

MIL-S-3577G  
29 September 1986  
SUPERSEDING  
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## MILITARY SPECIFICATION

### SWEATBAND, HEADWEAR, LEATHER

This specification is approved for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE

1.1 Scope. This document covers one type of leather sweatband.

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents.

- \* 2.1.1 Documents. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

### SPECIFICATIONS

#### FEDERAL

|           |                               |
|-----------|-------------------------------|
| A-A-203   | - Paper, Kraft, Untreated     |
| PPP-B-636 | - Boxes, Shipping, Fiberboard |

#### MILITARY

|             |  |
|-------------|--|
| MIL-L-35078 | - Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification For |
|-------------|--|

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5014, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8405

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## STANDARDS

## FEDERAL

FED-STD-311 - Leather, Methods of Sampling and Testing

## MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes  
 MIL-STD-129 - Marking for Shipment and Storage  
 MIL-STD-147 - Palletized Unit Loads  
 MIL-STD-731 - Quality of Wood Members for Containers and Pallets

(Copies of documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

- \* 2.2 Other publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issues of the nongovernment documents which are current on the date of the solicitation.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3951 - Standard Practice for Commercial Packaging

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

(Technical society and technical association documents are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

- \* 2.3 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 shall take precedence. Nothing in this document, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

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## 3. REQUIREMENTS

3.1 Leather. The leather shall be full grain, vegetable tanned sheepskin that has been retanned so as to have perspiration resistance (see 6.4). Leather with corrected grain or embossed grain is not acceptable. The flesh side of the leather shall be free of loose flesh.

- \* 3.1.1 Thickness. The thickness of the leather shall be such that the finished sweatband shall be 2 1/2 ounces  $\pm$  1/2 ounce when measured as specified in 4.2.3.

3.1.2 Color and finish. The color of the leather shall be as specified (see 6.2). The grain side of the leather shall have a smooth dull finish. The finish shall contain no lead salts (see 6.3). Unless otherwise specified (see 6.2), the leather shall be such that the finished sweatband shall be embossed with an imitation turned line 1/8 inch from the top edge.

3.1.3 Blocking. The finish of the leather shall not become tacky when tested as specified in 4.2.1. At least 80 percent of the tested specimens shall separate with ease and shall show no grain damage or peeling of the finish.

3.1.4 Shrinkage temperature. The leather shall have a shrinkage temperature of not less than 85°C when tested as specified in 4.2.1.

- \* 3.1.5 Colorfastness (resistance to rubbing). The leather shall be tested for resistance to dry and wet crocking in accordance with 4.2.1. Staining of the dry and wet crock cloths shall be not lower numerically than AATCC value 4.

- \* 3.1.6 Staining. The leather shall be tested for resistance to staining in accordance with 4.2.1. Staining of the test pad shall be not lower numerically than AATCC value 4.

3.1.7 Area stability to perspiration. The leather shall be tested for area stability to perspiration in accordance with 4.2.1. At least 80 percent of the tested specimens shall have an area loss no greater than 15 percent (see 6.4).

3.1.8 Cracking. At least 80 percent of the specimens shall not crack when tested as specified in 4.2.1.

3.1.9 Chemical requirements. The leather shall conform to the requirements of table I when tested as specified in 4.2.1.

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TABLE I. Chemical requirements

| Characteristic                   | Minimum   | Maximum   |
|----------------------------------|-----------|-----------|
| Ash, percent <u>1/</u>           | -         | 5.0       |
| Lead (qualitative)               | <u>2/</u> | <u>2/</u> |
| pH                               | 3.3       | -         |
| Chromic oxide, percent <u>1/</u> | -         | 0.5       |

1/ Calculated on the moisture free basis.

2/ The presence of lead is prohibited.

3.2 Dimensions. The leather sweatbands shall be furnished in the lengths, widths, and tolerances as specified (see 6.2).

3.3 Workmanship. The finished leather sweatbands shall conform to the quality of product established by this document and the occurrence of defects shall not exceed the applicable acceptable quality levels.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this document where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

- \* 4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirement in the document shall not relieve the contractor of the responsibility of assuring that all products or supplies

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submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

- \* 4.1.2 Responsibility for dimensional requirements. Unless otherwise specified in the contract or purchase order, the contractor is responsible for assuring all specified dimensions have been met. When dimensions cannot be examined on the end item, inspection shall be made at any point, or at all points in the manufacturing process necessary to assure compliance with all dimensional requirements.

4.1.3 Certificates of compliance. When certificates of compliance are submitted, the Government reserves the right to inspect such items to determine the validity of the certification.

4.2 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

4.2.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this document or applicable purchase document. In addition, the sheepskin leather shall be tested for the characteristics listed in table II. Unless otherwise specified, testing shall be conducted in accordance with FED-STD-311. Sampling procedure and the location from which the sample unit is to be obtained shall be in accordance with the sampling procedures for nonfabricated leather as specified in FED-STD-311. All test reports shall contain the individual values utilized in expressing the final results. The lot shall be rejected if any one of the following conditions exists:

- a. More than three test failures occur for blocking or cracking.
- b. When tested for area stability to perspiration, more than three specimens have area losses greater than 15 percent.
- c. Any test failure occurs for the remaining requirements applicable to the sample unit.
- d. Any composite test result fails to meet the specified requirement.

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TABLE II. Component tests

| Characteristic                            | Requirement paragraph | Test method    | <u>Requirement applicable to</u> |                  |
|---|-----------------------|----------------|----------------------------------|------------------|
|   |                       |                | <u>Sample unit</u>               | <u>Composite</u> |
| Material identification                   | 3.1                   | <u>1/</u>      | -                                | -                |
| Tannage                                   | 3.1                   | <u>1/</u>      | -                                | -                |
| Blocking                                  | 3.1.3                 | 3121           | X                                | -                |
| Shrinkage temperature                     | 3.1.4                 | 7011           | X                                | -                |
| Colorfastness                             | 3.1.5                 | 3031 <u>2/</u> | X                                | -                |
| Staining                                  | 3.1.6                 | 3021           | X                                | -                |
| Area stability of leather to perspiration | 3.1.7                 | 3211 <u>3/</u> | X                                | -                |
| Cracking                                  | 3.1.8                 | 4.3.1          | X                                | -                |
| Ash                                       | 3.1.9                 | 6421           | -                                | X                |
| Lead (qualitative)                        | 3.1.9                 | 6551           | -                                | X                |
| pH  | 3.1.9                 | 6621           | -                                | X                |
| Chromic oxide                             | 3.1.9                 | 6515           | -                                | X                |

1/ A certificate of compliance is required and will be acceptable for the stated requirement.

2/ Stain matching shall be done in indirect light.

3/ Exception to method 3211: The suction flask shall contain  $15 \pm 1$  mL of artificial perspiration solution per specimen.

4.2.2 End item visual examination. The end item shall be examined for the defects in table III. The lot size shall be expressed in units of sweatbands. The sample unit shall be one finished sweatband. The inspection level shall be I and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 4.0.

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TABLE III. End item visual defects

| Examine                          | Defect   |
|----------------------------------|--|
| Quality of leather <sup>1/</sup> | Not full grain<br>Any hole, cut, or rupture<br>Brand mark, healed grub hole, scar tissue, hip mark, brittle or bony area, abrasion, scratch, or other grain damage<br>Excessively flanky, spongy, pipey, or stretchy leather<br>Loose flesh on flesh side of leather |
| Cleanliness                      | Any spot, stain, or foreign matter that is clearly noticeable  |
| Color and finish                 | Not as specified   |

<sup>1/</sup> Any sweatband made from corrected or embossed grain leather shall cause rejection of the lot.

4.2.3 End item dimensional examination. The end item shall be examined for the dimensions specified (see 3.2) and the thickness requirements of 3.1.1. Any dimension not within the tolerances specified shall be classified as a defect. The lot size shall be expressed in units of sweatbands. The sample unit shall be one finished sweatband. The inspection level shall be S-3 and the AQL, ~~expressed in terms of defects per hundred units, shall be 4.0.~~ Thickness shall be determined in accordance with the procedure specified for fabricated leather articles in method 1011 of FED-STD-311.

4.2.4 Packaging examination. The fully packaged end items shall be examined for the defects listed below. The lot size shall be expressed in units of shipping containers. The sample unit shall be one shipping container fully packaged. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

| <u>Examine</u>                  | <u>Defect</u>   |
|---------------------------------|---|
| Marking (exterior and interior) | Omitted; incorrect; illegible; of improper size, location, sequence, or method of application |

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|             |  |
|-------------|--|
| Materials   | Any component missing, damaged, or not as specified  |
| Workmanship | Inadequate application of components, such as incomplete sealing or closure of flap, improper taping, loose strapping, or inadequate stapling<br>Bulged or distorted container |
| Content     | Number per container is more or less than required   |

- \* 4.2.5 Palletization examination. The fully packaged and palletized end items shall be examined for the defects listed below. The lot size shall be expressed in units of palletized unit loads. The sample unit shall be one palletized unit load, fully packaged. The inspection level shall be S-1 and the AQL, expressed in terms of defects per hundred units, shall be 6.5.

| <u>Examine</u>      | <u>Defect</u>  |
|---------------------|--|
| Finished dimensions | Length, width, or height exceeds specified maximum requirement   |
| Palletization       | Pallet pattern not as specified<br>Interlocking of loads not as specified<br>Load not bonded with required straps as specified |
| Weight              | Exceeds maximum load limits  |
| Marking             | Omitted; incorrect; illegible; of improper size, location, sequence, or method of application                                  |

#### 4.3 Methods of inspection.

4.3.1 Cracking. One 4 by 1 inch leather specimen shall be tested from each 8 by 8 inch sample unit. The specimen shall be folded upon itself in the lengthwise direction, grain side out. The folded specimen shall be folded upon itself again at right angles to the first fold. Examine the specimen along the folds and report any evidence of cracking. The fingers and thumbs shall be positioned 1/2 to 1 inch from the apex of the fold when the specimen is tested. The test shall be conducted on specimens conditioned in accordance with atmospheric conditions for testing as specified in FED-STD-311.



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## 5. PACKAGING

5.1 Preservation. Preservation shall be level A or Commercial, as specified (see 6.2).

5.1.1 Level A. Seventy-two sweatbands of one length and width only shall be unit packed in a bundle. Each unit pack shall be secured with cotton tape or twine approximately 4 inches from each end.

\* 5.1.2 Commercial. Sweatbands shall be preserved in accordance with ASTM D 3951.

5.2 Packing. Packing shall be level A, B, or Commercial, as specified (see 6.2).

\* 5.2.1 Level A packing. Sweatbands of one length and width only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC-L, grade V2s of PPP-B-636. The inside of each shipping container shall be fitted with a box liner conforming to type CF, class weather-resistant, variety DW, grade V15c of PPP-B-636. Each container shall have the contents completely covered on the top and bottom with a sheet of 30-pound minimum basis weight kraft paper conforming to A-A-203. Each shipping container shall be closed in accordance with method III, waterproofed in accordance with method V, and reinforced as specified in the appendix of PPP-B-636, except that inspection shall be in accordance with 4.2.4. The weight of contents of each shipping container shall not exceed 65 pounds. Shipping containers shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class specified (see 6.2). Strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

5.2.2 Level B packing. Sweatbands of one length and width only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC-L, type CF (variety SW) or type SF, class domestic, grade 275 of PPP-B-636. The inside of each shipping container shall be fitted with a box liner conforming to type CF, class domestic, variety DW, grade 275 of PPP-B-636. Each container shall have the contents completely covered on the top and bottom with a sheet of 30-pound minimum basis weight kraft paper conforming to A-A-203. Each shipping container shall be closed in accordance with method II as specified in the appendix of PPP-B-636, except that inspection shall be in accordance with 4.2.4. The weight of contents of each shipping container shall not exceed 65 pounds.

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5.2.2.1 Weather-resistant fiberboard containers. When specified (see 6.2), the shipping container shall be a grade V3c, V3s, or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with method III as specified in PPP-B-636, except that inspection shall be in accordance with 4.2.4.

- \* 5.2.3 Commercial packing. Sweatbands, preserved as specified in 5.1, shall be packed in accordance with ASTM D 3951.
- \* 5.3 Palletization. When specified (see 6.2), sweatbands packed as specified in 5.2.2 and 5.2.3, shall be palletized on a 4-way entry pallet in accordance with load type Ia of MIL-STD-147. Pallet type shall be type I (4-way entry), type IV or type V in accordance with MIL-STD-147. Pallets shall be fabricated from wood groups I, II, III, or IV of MIL-STD-731. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L or film bonding means O or P. Pallet pattern shall be in accordance with appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the pattern of each course. If the container is of a size which does not conform to any of the patterns specified in MIL-STD-147, the pallet pattern used shall first be approved by the contracting officer.
- \* 5.4 Marking. In addition to any special marking required by the contract or purchase order, unit packs, shipping containers, and palletized unit loads shall be marked in accordance with MIL-STD-129 or ASTM D 3951, as applicable.

## 6. NOTES

6.1 Intended use. The sweatband is intended for use in various types of Military headwear.

- \* 6.2 Ordering data. Acquisition documents should specify the following:
  - a. Title, number, and date of this document.
  - b. Color required and when imitation turned line is not required (see 3.1.2).
  - c. Dimensions and tolerances required (see 3.2).
  - d. Selection of applicable levels of preservation and packing (see 5.1 and 5.2).
  - e. Type and class of unit load required (see 5.2.1).
  - f. When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).
  - g. When palletization is required (see 5.3).

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6.3 Lead. Lead chromate, lead pigments, or other lead salts should not be used in the finish. Allowance has been made for small amounts of chrome that may be introduced during the tanning or dyeing operations (see 3.1.9).

6.4 Perspiration resistance. Leather that has been treated with glutaraldehyde has been known to comply with resistance to perspiration requirements of this document.

\* 6.5 Subject term (key word) listing.

Headwear  
Leather  
Sweatband

6.6 Changes from previous issue. The margins of this document are marked with an asterisk (\*) to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only, and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content, as written, irrespective of the marginal notations and relationship to the last previous issue.

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Army - GL  
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