I, II, and III thread shall average not more than one full thread knot or splice per 1,000 yards. Types IV and V thread shall average not more than one full thread knot or splice per 600 yards.

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 thread shall conform to the physical characteristics specified in Tables I, II, and III, when tested in accordance with Table IV as specified below.

Table I. Physical characteristics for Type I and II (machine thread, soft and glazed finish)

Tex <u>1</u> (values)	Ticket Number	Ply	Length per pound (yards) Min., <u>2</u> / - Max., <u>3</u> /	Breaking strength, lbs.(min.)
21	140	2	23,000 - 28,750	1.0
27	90	2	17,946 - 21,840	0.9
30	70	2	14,173 - 16,535	1.2
30	70	3	14,173 - 16,535	1.5
40	50	3	11,023 - 12,400	1.8
50	40	3	8,267 - 9,920	2.2
60	30	3	7,087 - 8,266	3.0
80	24	4	5,512 - 6,200	3.8
90	20	4	4,725 - 5,511	4.5
105	16	4	4,134 - 4,724	5.3
150	12	4	3,307 - 3,674	6.8
180	10	3	2,502 - 2,815	6.5
210	10	4	1,901 - 2,500	9.5
270	10	5	1,501 - 1,900	12.5
350	10	6	1,275 - 1,500	15.5
240	9	4	1,931 - 2,060	10.0
210	8	3	2,001 - 2,250	7.0
270	8	4	1,501 - 2,000	11.0

1/ Tex size based on weight in grams/1,000 meters thread in accordance with ASTM D 2260.

2/ For the Type II glazed finish thread the minimum yards per pound shall be 90 percent of the applicable value specified in this column.

3/ Maximum yield variance shall be no more than 8.0%.

Table II. Physical characteristics for Type III (machine thread, mercerized finish)

Tex <u>1</u> / (sizes)	Ticket Number	Ply	Length per pound (yards) Min. - Max.	Breaking strength lbs. (min.)
35	30	2	11,001 - 14,400	1.6
30	36	2	14,401 - 16,800	1.3
70	C	3	6,010 - 7,760	4.0
60	B	3	7,761 - 9,215	3.2
50	A	3	8,268 - 9,921	2.8
40	0	3	9,920 - 11,023	2.6
35	00	3	12,401 - 14,172	2.1
27	000	3	15,521 - 21,340	1.7

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

Table III. Physical characteristics for Type IV and V (shoe thread, soft and glazed finish)

Tex <u>1/</u> (sizes)	Ticket Number	Ply	Length per pound (yards) Min., <u>2/</u> - Max.	Breaking strength lbs. (min.)
270	8	4	1,654 – 1,837	13.0
350	8	5	1,241 – 1,417	17.5
400	8	6	1,103 – 1,235	21.0
450	8	7	940 – 1,103	24.5
500	8	8	827 – 992	28.0
600	8	9	709 – 826	31.5
700	8	10	621 - 708	35.0
700	8	11	621 - 708	38.5
800	8	12	552 - 620	42.0

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

2/ For the Type V glazed finish thread the minimum yards per pound shall be 90 percent of the applicable value specified in this column.

3.3 End item testing. The thread shall be tested for the characteristics listed in Table IV following the test methods specified. The lots shall be expressed in units of one holder, except ready made bobbins which shall be expressed in units of one gross. The sample size and acceptance levels shall be as specified in the contract or order.

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Table IV. End item testing

Characteristic	Requirement	Test method
Tex (Ticket) Size	Table I, II, or III	ASTM D 3823
Ply	Table I,II, or III	Visual
Length/lb.	Table I, II, or III	ASTM D 1907, <u>1/</u>
Breaking Strength Initial	Table I, II, or III	ASTM D 2256, <u>2/</u>
Twist direction (Final)	Z	ASTM D 1423
Fiber identification	Cotton	ASTM D276 or AATCC 20
Mildew resistance <u>3/</u> After leaching	75% of initial breaking strength 75% of initial breaking strength	AATCC 30, Test 1, <u>4/</u> ASTM D204 <u>2/</u> Para. 3.8.1, AATCC 30, Test 1, <u>4/</u> , ASTM D204 <u>2/</u>
Colorfastness to: (Minimum) <u>5/</u> Laundering (after 3 cycles) Light (after 40 hrs or 170 kJ) Wet dry cleaning Perspiration Weathering (after 80 hrs.)	(see paragraph 3.5) 3-4 3-4 3-4 3-4 3-4	AATCC 61, 3A, <u>6/</u> , <u>7/</u> , <u>8/</u> , <u>9/</u> AATCC 16, Opt 1 or 3, <u>6/</u> , AATCC 132, <u>6/</u> , <u>9/</u> AATCC 15, <u>6/</u> , <u>9/</u> AATCC 169, <u>6/</u>
Visual shade matching <u>5/</u>	Paragraph 3.7	AATCC Evaluation Procedure 9, Option A , see 3.7

- 1/ In case of dispute, the length per pound of thread may be determined on the thread after removal of finish.
- 2/ Five determinations shall be made on the sample unit. Testing speed shall be 12±0.5 in/min and a 10 inch gauge length shall be used.
- 3/ When the contract specifies mildew resistance is required (see 3.8).
- 4/ A minimum of 5 specimens shall be tested. The soil shall be made of an equal blend of good topsoil, well rotted and shredded manure and coarse sand. Samples shall be exposed for 12 weeks .
- 5/ Testing shall be done after the finish is removed as specified in 3.5.
- 6/ AATCC Evaluation Procedure 1, Gray Scale for Color Change.
- 7/ The specimen must be dried after each of the 3 laundering cycles.
- 8/ On the color transfer cloth evaluation, only the stain on the cotton fibers of the color transfer cloth shall be evaluated.
- 9/ AATCC Evaluation Procedure 2, Gray Scale for Staining.

3.4 Labile Sulfur. The use of dyes and compounds containing elementary sulfur capable of oxidation to sulfuric acid shall not be permitted.

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.

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The sample shall then be rinsed in distilled water at 120⁰ to 160⁰F and dried at a temperature not exceeding 180⁰F. The dried sample shall then be conditioned for a minimum of 4 hours prior to evaluation for shade matching or colorfastness.

3.6 Color. The color of the dyed thread shall be as specified in the applicable end item specification or in the contract order. The color shall be natural, bleached, or dyed as specified (see 7.3).

3.7 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 ± 200K.

3.8 Mildew resistant treatment. The thread shall have a mildew resistant treatment when specified in the contract and meet the requirements as specified in Table IV (see 7.3).

3.8.1 Leaching resistance. Specimens to be tested for mildew and rot resistance shall be submerged in a suitable tank containing water at a temperature of 80⁰ to 85⁰F (27⁰ 30⁰C) and allowed to remain immersed for a period of 24 hours. Water flow through a tube into a tank is adjusted to ensure a completed change of water not less than three times in 24 hours. The pH and temperature of the water is recorded and included in the report of the results.

3.9 Finishing materials. The finished thread shall have no chemical finishes or treatments other than those commonly used or specified, 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.

3.10 Toxicity. The finished thread shall not present a health hazard and shall show compatibility with prolonged, direct skin contact when tested as specified in 3.10.1. Chemicals recognized by the Environmental Protection Agency (EPA) as human carcinogens shall not be used.

3.10.1 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 (item) is not a sensitizer or irritant, a Repeat Insult Patch Test shall be performed in accordance with the Modified Draize Procedure. (See 7.1.4) If the toxicity requirement (see 3.10) can be demonstrated with historical use data, toxicity testing may not be required (see 7.3).

3.11 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.

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3.12 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), name of thread manufacturer, and nomenclature specifying type.

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 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. (see 7.3)

7. NOTES.

7.1 Sources of documents.

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

7.1.2 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.

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

7.1.4 Toxicity Documents: Principles and Methods of Toxicology (fourth edition), A Wallace Hayes (editor), pp 1057 - 1060, 2001 are available from Taylor and Francis, Philadelphia PA or <http://www.taylorandfrancis.co.uk/>.

7.1.5 Federal Acquisition Regulations are available online at <http://www.acqnet.gov/far> or by contacting GSA/MVR, ATTN: Regulatory Secretariat, 1800 F Street NW Washington, DC 20405, FAX: (202) 501-4067.

7.2 Standard samples, patterns and drawings.

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7.2.1 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.

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

- a. CID document number, title and revision.
- b. Type, Tex size and ply of thread required.
- c. Mildew resistance when required (see 3.8)
- d. Color required (see 3.6).
- e. Put-up required (see 3.11).
- f. Product conformance provisions (see 5.1).
- g. Packaging requirement (see 6.1).

7.4 Replacement data. The thread types covered by this Commercial Item Description replace those previously cited in V-T-276 as follows:

A-A-52094	V-T-276
Type I	Types IA1, IA2, IA3, IIIA (soft)
Type II	Types IB1, IB2, IB3, IIA, and IIIB (glazed)
Type III	Types IC1 and IC2 (mercerized)
Type IV	Type IVA Shoe thread (soft)
Type V	Type IVB Shoe thread (glazed)

7.5 Tex values were rounded to accommodate as many yarn numbers as possible from the traditional yarn numbering systems without affecting the established tolerances. The following tex value were changed from the previous issue of this document in accordance with ASTM D2260.

Type I and II

Current	Tex Value Previous	Ticket Number	Ply
21	19	140	2
27	25	90	2
180	187	10	3
210	225	10	4
270	292	10	5
350	358	10	6
240	255	9	4
210	233	8	3
270	283	8	4

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Type III

Current	Tex Value Previous	Ticket Number	Ply
35	39	30	2
30	32	36	2
70	72	C	3
60	58	B	3

7.6 Key words.

Finish, glazed
 Finish, merceder
 Finish, soft
 Machine
 Shoe

MILITARY INTERESTS:

Custodians:

Army – GL
 Navy – NU
 Air Force - 11

Review activities:

Army – MD, EA, AR
 Air Force – 99
 Navy – MC

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

Preparing Activity:

DLA-CT

Project No. 8310-2006-003

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>.