

INCH-POUND

MIL-DTL-51170G(EA)

29 November 2005

SUPERSEDING

MIL-B-51170F(EA)

15 August 1983

DETAIL SPECIFICATION

BAG, WATERPROOF, CHEMICAL-BIOLOGICAL MASK, M1

Reactivated after 29 Nov 2005 and may be used for new and existing designs and acquisitions.

This specification is approved for use by the U.S. Army Edgewood Chemical Biological Center and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers one type of chemical-biological mask waterproof bag (see 6.1).

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 or 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 insure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 or 4 of this specification, whether or not they are listed.

Comments, suggestions, or questions on this document should be addressed to: U.S. Army Edgewood Chemical Biological Center, ATTN: AMSRD-ECB-ENA-S, 5183 Blackhawk Road, Aberdeen Proving Ground, MD 21010-5424 or emailed to SpecsTeam@apea.army.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <http://assist.daps.dla.mil>.

AMSC N/A

FSC 4240

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2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

FEDERAL STANDARDS

- FED. TEST METHOD STD. NO. 191 – Textile Test Methods
- FED. TEST METHOD STD. NO. 601 – Rubber: Sampling and Testing

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch/> or <http://assist.daps.dla.mil> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111–5094.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

U.S. ARMY EDGEWOOD CHEMICAL BIOLOGICAL CENTER

- Drawing 5–75–2 – Bag, Waterproof, Chemical–Biological Mask, M1

(Copies of these documents are available from U.S. Army Edgewood Chemical Biological Center, ATTN: AMSRD–ECB–ENA–D, 5183 Blackhawk Road, Aberdeen Proving Ground, MD 21010–5424.)¹

2.3 Non–Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ASTM INTERNATIONAL

- D 412 – Tension Testing of Rubber
- D 1593 – Nonrigid Vinyl Chloride Plastic Film and Sheeting
- D 6123 – Pressure–Sensitive Tape for Light–Duty Packaging and General Purpose Masking

(Copies of this document are available from www.astm.org or ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959.)

2.4 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,

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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 4.2.

3.2 Design and construction.

3.2.1 Materials. All materials cited on Drawing 5-75-2 and its subsidiary drawings shall conform to the specifications listed thereon or to the specific characteristics set forth on the drawings.

3.2.2 Manufacture and assembly. The M1 bag (waterproof bag in a pouch) shall be manufactured and assembled as shown on Drawing 5-75-2 and subsidiary drawings.

3.3 Waterproof bag (Drawing 5-75-3).

3.3.1 Leak integrity. The waterproof bag shall not leak when filled to a depth of 15 inches of water for 15 minutes.

3.3.2 Seam strength. The bag seams shall withstand a pull of not less than 3.0 pounds.

3.3.3 Marking. Marking shall be as specified on Drawing 5-75-3 and shall remain legible after being exposed to water.

3.3.4 Resistance to low temperature. The waterproof bag material shall meet the cold cracking requirement of Drawing 5-75-3 after exposure to low temperature.

3.4 Workmanship. The M1 bag shall be free from damage (cuts, tears, abrasions, or punctures) and contamination (dirt, grease, or oil). The seams shall be uniform, continuous, and free from wrinkles and bubbles.

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- (a) First article inspection (see 4.2)
- (b) Conformance inspection (see 4.3)

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4.2 First article inspection.

4.2.1 Sample. The first article sample shall consist of 20 M1 bags and 21 square feet of waterproof bag material (Drawing 5–75–3) manufactured using the same methods, materials, equipment, and processes as will be used during regular production. The first article sample shall be submitted for inspection and approval in accordance with the terms of the contract.

4.2.2 Inspection procedure.

4.2.2.1 For examination and test of waterproof bag material. The first article sample of bag material shall be tested for all requirements of ASTM D 1593 and in accordance with the low temperature resistance test (4.4.4).

4.2.2.2 For examination of bags. The sample bags shall be inspected for all requirements of the drawings and this specification.

4.2.2.3 For test of bags. The first article sample bags shall be subjected to the tests specified in table I.

TABLE I. First article bag tests.

| Inspection procedure | Number of sample units | Requirement paragraph |
|-------------------------|------------------------|-----------------------|
| Leak integrity (4.4.1) | 10* | 3.3.1 |
| Seam strength (4.4.2)** | 10 | 3.3.2 |
| Marking (4.4.3) | 10* | 3.3.3 |

*The same bags shall be used for the leak integrity and marking tests.

**Destructive test.

4.2.3 Acceptance criteria. If any first article sample item fails to comply with any of the applicable requirements, the first article sample shall be rejected.

4.3 Conformance inspection.

4.3.1 Lotting. A lot shall consist of the bags produced by one manufacturer, at one plant, from the same materials, under the same manufacturing conditions, and at the same time. No more than one lot of bag material shall be represented in any one lot of finished bags.

4.3.2 Sampling. Sampling shall be conducted in accordance with the classification of characteristics in 4.3.5 and, when specified, tables II and III. Samples shall be selected at random.

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Table II. Sampling.

| Lot size | Inspection levels and sample sizes | | | | | | | | | | |
|------------------|------------------------------------|-----|-----|-----|-----|-----|-----|------|----|----|----|
| | I | II | III | IV | V | VI | VII | VIII | IX | X | XI |
| 2 to 8 | * | * | * | * | * | * | * | * | 5 | 3 | 2 |
| 9 to 15 | * | * | * | * | * | * | 13 | 8 | 5 | 3 | 2 |
| 16 to 25 | * | * | * | * | * | 20 | 13 | 8 | 5 | 3 | 3 |
| 26 to 50 | * | * | * | * | 32 | 20 | 13 | 8 | 5 | 5 | 5 |
| 51 to 90 | * | * | * | 50 | 32 | 20 | 13 | 8 | 7 | 6 | 5 |
| 91 to 150 | * | * | 125 | 50 | 32 | 20 | 13 | 12 | 11 | 7 | 6 |
| 151 to 280 | * | * | 125 | 50 | 32 | 20 | 20 | 19 | 13 | 10 | 7 |
| 281 to 500 | * | 315 | 125 | 50 | 48 | 47 | 29 | 21 | 16 | 11 | 9 |
| 501 to 1200 | * | 315 | 125 | 75 | 73 | 47 | 34 | 27 | 19 | 15 | 11 |
| 1201 to 3200 | 1250 | 315 | 125 | 116 | 73 | 53 | 42 | 35 | 23 | 18 | 13 |
| 3201 to 10000 | 1250 | 315 | 192 | 116 | 86 | 68 | 50 | 38 | 29 | 22 | 15 |
| 10001 to 35000 | 1250 | 315 | 294 | 135 | 108 | 77 | 60 | 46 | 35 | 29 | 15 |
| 35001 to 150000 | 1250 | 490 | 294 | 170 | 123 | 96 | 74 | 56 | 40 | 29 | 15 |
| 150001 to 500000 | 1250 | 715 | 345 | 200 | 156 | 119 | 90 | 64 | 40 | 29 | 15 |
| 500001 and over | 1250 | 715 | 435 | 244 | 189 | 143 | 102 | 64 | 40 | 29 | 15 |

*Indicates one hundred percent inspection. If sample size exceeds lot size, perform one hundred percent inspection.

Accept the lot represented on zero nonconforming characteristics and reject the lot represented on one or more nonconforming characteristics for all inspection levels.

TABLE III. Sampling for leak integrity and marking tests.

| Lot size | Sample sizes* |
|-----------------|---------------|
| 2 to 1200 | 13 |
| 1201 to 10000 | 20 |
| 10001 to 35000 | 29 |
| 35001 to 500000 | 34 |
| 500001 and over | 42 |

*If sample size exceeds lot size, perform one hundred percent inspection. Accept the lot on zero nonconforming characteristics and reject the lot on one or more nonconforming characteristics.

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4.3.3 Inspection procedure. Every item in the lot shall be inspected for critical characteristics. The lot represented shall be rejected when nonconformance to a critical characteristic is found. Sample items shall be inspected in accordance with the classification of characteristics in 4.3.5. Failure of any sample item to conform to any characteristic in the classification of characteristics based on the sampling and acceptance criteria specified therein shall be cause for rejection of the lot represented.

4.3.4 Inspection characteristics. Critical characteristics are characteristics whose nonconformance to specified requirements is likely to result in hazardous or unsafe conditions for individuals who use or maintain the product. Characteristics whose nonconformance to specified requirements is likely to prevent performance of the tactical function of a major end item are also critical characteristics. Major characteristics are characteristics whose nonconformance to specified requirements is likely to result in failure or to reduce materially the usability of the item for its intended purpose. Minor characteristics are characteristics whose nonconformance to specified requirements is not likely to reduce materially the operation or usability of the item for its intended purpose.

4.3.5 Classification of characteristics. Conformance inspections shall be as specified in the following classification of characteristics paragraphs. When specified herein, accept on 0 and reject on 1 attributes sampling inspection shall be performed on the designated characteristics using the stated levels in table II or III, as applicable, for selection of sample sizes.

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CLASSIFICATION OF CHARACTERISTICS

| PARAGRAPH | TITLE | SHEET 1 OF 1 | DRAWING NUMBER | |
|--------------------------------------|---|----------------------------------|-----------------------|-------------------|
| 4.3.5(a) | Bag, Waterproof, Chemical-Biological Mask, M1 | | 5-75-2 | |
| CATEGORY | CHARACTERISTIC | SAMPLING AND ACCEPTANCE CRITERIA | REQUIREMENT PARAGRAPH | INSPECTION METHOD |
| Critical | None defined | | | |
| Major | | | | |
| 101 | Pouch inside dimensions | Table II, level VII | 3.2 | CE |
| 102 | Components evident, correct and correctly assembled | Table II, level VII | 3.2 | VI |
| 103 | Workmanship | Table II, level VII | 3.4 | VI |
| NOTES: | | | | |
| CE - Commercial inspection equipment | | | | |
| VI - Visual inspection | | | | |

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CLASSIFICATION OF CHARACTERISTICS

| PARAGRAPH | TITLE | SHEET 1 OF 1 | DRAWING NUMBER | |
|--|----------------------------|----------------------------------|-----------------------|-------------------|
| 4.3.5(b) | Bag, waterproof | | 5-75-3 | |
| CATEGORY | CHARACTERISTIC | SAMPLING AND ACCEPTANCE CRITERIA | REQUIREMENT PARAGRAPH | INSPECTION METHOD |
| Critical | None defined | | | |
| Major | | | | |
| 101 | Bag overall dimensions | Table II, level VII | 3.2 | CE |
| 102 | Radius evident | Table II, level VII | 3.2 | CE |
| 103 | Leak integrity | Table III | 3.3.1 | 4.4.1 |
| 104 | Seam strength | 5; Acc 0, rej 1 | 3.3.2 | 4.4.2* |
| 105 | Marking | Table III | 3.3.3 | 4.4.3 |
| 106 | Low temperature resistance | 3 sample units** | 3.3.4 | 4.4.4 |
| NOTES: | | | | |
| CE – Commercial inspection equipment | | | | |
| *Destructive test | | | | |
| **A sample unit shall be a roll or package of sheets selected from each lot of bag material. | | | | |

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4.4 Tests. Tests shall be conducted as follows:

4.4.1 Leak integrity. Suspend each bag to be tested in an upright position by means of at least four widemouth clamps attached to the open end. Fill the bag with water to the required depth. To avoid condensation of water from the surrounding air the water should be at approximately room temperature. Let the water-filled bag hang for the required time period and examine the outside of the bag for leakage.

4.4.2 Seam strength. Die one dumbbell specimen conforming to die A of ASTM D 412 from each sample waterproof bag. The full width of the seam shall be within the constricted portion of the specimen and the long dimension of the specimen shall be approximately perpendicular to the seam. Condition the specimens at $70^{\circ} \pm 5^{\circ}\text{F}$ for a minimum of one-half hour. Test the specimens in accordance with Method 8311 of Fed. Test Method Std. No. 601.

4.4.3 Marking. Submerge each waterproof bag to be tested in water at $70^{\circ} \pm 5^{\circ}\text{F}$ for 30 minutes so that the printing will be wet. Remove the bag from the water and wipe dry. Within 4 minutes after removing from the water, apply 5 inches of 1/2 by 6-inch strips of masking tape conforming to type II of ASTM D 6123 at right angles to the printed lines so that at least 45 letters are covered. Place the bag on a hard smooth surface and roll a 10-pound, hard-surfaced, hinged roller with a diameter of approximately 5 inches over the applied strips three times. The roller shall travel at approximately 12 inches per 10 seconds. A strip of paper may be applied to the adhesive side of the extending 1-inch section of the tape to prevent adhesion to the bag during rolling. Immediately after application, double back the free end of the tape at about 180 degrees and peel the tape slowly and evenly from the bag. Examine the printing and verify that no more than five characters are illegible.

4.4.4 Low temperature resistance. Test the material specimens in accordance with Method 5874 of FED. TEST METHOD STD. No. 191, except the specimens shall be exposed to the temperature specified on Drawing 5-75-3 for not less than one hour.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

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6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The M1 bag covered by this specification is intended to be used for water-proofing chemical–biological masks.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) First article:

- (1) Time allowed for contractor submission of samples for Government test and evaluation after award of contract when testing is performed by the Government.

- (2) Name and address of test facility and shipping instructions when testing is performed by the Government.

- (3) Time required for the Government to notify the contractor whether or not to proceed with production.

- (c) Packaging requirements (see 5.1 and Special Packaging Instruction P5–75–2).

6.3 Shelf life. This specification covers items where shelf life is a consideration. Specific shelf–life requirements should be specified in the contract or purchase order. The shelf–life codes are contained in the Federal Logistics Information System Total Item Record. Additive information for shelf–life management may be obtained from DoD 4140.27–M, *Shelf–life Management Manual*, or the designated shelf–life Points of Contact (POC). The POC should be contacted in the following order: (1) the Inventory Control Points (ICPs), and (2) the DoD Service and Agency administrators for the DoD Shelf–Life Program. Appropriate POCs for the DoD Shelf–Life Program can be contacted through the DoD Shelf–Life Management website: <http://www.shelflife.hq.dla.mil/>.

6.4 Subject term (key word) listing.

Plastic
Pouch
Seams

6.5 Changes from previous issues. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

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Preparing activity:

Army - EA

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