



PIA-T-43709B

15 April 2013

Superseding
PIA-T-43709A

08 January 2009

The following commercial specification is originally adopted from the military document. Revision A includes all known accepted revisions, amendments, notices, and Department of Defense (DoD) engineering changes previously developed for this item. Revisions B and forward include changes adopted to reflect technology and design evolution.

TAPE, TEXTILE, ARAMID

The Parachute Industry Association makes this document available for use by Industry and Government organizations that wish to apply this specification to their products.

1. SCOPE

1.1 Scope. This specification covers one type of aramid nylon tape.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in Sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of the documents cited in Sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government publications.

2.2.1 Government publications. The following Government publication forms a part of this document.

FEDERAL TRADE COMMISSION (FTC)

16 CFR 303

- Rules and Regulations Under the Textile Fiber Products Identification Act

(Copies are available online at: www.ftc.gov or from the Federal Trade Commission, 600 Pennsylvania Avenue, N.W. Washington, DC 20580-0001. Electronic copies may be also obtained from www.access.gpo.gov/.)

2.3 Non-government publications. The following documents form a part of this document.

DISTRIBUTION STATEMENT: All Rights Reserved. No Part of this publication may be reproduced without prior written permission from Parachute Industry Association. Additional copies may be purchased on-line from PIA Specifications and Products at: www.pia.com.



Documents

Document Sharing Hub

AMERICAN SOCIETY FOR QUALITY (ASQ)

- ANSI/ASQ Z1.4 - Sampling Procedures and Tables for Inspection by Attributes

(Copies are available online at www.asq.org or from the American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203.)

ASTM INTERNATIONAL (ASTM)

- ASTM D 276 - Standard Test Methods for Identification of Fibers in Textiles
- ASTM D 1059 - Standard Test Method for Yarn Number Based on Short-Length Specimens
- ASTM D 1423 - Standard Test Method for Twist in yarns by Direct Counting
- ASTM D 1776 - Standard Practice for Conditioning and Testing Textiles
- ASTM D 1777 - Standard Test Method for Thickness of Textile Materials
- ASTM D 1907 - Standard Test Method for Linear Density of Yarn (Yarn Number) by the Skein Method
- ASTM D 3774 - Standard Test Method for Width of Textile Fabric
- ASTM D 3775 - Standard Test Method for Warp (End) and Filling (Pick) Count of Woven Fabrics
- ASTM D 3776 - Standard Test Methods for Mass per Unit Area (Weight) of Woven Fabric

(Copies should be obtained from the ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19426-2959. Electronic copies may be obtained from www.astm.org.)

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

- AATCC 16 - Colorfastness to Light
- AATCC 20 - Fiber Analysis: Qualitative
- AATCC 61 - Colorfastness to Laundering: Accelerated
- AATCC 81 - pH of the Water-Extract from Wet Processed Textiles

(Application for copies should be addressed to AATCC National Headquarters, P.O. Box 12215, Research Triangle Park, NC 27709-2215. Electronic copies may be obtained from www.aatcc.org.)

PARACHUTE INDUSTRY ASSOCIATION

- PIA-TEST METHOD-4108 - STRENGTH AND ELONGATION, BREAKING; TEXTILE WEBBING, TAPE AND BRAIDED ITEMS

(Electronic copies may be obtained from www.pia.com.)

2.2 Order of precedence. Unless otherwise stated herein or in the contract, 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 in accordance with 4.3.

3.2 Standard. Where applicable, the dyed tape shall match the standard for shade and shall, unless otherwise indicated, be equal to or better than the standard with respect to all characteristics for which the standard is referenced (see 6.1).

3.3 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.4 Material.

3.4.1 Yarn. The yarn for the warp and filling shall be made from an approved bright, multi-filament, aramid polyamide (see 6.3), nominal denier of 200 (22 tex) warp and 2-ply, 200 (22 tex) filling. The yarn shall not char at a temperature less than 675°F. The final ply of the filling yarn shall have a minimum of 2 ½ turns per inch. Testing shall be as specified in 4.4.5.

3.4.2 Yarn (alternate construction). The yarn for the warp and filling shall be made from an approved aramid polyimide spun into 40/2 (nominal) cotton count. The yarn shall not char at a temperature less than 676°F. Testing shall be as specified in 4.4.5.

3.5 Color. Unless otherwise specified (see 6.2), the color of the tape shall be as specified in the procurement document. The color shall be obtained by the use of melt spun solution dyed fiber.

3.5.1 Visual shade matching. When evaluated in accordance with 4.6, the color of the finished tape shall match the standard with sources simulating artificial daylight and shall be a good match to the standard under incandescent lamplight.

3.5.2 Colorfastness. The dyed and finished tape shall show fastness to light and laundering equal to or better than the standard. When no standard has been established or designated as applicable to colorfastness, the dyed and finished tape shall show "fair" fastness to light and "good" fastness to laundering when tested as specified in 4.4.5.

3.6 Physical requirements. The finished tape shall conform to the requirements specified in TABLE I when tested as specified in 4.4.5.

(THIS SPACE LEFT INTENTIONALLY BLANK)

TABLE I Physical properties.

Characteristic	Requirement	
	Multifilament	Spun Yarn
Width, inches	1/4 ±1/64	1/4 ±1/64
Weight, oz./yd., maximum	0.07	0.10
Breaking strength, lbs., minimum	100	75
Warp yarns, full width, minimum	58	46
Denier and ply	200 (22 tex), 2 ply	40/2 (nominal) cotton count
Twist	2 ½	-
Filling yarns, minimum	32	36
Denier and ply	200 (22 tex), 2 ply	40/2 (nominal) cotton count
Twist	-	-

3.6.1 Weave. The weave shall be a plain weave, except that the warp ends shall weave two ends as one. The filling yarn shall traverse the full width of the tape with one filling yarn per shed.

3.7 Nonfibrous material. The finished tape shall contain no more than 2.0 percent starch and protein including chloroform-soluble and water-soluble material when tested as specified in 4.4.5.

3.8 pH. The pH value of the water extract of the finished tape shall be no less than 5.5 or more than 9.0 when tested as specified in 4.4.5.

3.9 Length and put-up. Unless otherwise specified (see 6.2), the tape shall be furnished on double headed spools or tubes containing 500 ±10 yards. No spool or tube shall contain more than five pieces, and no piece shall be less than 5 yards long.

3.10 Identification tickets. Each spool or tube shall have a ticket attached with not finer than 5-ply cotton string doubled to not less than 6 inches long. The tickets shall be made of paperboard not less than 0.015 inch in thickness and the color shall be manila or light in intensity to permit easy reading of printed, stamped or typed markings. The use of handwritten entries is prohibited. The ticket shall have clipped corners at the end where a reinforcing patch (with or without a metal eyelet) is firmly affixed for attaching the tying string. The ticket shall be legibly printed with water insoluble ink with the following information:

Stock number
Nomenclature
Specification number
Yardage
Contract number and date of manufacture (month and year)
Contractor's name
Name of contracting agency.

When tape is not procured directly by the Government, the above information shall appear on the container, in which case the roll tickets are not required.