

INCH-POUND

A-A-55127
17 February 1993

COMMERCIAL ITEM DESCRIPTION

BATTING, SYNTHETIC FIBERS, POLYESTER
(UNQUILTED AND QUILTED)

The General Services Administration has authorized the use of this Commercial Item Description in preference to Military Specification MIL-B-41826.

Abstract. The quilted and unquilted batting is intended for use as insulation in clothing, sleeping bags, and equipment items.

Classification. The battings shall be of the following types, covers, classes, and styles, as specified below:

TYPE I -- Unquilted Polyester Batting

Class 1 -	2.2 oz./sq. yd.	batting, continuous filament or cut staple
Class 2 -	3 oz./sq. yd.	batting, cut staple
Class 3 -	4 oz./sq. yd.	batting, cut staple
Class 4 -	4.4 oz./sq. yd.	batting, continuous filament or hollow cut staple
Class 5 -	6 oz./sq. yd.	batting, continuous filament or hollow cut staple
Class 6 -	10 oz./sq. yd.	batting, continuous filament or hollow cut staple
Class 7 -	8 oz./sq. yd.	batting, continuous filament or hollow cut staple

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-FSSD, 2800 South 20th Street, Philadelphia, PA 19101-8419, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8320

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

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TYPE II - Quilted Polyester Batting

- Cover A - Ripstop nylon cloth, Olive Green 106
 Cover B - Ripstop nylon cloth, Natural
 Cover C - Ripstop nylon cloth, Class 4 - Woodland
 Camouflage Pattern
 Cover D - Nylon taffeta cloth, USAF Sage Green 1511
 Class 1 - Plain finish
 Class 2 - Water repellent treated
 Cover E - Ripstop nylon cloth, Desert Camouflage
 Pattern (3 color)
- Style a - Dumbbell pattern
 Style b - Straight pattern
- Class 1 - 2.2 oz./sq. yd. batting, continuous
 filament or cut staple
 Class 2 - 3 oz./sq. yd. batting, cut staple
 Class 3 - 4 oz./sq. yd. batting, cut staple
 Class 4 - 4.4 oz./sq. yd. batting, continuous
 filament or hollow cut staple
 Class 5 - 6 oz./sq. yd. batting, continuous
 filament or hollow cut staple

SALIENT CHARACTERISTICS

General description. The batting shall be unquilted or quilted, polyester synthetic fibers with continuous filament; cut staple or hollow cut staple.

Material. The fibers shall be polyester in the natural undyed color. The use of any form of polyester waste is prohibited (e.g., undrawn fiber, mixtures of deniers, lusters or cross sections, and waste from any stage of fiber production; whether drawn, undrawn or mixed or garnetted fibers). The contractor shall submit the fiber producer's certification that each lot of polyester staple used conforms to the requirements specified herein.

Fiber for Type I, Classes 1, 2, and 3 batting. The polyester fiber shall be 4.0 to 6.0 denier, $2 \pm 1/8$ inch long, crimped cut staple having a minimum melting point of 470°F.

Fiber for Type I, Classes 4, 5, 6, and 7 batting. The polyester fiber shall be 4.0 to 6.0 denier, crimped, continuous filament having a minimum melting point of 470°F; or hollow cut staple, 5.25 to 6.0 denier, 12 to 18 percent void, 6 to 11 crimps per inch, having a minimum melting point of 464°F.

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Hollow cut staple. The polyester fiber shall be hollow, drawn, crimped, cut staple, 5.25 to 6.0 denier, 12 to 18 percent void, 6 to 11 crimps per inch, having a minimum melting point of 464°F. The polyester fiber shall be 2.0 to 2.5 inch staple with a maximum 0.22 percent finish level. The fibers for the core of hollow cut staple batting shall additionally be coated with a durable polydimethyl siloxane to a level of 0.17 to 0.43 percent silicon.

Cloth for Cover A. The cloth shall be dyed, ripstop nylon. The color shall be Olive Green 106 conforming to the requirements in Table II.

Cloth for Cover B. Shall be natural, plain weave, ripstop nylon conforming to the requirements in Table II.

Cloth for Cover C. The cloth shall be plain weave, ripstop nylon. The color shall be Woodland Camouflage Pattern conforming to the requirements in Table II.

Cloth for Cover D. The cloth shall be nylon taffeta suitable both as a base fabric without coating or for coating with chloroprene rubber or other type coatings, conforming to the requirements of Table I.

Cloth for Cover E. The cloth shall be ripstop nylon, Desert Camouflage Pattern (3 color): light tan 492, light brown 493, and light khaki 494, conforming to the requirements in Table II.

TABLE I (Nylon Taffeta)

Characteristic	Requirement	Test
Weight	2.0 to 2.3 oz/yard ²	ASTM-D 3776 Opt C Visual
Yarns per inch (min) Warp Filling	106 92	
Breaking strength 1 lbs (min) Warp Filling	110 95	ASTM-D 5034
Flex stiffness (max) 1n-lbs x 10 ⁻⁴	Warp - 1.5	ASTM-D 1388 Opt A

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Table II (Ripstop Nylon)

Characteristic	Requirement	Test
Weight oz/yd ² (max)	1.1	ASTM-D 3776 Opt C Visual
Yarns/inch (min)		
Warp	120	
Filling	120	
Breaking strength lbs (min)		ASTM-D 5035
Warp	42	
Filling	42	
Tearing strength lbs (min)		ASTM-D 2261
Warp	5	
Filling	5	

The nylon taffeta cloth shall be scoured. The cloth shall not be calendered. The cloth shall be heat set at a minimum temperature of 400°F (204°C). The cloth shall show no appreciable change in color, distortion, or puckering and not more than 2.0 percent dimensional change in either the warp or filling direction when tested as follows: The test specimen shall consist of a square cloth at least 12 by 12 inches (30.5 by 30.5 cm). It shall be laid flat without tension, and marked off with a square 10 by 10 inches (25.4 by 25.4 cm), having sides parallel to the warp and filling directions of the cloth. The test specimen shall be arranged on a tray and placed in an oven maintained at 280 ± 2°F (138 ± 1°C) for a period of two hours. At the end of this period, the specimen shall be removed from the oven, and conditioned under standard atmospheric conditions. The specimen shall then be measured for dimensional changes at three points of the ten inch (25.4 cm) square. The measurements shall be made at least one inch (2.5 cm) from the edge of the square and at the center of the square in the warp and filling direction. The specimen shall then be visually compared with the original unheated fabric for distortion, puckering, or change in color. The change in color shall be evaluated in accordance with the evaluation specified in Method 5662 of Federal Standard 191. One specimen shall be tested from each sample unit. The dimensional change of the sample unit in the warp and filling direction shall be the average of the specimens tested from each direction, respectively, and shall be reported separately to the nearest 0.1 percent. Distortion and puckering shall be reported as "pass" or "fail".

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The cloth shall be given an approved fluorocarbon water repellent treatment. The dynamic absorption initially and after 3 launderings shall be not more than 8 percent for the average of the sample units with no sample unit greater than 10 percent when tested in accordance with FED-STD 191:

Initial - Test Method 5500
After 3 launderings - 5552, 5500 1/

The results of the three individual determinations on the sample unit for spray rating shall be equal to or better than ratings 100,100,90 initially and 80, 80, 70 after 3 launderings when tested in accordance with FED-STD 191:

Initial - Test Method 5526
After 3 launderings - 5552, 5526 1/

1/ Specimens shall be subjected to 3 complete cycles (wash and dry) prior to determination of dynamic absorption, spray rating and resistance to organic liquid after laundering.

Physical Requirements. The finished cloth (Unquilted Polyester Batting) shall show fastness to light, laundering, perspiration, and crocking equal to or better than the standard sample when tested and shall conform to the requirements in Table III and Table IV.

Table III
TYPE I - BATTING REQUIREMENTS: CHARACTERISTICS

CLASS	Weight (oz./sq. yd.)	Thickness (inches at 0.01 psi) minimum: initial	After Laundering
Class 1	2.2 ± 0.2	0.29	0.15
Class 2	3.0 ± 0.3	0.39	0.21
Class 3	4.0 ± 0.4	0.52	0.32
Class 4	4.4 ± 0.4	0.49	0.42
Class 5	6.0 ± 0.6	0.70	0.60
Class 6	10.0 ± 1.0	1.00	0.85
Class 7	8.0 ± 0.8	0.85	0.72

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Table IV

Characteristic	Test Method
Laundrying	AATCC 61-1986
Crocking	AATCC 8-1985
Perspiration	AATCC 15-1985
Light	AATCC 16-1987
Weight	AATCC 16-1987
Thickness	FED-STD 191 - 5041 <u>1/</u>

1/ Six specimens with a minimum area of 20 square inches shall be cut from each of the initial and laundered batting samples and allowed to relax on a flat surface without pressure for a minimum of 24 hours until equilibrium with standard conditions has been reached. The laundered batting thickness specimens shall be cut from the launderability test specimens after completing the launderability rating evaluation. Two specimens shall be sampled from each of the three laundered batting panels, with cover fabrics removed and sampled from areas to avoid the stitching lines in the 20 square inch test area. The thickness of each specimen shall be measured to the nearest 0.01 inch under a 0.01 pound per square inch (psi) pressure using a thickness measuring device which shall consist of a base plate and a circular pressure plate with a bearing surface of 20 square inches, and a means of applying 0.01 and 5.0 psi pressure on the specimen. This pressure shall be evenly distributed over the entire bearing surface area. The thickness measuring device shall be capable of measuring the thickness of the specimen (distance between base and pressure plate) to an accuracy of 0.01 inch.

Construction of quilted batting, Type II. The Type II batting consist of using one of the specified Type I batting Classes (e.g., 1, 2, 3, 4, 5, 6, or 7). Type II batting shall be quilt stitched between two outer layers of cloth of the Type II specified Cover (e.g., A, B, C, D, or E). The cloth coverings and the batting shall be so positioned as to yield a straight edge on one side of the assembly. The batting shall be flush or extend beyond the cloth selvage on both sides of the assembly.

Any extension of the batting on the straight edge side shall not exceed 1/4 inch wide while the extension of the batting on the opposite side shall not exceed 1 inch. The extending edges of the polyester batting shall be evenly trimmed without ragged edges.

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Type I batting fabrication. The batting shall be fabricated as given below. (Type I, Classes 1, 4, 5, 6, and 7 batting, when used for Sleeping Bag, Sleeping Systems (Extreme Cold Weather and Intermediate Cold Weather), shall be made only from continuous filament fibers.)

Bonding, Classes 1, 2, and 3 (cut staple). The polyester fiber shall be fabricated into batting of appropriate length, width, thickness, and bonded with an approved durable bonding agent uniformly applied to both sides of the batting (i.e., the amount of bonding agent on the finished batting will not exceed 18.0 percent by weight). The bonded fibers in the finished batting shall be well opened and separated without excessive breakage, neps, and multi-fiber ends.

Bonding, Classes 4, 5, 6, and 7 (hollow cut staple). The fibers specified shall be fabricated into a batting. The uncoated fibers are uniformly laid as surface layers constituting 40 percent of the fiber of the finished batting. The siloxane coated fibers shall constitute the batting core between the surface layer fibers. An approved bonding agent shall be uniformly applied to each outside batting surface such as to result in a 10 ± 2 percent bonding agent add-on of the finished batting. The bonding agent shall penetrate the outside fiber layers sufficiently to adhere these fibers to the core fiber such that the finished batting will meet the launderability requirements.

Bonding, Classes 1, 4, 5, 6, and 7 (filament fiber). The polyester fibers shall be fabricated into batting of appropriate length, width, thickness, and bonded with an approved durable bonding agent uniformly applied to both sides of the batting (i.e., the amount of bonding agent on the finished batting will not exceed 12 percent by weight). The bonded fibers in the finished batting shall be well opened and separated without excessive breakage.

Bonding agents. Approval of bonding agents for use in battings covered by this document is the responsibility of the U.S. Army Natick Research, Development and Engineering Center, Natick, MA 01760-5014. Approval is based on more extensive evaluations, including those for toxicity, which are not set forth in this document. Because of the time necessary to conduct a full evaluation (approximately 6 months), only those bonding agents already approved and so listed in the Invitation for Bids (IFB) or Request for Proposal (RFP) shall be considered acceptable for the related procurement.

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Thread, nylon. The thread for the stitchings of the Type VIII (quilted polyester batting) shall be one of the following:

- Type I - Twisted multiple cord (ply), unbonded, soft finish
- Type II - Twisted multiple cord (ply), bonded finish
- Type III - Monocord (single ply), bonded finish
- Type VII - Quilting thread, coreless cocoon bobbins and top thread, twisted multiple cord (ply), soft finish

And the nylon thread shall be:

Class A - General purpose, Size A needle and Size A bobbin.

Color. Dyed thread shall show fastness to laundering equal to or better than the standard sample or equal to or better than a rating of "good". The color of the thread shall be as follows:

<u>Cover</u>	<u>Thread color</u>
A	Olive Drab S-1, CA 66022
B	Natural
C	Olive Drab S-1, CA 66022
D	AF Sage Green 1511
E	Khaki P-1, CA 66019

Thread breaks and open stitching. Thread breaks or open stitches shall be secured by stitching back of the break in conformance with the pattern, not less than 1 inch.

Stitching and stitch patterns. All stitching shall conform to Type 301 of FED-STD-751. The tension of the two thread system shall be balanced in order that the stitch is interlocked midway within the quilted composite as defined in FED-STD-751, type 301. The number of stitches shall be as indicated below for the stitch pattern styles specified.

Style a. Dumbbell pattern (Figure 1), 6 to 8 stitches per linear inch; calculated as 1/6 of the total number of stitches in a 6 inch repeat of the stitching pattern. Total stitches per linear inch in any area of the pattern shall not exceed 9, nor be less than 5 stitches.

Style b. Straight pattern (Figure 2), 6 to 8 stitches per inch. Distance between stitch rows shall be 3 to 6 inches.

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Bobbin changes. The area of complete bobbin changes on Type II batting shall be cut out of the piece of goods and shall not be furnished to the government.

Web construction. The direct doffer web, air laying process and the cross-lapped web type of the cut staple batting is permitted, as long as the cut staple batting meets the performance characteristics of this Commercial Item Description (CID).

Dimensional stability. Classes 1, 2, 3, and 4 finished, bonded battings shall have a dimensional change of not more than 5.0 percent in length and width directions. Classes 5, 6, and 7 finished, bonded battings shall have a dimensional change of not more than 5.0 percent in the length and not more than 7.0 percent in the width when tested.

Length and put-up. Unless otherwise specified, unquilted and quilted batting (Types I and II) purchased directly by the Government shall be furnished in continuous lengths for each class as specified below with a tolerance of ± 2 yards:

Class 1	-	100 yards
Class 2	-	70 yards
Class 3	-	60 yards
Class 4	-	58 yards
Class 5	-	48 yards
Class 6	-	28 yards
Class 7	-	38 yards

Type II quilted batting put-up. To reduce the risk of stitch runback, Type II quilted batting to be stored for periods greater than 2 weeks should be put-up in rolls no greater than the lengths indicated above.

Compressional recovery. The compressional recovery for finished, bonded batting before and after laundering shall be a minimum of 80 percent when tested.

Batting testing, Type I end item/Type II component. When Type I batting is specified in the procurement document, the testing shall be performed as an end item and when Type II batting is specified in the procurement document, the testing shall be performed as component testing. The batting (Type I - end item or Type II - component testing) shall be tested for thickness, initial and after laundering, compressional recovery and dimensional stability; as well as the

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characteristics listed below. The methods of testing specified in FED-STD-191 wherever applicable and as listed below shall be followed.

Batting Tests

Characteristic	Test Method <u>1/</u>
Weight	5041 <u>2/</u>
Evenness	<u>3/</u>
Blocking	5872 <u>4/</u>
Laundryability	<u>5/</u>
Dimensional Stability	<u>6/</u>

1/ The number of specimens required for each cited method shall be divided into three equal groups and spaced diagonally across the entire sample unit length in order that one-third of the specimens are sampled from each of the left, center, and right areas of the batting width at different batting lengths. No two specimens for any one test shall be sampled from the same machine or cross-machine direction.

2/ Method 5041 except six 12 by 12 inch square specimens shall be tested. The individual and mean weight of the six specimens shall be reported to the nearest 0.1 oz./sq. yd.

3/ Batting evenness shall be evaluated by comparing the six individual weight results determined by Test Method 5041, to the target weight for the specified batting class. The sample unit shall be considered a failure if any weight result deviates more than ± 10 percent from the target weight cited for the specific batting class.

4/ The finished, bonded battings shall not block to an extent greater than represented in the following Table. The test specimen shall be a 15 by 15 inch square double folded to make a 7-1/2 by 7-1/2 inch square, and placed between two 8 by 8 by 1/8 inch glass plates. A 14 pound weight shall be placed on the top plate in a position to insure even pressure.

5/ Laundryability. Type I, Classes 1, 4, 5, 6, and 7 finished, bonded batting shall show a minimum average laundryability rating of "4" with no specimen differing by more than 1.0 from any other specimen in the sample.

Laundrying procedure. Three 26 by 26 inch square of batting shall be cut from the sample unit. The specimens shall be prepared as specified in Method 5556 of FED-STD-191; except that the plain finish

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or water repellent treated nylon taffeta cloth shall be allowed as an alternate to cloth, balloon, cotton batting cover fabric. The prepared specimens shall be marked for dimensional stability as specified for woven fabrics on one of the sewn-on cover cloths for each prepared specimen. The three prepared and marked specimens shall then be subjected to three cycles of Test Method 5556: Cotton Procedure, except that the maximum load shall be 10 pounds consisting of a 5 pound maximum load of batting specimens and utilizing a medium weight cotton ballast cloth, the drying temperature shall be 130°F to 150°F, and the specimens shall not be moistened or pressed after drying. The laundered specimens shall be used to determine dimensional stability, launderability, thickness, and compressional recovery after laundering.

6/ Dimensional stability test. Three specimens prepared, marked, and laundered as specified in the launderability test shall be measured for dimensional change. The percent changes for both length and width shall be calculated for each specimen.

Workmanship. After completion, the finished quilted or unquilted batting shall be thoroughly cleaned, and all loose thread, lint, foreign matter removed; and free from objectionable odor and shall conform to the quality of product established by the commercial market. The occurrence of defects shall not exceed the applicable acceptable quality levels.

Label/markings. Each roll shall be labeled, ticketed, or invoiced for fiber content in accordance with the Textile Fiber Products Identification Act.

Caution. End item documents which cite quilted batting should incorporate the following caution in instruction labels:

"DO NOT DRY CLEAN AND DO NOT PRESS"

QUALITY ASSURANCE

Certification. The contractor shall certify, and maintain substantiating evidence, that the product offered meets the salient characteristics and requirements of this Commercial Item Description that the product conforms to the producer's own drawings, specifications, 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.

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Visual Examination. Lots of batting 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.

The inspection level for visual examination shall be in accordance with ANSI/ASQC Z1.4. The inspection level shall be I and the Acceptable Quality Level (AQL), expressed in terms of defects per hundred units, shall be 4.0. The battings shall be examined for the following defects: any spot or stain, clearly visible at normal inspection distance (approximately 3 feet); any jerked-in filling, slough-off or foreign matter sewn into the tape; wrong color, any part shaded or off shade; any hole, needle chew, cut, or tear; weakening defect (i.e., abrasion marked area, slub, smash, float); any mend or burn; not material specified; thread ends not trimmed; edges of tape cut frayed or torn (i.e., loopy or slack), any tape that is rolled or wavy which will not flatten under normal pressure; and any fine or light or heavy filling or picks, knots or slubs; label missing, incorrect or illegible; and measurement of item not as specified.

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

PACKAGING

Packaging, Packing, Marking, and Palletization.

Packaging, packing, marking and palletization shall be in accordance with ASTM-D 3951, Standard Practice for Commercial Packaging, as specified for shipments to the Department of Defense, including Section 7.

Marking. In addition to any special marking required by the contract or purchase order, unit packages and shipping shall be marked in accordance with MIL-STD-129.

Palletization. When specified, shipping containers shall be palletized in accordance with load Type Ia of MIL-STD-147. Pallet pattern shall be in accordance with the appendix of MIL-STD-147. The containers shall be bonded onto wing type commercial 4-way entry pallets.

Prohibited Packing Materials. The use of asbestos, excelsior, newspaper or shredded paper (all types including waxed paper, computer paper and similar hygroscopic or non-neutral material) are prohibited.

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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

Rules and Regulations Under The Textile Fiber Products Identification Act is available from:

The Federal Trade Commission
Washington, DC 20580

Sources of Non-government documents.

ANSI/ASQC Z1.4 - Sampling Procedures and Tables For Inspection By Attributes is available from:
(Applications for copies should be addressed to:)

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

ASTM-D 3951 - Standard Practice for Commercial Packaging (Applications for copies should be addressed to:)

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

AATCC 61 - Colorfastness to Laundering, Home, and Commercial: Accelerated, is available from:

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

Custodian:
Army - GL
Air Force - 99

Civil Agency Coordinating
Activity:
GSA - FSS

Review Activity:
Army - MD
Army - GL
Air Force - 11, 82

Preparing Activity:
DLA - CT

Project No.
8320-0100

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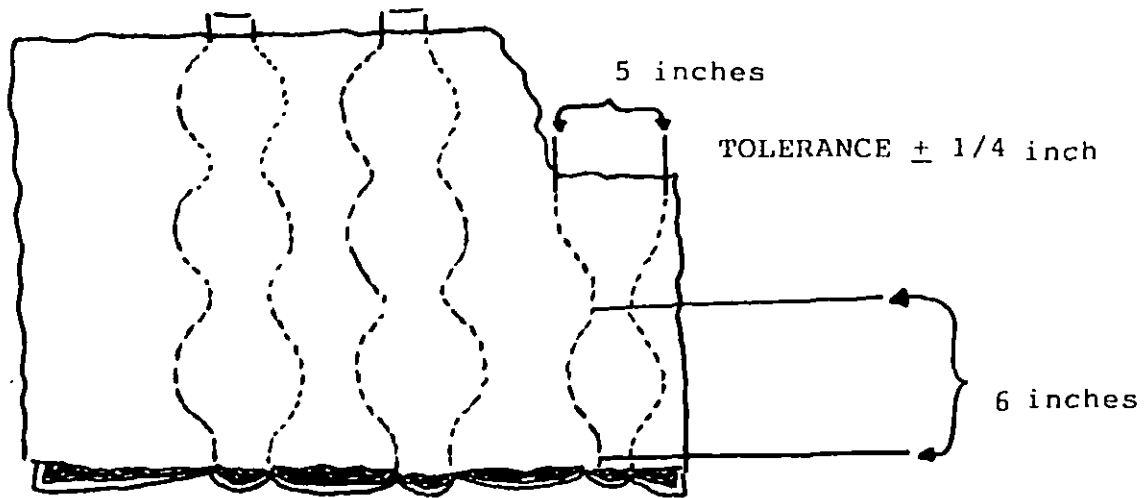


FIGURE 1 - DUMBBELL PATTERN

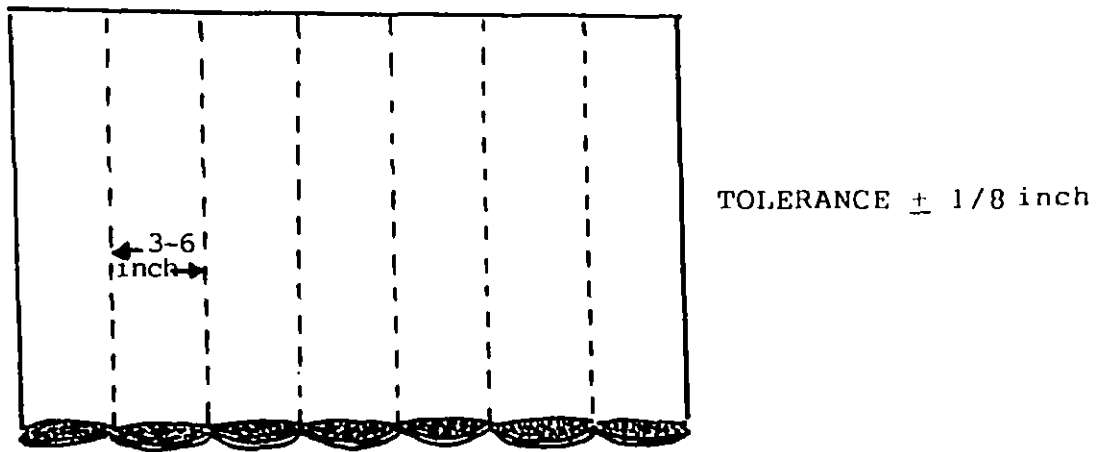


FIGURE 2 - STRAIGHT PATTERN

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.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:		1. DOCUMENT NUMBER A-A-55127	2. DOCUMENT DATE (YYMMDD) 1993 February 17
3. DOCUMENT TITLE BATTING, SYNTHETIC FIBERS, POLYESTER (UNQUILTED AND QUILTED)			
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 (YYMMDD)
8. PREPARING ACTIVITY			
a. NAME DLA-CT		b. TELEPHONE (include Area Code) (1) Commercial (215) 737-8105	(2) AUTOVON 444-8105
c. ADDRESS (include Zip Code) DEFENSE PERSONNEL SUPPORT CENTER DPSC-FSS (Bldg. 12-3-D) 2800 S. 20th St., Phila., PA 19101		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	