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Supersedes
PIA-C-419A
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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. Revision B and forward include changes adopted by DoD and Industry to reflect technology and design evolution.

CLOTH, DUCK, UNBLEACHED, PLIED-YARNS, ARMY AND NUMBERED

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 greige (unbleached) cotton duck cloth.

1.2 Classification.

1.2.1 Type designation. The cloth shall be of the following types as specified (see 6.1):

Type I - Numbered duck
Type III - Army Duck.

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 nor is it 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 publications form a part of this document (see 2.4).

SPECIFICATIONS

FEDERAL

A-A-52094 - Thread, Cotton

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STANDARDS

FEDERAL

FED-STD-4 - Glossary of Fabric Imperfections

(Unless otherwise indicated, copies of the above specification and standard are available from the Standardization Documents Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094. Electronic copies of Military and Federal standards and specifications may be obtained from <https://assist.daps.dla.mil/quicksearch/>.)

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 20580-001. Electronic copies may also be obtained from www.access.gpo.gov/.)

2.3 Non-government publications. The following documents form a part of this document (see 2.4).

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. Electronic copies may be obtained from www.ansi.org.)

ASTM INTERNATIONAL (ASTM)

- ASTM D 737 - Standard Test Method for Air Permeability and Testing Textiles
- ASTM D 1424 - Standard Test Method for Tearing Strength of Fabrics by Falling-Pendulum (Elmendorf-Type) Apparatus
- ASTM D 1776 - Standard Test Method for Conditioning Textiles for Testing
- ASTM D 3776 - Standard Test Method for Mass Per Unit Area (Weight) of Fabric
- ASTM D 5034 - Standard Test Method for Breaking Force and Elongation of Textile Fabrics (Grab Test)
- ASTM D 6193 - Standard Practice for Stitches and Seams

(Application for copies should be addressed to the ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. Electronic copies may be obtained from www.astm.org/.)

PARACHUTE INDUSTRY ASSOCIATION (PIA)

PIA-TEST-METHOD-2611 - Nonfibrous materials in Cotton, Enzyme Method

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

2.4 Revision levels of subsidiary documents. The documents listed in Section 2 shall be defined as subsidiary documents, other Government publications and non-government publications. Unless otherwise specified by the procuring activity, the level of subsidiary documents shall be the latest revision level as listed in the Acquisition Streaming and Standardization Information (ASSIST) database located at:

<https://assist.daps.dla.mil/quicksearch/>.

2.5 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 6.1 & 6.2), a sample shall be subjected to first article inspection in accordance with 4.2.

3.2 Standard. The cloth shall be equal to or better than the standard with respect to all characteristics for which the standard is referenced (see 6.3).

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 shall be cotton which has been carded, drawn and spun into singles or twisted into plied yarns as specified in TABLES I, II and III.

3.4.2 Width. The width of the cloth shall be as specified by the procuring activity (see 6.1). The acceptable width shall be inclusive of the woven selvage when fly-shuttle looms are used, or tuck-in selvages when shuttleless looms are used, and exclusive of the lock-in fringed selvage when a shuttleless leno lock-in fringed selvage is used. Cut raw edges shall not be permitted. The following tolerances shall be permitted:

Width of duck in inches	Tolerance in inches
40 or less	$\pm 1/4$
40 to 51 inclusive	-1/4 to +3/8
51 to 81 inclusive	-3/8 to +5/8
81 and over	-3/8 to +3/4