

MIL-F-50449B (AR)
6 July 1988
SUPERSEDING
MIL-F-50449A (AR)
23 October 1973

MILITARY SPECIFICATION

FILLER, SHEET FORM (FOR USE IN AMMUNITION CONTAINERS)

This specification is approved for use within the U.S. Army Armaments Munitions and Chemical Command, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers solid, water resistance, sheet material for use as filler or cushioning pads (see 6.1).

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this specification 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.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, U.S. Army Armament, Munitions and Chemical Command, Attn: AMSMC-QA, Picatinny Arsenal, New Jersey 07806-5000 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
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SPECIFICATIONS

MILITARY

- MIL-A-48078 - Ammunition, Standard Quality Assurance Provisions, General Specification For

STANDARDS

FEDERAL

- FED-STD-595 - Colors

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspections by Attributes
 MIL-STD-129 - Marking for Shipment and Storage
 MIL-STD-1169 - Packaging, Packing and Marking for Shipment of Inert Ammunition Components
 MIL-STD-1235 - Single and Multilevel Continuous Sampling Procedures and Tables for Inspection by Attributes

(Copies of specifications, standards, drawings and publications required by manufacturers 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 specification 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 issue of documents not listed in the DODISS shall be the issue of the nongovernment document which is current on the date of the solicitation.

AMERICAN SOCIETY FOR TESTING AND MATERIALS

- ASTM-D685-73 - Method for Conditioning Paper and Paper Products for Testing

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

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets

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or MS Standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Materials. Materials shall be such as to produce a smooth, finished sheet meeting the requirements specified hereinafter (see 6.3).

3.2 Absorption. The finished sheet shall have a maximum water absorption of 15 percent and shall show no indications of delamination during this test.

3.3 Stability. The finished sheet shall not delaminate, become tacky, ooze, or blister at a temperature of 160 degrees (°) Fahrenheit (F).

3.4 Fracture. The finished sheet shall be capable of bending in both directions without cracking or delamination.

3.5 Color. The finished sheet shall be colored as follows:

- a. Commercial Black
- b. Gray, approximating Color 16251 of FED-STD-595, or darker
- c. Green, approximating Color 14110 of FED-STD-595, or darker
- d. Natural Kraft Color
- e. Other color of similar dark shades may be used if approved by the procuring activity

Although the specified colors are listed as Gloss in FED-STD-595, the surface finish on the finished sheet shall be dull or as produced from good fabricating practices.

3.6 Thickness. The finished sheet shall have a thickness of .0625 inches with a tolerance of +.010 to -.008 inches.

3.7 Size. Unless otherwise specified in the contract or order, the finished sheet shall be furnished in sheets 40 inches by 48 inches ($\pm 1/8$) in size.

3.8 Stiffness. The finished sheet shall not exceed the permissible drape of 40°.

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3.9 First article inspection. This specification contains technical provisions for first article inspection. Requirements for the submission of first article samples by the contractor shall be as specified in the contract.

3.10 Workmanship. Workmanship shall be in accordance with the best commercial practice of the industry. Finished sheets shall be sound and free of metal inclusions and odors not normally associated with the chemical composition of the finish sheet.

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 the specification 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 specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies 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.

4.2 Classification of inspections. The following types of inspection shall be conducted on this item:

- a. First Article Inspection (see 4.3)
- b. Quality Conformance Inspection (see 4.4)

4.3 First article inspection.

4.3.1 Submission. The contractor shall submit a first article sample as designated by the Contracting Officer for evaluation in accordance with provisions of 4.3.2. The first article sample shall consist of ten (10) samples (sufficient in size to perform the specified examinations and tests).

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4.3.2 Inspection to be performed. See MIL-A-48078.

4.3.3 Rejection. See MIL-A-48078.

4.4 Quality conformance inspection.

4.4.1 Inspection lot formation. Inspection lots shall comply with the lot formation provisions of MIL-A-48078. In addition, inspection lots of form sheet fillers shall contain:

- a. Material from one lot from the same manufacturer
- b. Material of one color designation

4.4.2 Examination. Inspection for critical defects (and major defects when so specified) shall be 100 percent. Unless otherwise specified in the Classification of Defects and Test Tables, sampling plans for major and minor defects shall be in accordance with MIL-STD-105 Inspection Level I, except that continuous sampling plans in accordance with MIL-STD-1235 may be used if approved by the procuring activity.

QUALITY CONFORMANCE INSPECTION

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER	
		1	OF					Not applicable	NEXT HIGHEN ASSEMBLY
CATEGORY								PARAGRAPH	REFERENCE / INSPECTION METHOD
4.4.2.1	Filler, Sheet Form								
	None defined								
Critical									
Major	Thickness					0.65%	3.6	SMT	
101	Length					0.65%	3.7	SMT	
102	Width					0.65%	3.7	SMT	
103									
Minor	Color,					1.0%	3.5	Visual	
201	Evidence of poor workmanship					1.0%	3.10	Visual	
202									

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4.4.3 Testing.

4.4.3.1 Sampling. From each inspection lot, samples shall be selected at random and tested as specified in Table I. If any sample fails to meet the specified requirement, the lot shall be rejected.

TABLE I - Material testing

<u>Category</u>	<u>Defect</u>	<u>Sample Size</u>	<u>Method of Inspection</u>
Absorption (see 3.2)	Major	6	4.5.1
Stability (see 3.3)	Major	10	4.5.2
Fracture (see 3.4)	Major	10	4.5.3
Stiffness (see 3.8)	Major	10	4.5.4

If there is sufficient material in a given sample, that sample may be used for more than one test. For each test there must only be one specimen from a given sample.

4.4.3.2 Conditioning. Unless otherwise specified, all specimens shall be brought to equilibrium in a circulation atmosphere maintained at a relative humidity and a temperature specified in ASTM-D685-73.

4.4.4 Inspection equipment. The inspection equipment required to perform the examinations and tests prescribed herein is described in the "Paragraph Reference/Inspection Method" column in the table stated in 4.4.2.1 and in 4.5. The contractor shall submit for approval, inspection equipment designs in accordance with the terms of the contract. See Section 6 of MIL-A-48078 and 6.4 herein.

4.5 Method of inspection. (see 6.5).

4.5.1 Absorption. Thoroughly condition (see 4.4.3.2) specimens measuring 6 inches by 12 inches (min.) and then weigh them. Immediately thereafter immerse the specimens in clear tap water (pH 6.5 to 7.5) at room temperature for 48 hours, minimum. Surface dry the specimens and reweigh them. Compute the moisture gain as a percentage of pre-immersion weight.

4.5.2 Stability. Thoroughly condition (see 4.4.3.2) specimens measuring 6 inches by 10 inches min. and place in an oven (without ingress or egress of air) at $160 \pm 2^\circ \text{F}$ and a relative humidity of 10 percent maximum, for a period of 24 hours minimum. Remove the specimen from the oven and allow to stand for one (1) hour at a temperature of $73.4 \pm 3.6^\circ \text{F}$ and a relative humidity of 50 ± 2 percent. Examine for visible evidence of delamination, coating, blistering or tacky surface.

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4.5.3 Fracture. Prepare ten specimens (five cut in the machined direction and five in the cross-machined direction) for this test. Condition the finished sheet to a temperature of minus (-) 20° F for a period of 24 hours minimum. Upon completion of conditioning, the board specimens, measuring 4 inches by 12 inches, shall be bent around a mandrel 180° with a radius equal to 96 times the thickness of the specimen. Failure of one or more specimens to meet the applicable requirements shall be cause for the lot to be rejected.

4.5.4 Stiffness. Prepare and thoroughly condition (see 4.4.3.2) test specimens measuring 6 inches min. by 18 inches min. Immediately upon removal from the conditioning chamber, position the test specimens on a table allowing 12 inches of the smaller width to extend there from. Apply a load, sufficient in weight to prevent movement of the specimen, to the base of the extended position (see Figure 1). Measure the angle of drape at both ends of the extended portion using standard measuring equipment. The lot will be considered rejected if either of the two sides of the specimen (draped portion) exceeds the specified requirements.

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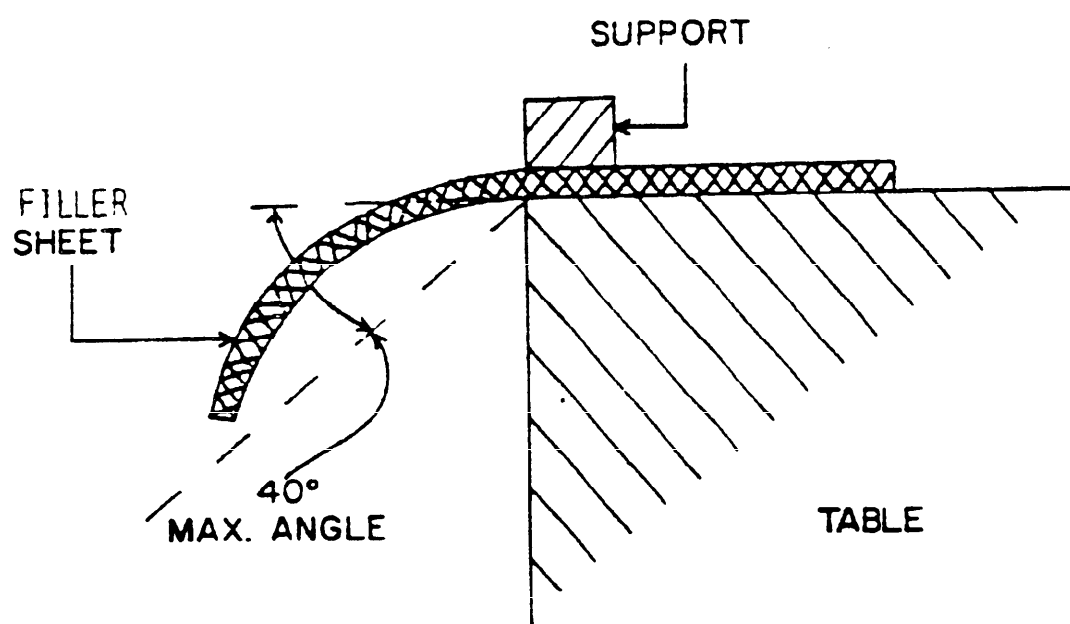


FIGURE 1. Setup for stiffness test.

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5. PACKAGING

5.1 Preservation. None required.

5.2 Packing. Packing shall be Level A or C as specified. Sheets measuring 40 by 48 inches shall be packed directly on pallets per MIL-STD-1169. Smaller sheets may be packed directly on pallets or packed and palletized per MIL-STD-1169. Prior to packaging or palletizing, the finished sheets shall be allowed to cool to ambient temperature.

5.3 Marking. Marking shall be in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. Filler sheets are designed for cutting into filler pads for use where water resistant material is required and where resistance to dimensional change under compression, rather than resiliency is important.

6.2 Ordering data. See MIL-A-48078.

6.3 Acceptable material. Under this specification, plastic materials, paper or fiberboard, combinations of both or any other material capable of meeting all the requirements specified herein are acceptable.

6.4 Submission of inspection equipment for design approvals. Submit designs as required to: Commander, U.S. Army Armament Research, Development and Engineering Center, ATTN: AMSMC-QAR-I (D), Picatinny Arsenal, NJ 07806-5000. This address will be specified on the Contract Data Requirements List DD Form 1423, in the contract. Unless otherwise specified, data item DI-R-1714 will apply.

6.5 Equivalent test methods. Prior approval of the Contracting Officer is required for use of equivalent test methods. A description of the proposed method should be submitted through the Contracting Officer to: U.S. Army Armament Research, Development and Engineering Center, ATTN: AMSMC-QAR-Q (D), Picatinny Arsenal, NJ 07806-5000. This description should include but not be limited to the accuracy and precision of the method, test data demonstrating the accuracy and precision and drawings of any special equipment required.

6.6 Subject term (keyword listing).

Cushioning
Filler
Packing
Pad
Sheet

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6.7 Changes from previous issue. Asterisks (or verticle lines) are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

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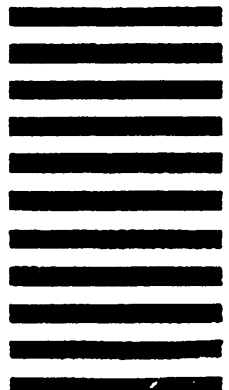
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5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER (Last, First, MI) - Optional

b. WORK TELEPHONE NUMBER (Include Area Code) - Optional

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