

INCH-POUND

MIL-DTL-22020E
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SUPERSEDING
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DETAIL SPECIFICATION

BAGS, TRANSPARENT, FLEXIBLE, SEALABLE, VOLATILE
CORROSION INHIBITOR TREATED

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

1. SCOPE

1.1 Scope. This document covers volatile corrosion inhibitor (VCI) treated flexible transparent bags used in military preservation.

1.2 Classification. The treated bags are furnished in the following classes, as specified (see 6.1):

- Type I - Heat sealable
- Type II - Cold (pressure) sealable

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 or 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 documents cited in sections 3 and 4 of this specification, whether or not they are listed.

Comments, suggestions, or questions on this document should be addressed to: Commander, Naval Air Warfare Center Aircraft Division, Code 4L8000B120-3, Highway 547, Lakehurst, NJ 08733-5100 or emailed to michael.sikora@navy.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.daps.dla.mil>.

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2.2 Government documents.

2.2.1 Specifications and standards. The following specification and standard 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.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-22019 - Barrier Materials, Transparent, Flexible, Sealable, Volatile Corrosion Inhibitor Treated.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-3010 - Test Procedures for Packaging Materials.

(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, Bldg 4D, Philadelphia, PA 19111-5094.)

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.

AMERICAN SOCIETY FOR QUALITY (ASQ)

ASQ-Z1.4 - Sampling Procedures and Tables for Inspection by Attributes (DoD adopted)

(Copies of this document are available from <http://www.asq.org> the American Society for Quality, 600 Plankinton Avenue, Milwaukee, WI 53203.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, 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 6.2), samples shall be subjected to first article inspection in accordance with 4.2.

3.2 Material. The bags shall be fabricated from material qualified under MIL-PRF-22019 and listed in QPL-22019, as follows:

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- a. Type I bags shall be fabricated from MIL-PRF-22019, Type I barrier material.
- b. Type II bags shall be fabricated from MIL-PRF-22019, Type II barrier material.

(Qualified Products List for MIL-PRF-22019 can be found at: <http://assist.daps.dla.mil>)

3.3 Construction.

3.3.1 Type I. Type I bags shall be formed by placing the heat sealable surfaces of two sheets together, or by folding one sheet in half, and then heat sealing seams along the two sides and the bottom edge. The side seams shall be parallel to each other. The bottom seam shall be at right angles to the side seams. Bags twelve inches or less in length, with a mouth opening of less than ten inches, shall be provided with a lip formed by extending one edge of the mouth $\frac{1}{8}$ inch beyond and parallel to the outer edge. The lip extension shall not be included in the dimensions of the bag. Bags fabricated from tubing require a bottom seam and do not require a lip.

3.3.2 Type II. Type II bags shall be fabricated in a manner similar to Type I bags as described in 3.3.1, except that seams shall be cold sealed. The seams shall be a minimum of 1/2 inch wide and shall be effected between two sets of rubber coated pull-wheels or any other system capable of creating seals strong enough to pass the seal test specified in 4.4. A non-blocking interleaf shall be furnished in each Type II bag.

3.4 Dimensions and tolerances.

3.4.1 Bags. The length and width of bags shall be specified in the contract or purchase order (see 6.2). The width shall be measured from the inside edges of the side seams. The length shall be measured from the inside edge of the bottom seam or bottom fold to the edge of the opening (exclusive of the lip). The tolerances for the length and width shall be as indicated in table I.

TABLE I. Dimensions and tolerances for bags.

Bag area (one side)	Length and width tolerance (inches)
25 sq. in. or less	$-\frac{1}{16}, +\frac{1}{8}$
26 thru 200 sq. in.	$-\frac{1}{8}, +\frac{1}{4}$
201 thru 500 sq. in.	$-\frac{1}{4}, +\frac{3}{8}$
501 sq. in. or over	$-\frac{1}{4}, +\frac{1}{2}$

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3.4.2 Seam widths. Seam widths and tolerances shall be as specified in Table II, except that:

Seams fabricated by the dielectric, impulse, or ultra-sonic process shall have a minimum $\frac{1}{32}$ inch wide heat seal. Seams fabricated from unsupported plastic sheet such as polyethylene or polyolefin shall meet the seam (seal) strength requirement specified in 3.7 with no minimum seal width required.

TABLE II. Dimensions and tolerances for seam widths.

Bag area (one side)	Seam width (inches)	Tolerance (inches)
25 sq. in. or less	$\frac{3}{8}$	$-\frac{1}{16}, +\frac{1}{8}$
26 thru 200 sq. in.	$\frac{1}{2}$	$-\frac{1}{16}, +\frac{1}{4}$
201 thru 500 sq. in.	$\frac{5}{8}$	$-\frac{1}{16}, +\frac{3}{8}$
501 sq. in. or over	$\frac{5}{8}$	$-\frac{1}{16}, +\frac{3}{8}$

3.5 Identification. Each bag shall be marked or printed in capital letters, using 10-point type, with the following information: This specification number and revision letter; type designation; bag manufacturer's name and bag designation; month and year of bag fabrication. Each bag shall contain this printing on at least one surface with the color and position of the printing being optional. When the marking is interrupted or incomplete due to the size of the bags, the individual bag need not be marked as specified, but shall be accompanied within the shipping container by an identification sheet marked or printed with the same information. When specified (see 6.2), a pressure sensitive label shall be applied to the outer surface of each bag in lieu of marking the bag.

3.6 Sealing recommendations.

3.6.1 Heat sealing (Type I only). Each unit package of bags shall include a sheet legibly marked with the following heat-sealing information.

- a. Jaw type sealer (temperature, pressure, and dwell time).
- b. Band type sealer (temperature, pressure, and dwell time).
- c. Rotary type sealer (preheat, pressure, and speed).

3.6.2 Cold sealing (Type II only). Each unit package of bags shall include a sheet describing the speed of the rollers and the pressure (psi) used in making the seals.

3.7 Seam (seal) strength. Seals shall exhibit no separation for the duration of the 5 minute test when tested as specified in 4.4.

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3.8 Workmanship. Bags shall be free from any foreign matter, pinholes, tears, cuts, splits, slits, creases, wrinkles, or other imperfections.

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).

4.2 First article inspection. First article inspection shall consist of all the tests and examinations specified in this specification.

4.3 Conformance inspection. Conformance inspections shall consist of the seam (seal) strength test specified in 4.4 and the visual examinations specified in 4.3.2.

4.3.1 Sampling for conformance inspection. For the purpose of determining the sample size in accordance with ASQ-Z1.4, the lot size (see 6.3) shall be expressed in number of bags produced in one production run. The inspection level shall be S-1 for testing and S-3 for visual examination. There shall be no failures.

4.3.2 Visual examination of end item for defects in material, construction, dimensions and tolerance, identification, and heat sealing recommendations. The sample unit for the end item visual inspections shall be one. The sample unit shall be visually inspected and measured to ensure it meets the requirements specified in 3.2, 3.3, 3.4, 3.5 and 3.6.

4.4 Seam (seal) strength. Sealed seams shall be tested at room temperature in accordance with MIL-STD-3010, Method 2024 using a static load weight of 36 ± 2 ounces for Type I bags and 18 ± 1 ounces for Type II bags. At least one specimen taken from each sealed seam shall be tested from each bag sampled. Specimens shall be 1 inch wide with length dependent upon bag size.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD personnel or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain 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

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from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

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

6.1 Intended use. Bags covered by this specification are intended for use in specialized military methods of preservation where VCI treated sealable bags are required. Barrier materials used in the construction of these bags are military unique and the bags provide the necessary protection to their contents from exposure to the extremes of the navy/naval aviation environment. There are no commercial equivalent materials that can provide this protection. Bags meeting the requirements of this specification are one of the building blocks approved under MIL-STD-2073-1 to provide the unique protective properties required to protect military hardware from exposure to the severe military operating environment.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Type of bag (see 1.2).
- c. Size of bags (inside length and width dimensions) (see 3.4).
- d. If first article inspection is required (see 4.2).
- e. Packaging requirements.

6.3 Lot size. Inspection lot will consist of all bags manufactured by the same process from the same raw material during one production run.

6.4 Material Safety Data Sheets (MSDSs). Contracting officers will identify those activities requiring copies of completed Material Safety Data Sheets prepared in accordance with FED-STD-313. The pertinent Government mailing addresses for submission of data are listed in FED-STD-313; and 29 CFR 1910.1200 requires that the Material Safety Data Sheet for each hazardous chemical used in an operation must be readily available to personnel using the material. Contracting officers will identify the activities requiring copies of the Material Safety Data Sheet.

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6.5 Bag stock sizes. Commonly stocked bag sizes are listed in table III.

TABLE III. Common bag stock sizes.

Size Designation	Inside Dimensions (inches) (W x L)
1	2½ by 3
2	2½ by 6
3	3 by 5
4	4 by 6
5	4 by 8
6	4 by 12
7	6 by 6
8	6 by 8
9	8 by 12
10	10 by 10
11	10 by 13
12	10 by 12
13	12 by 12

6.6 Subject term (key word) listing.

Cold seal
Heat seal
Packaging
Preservation

6.7 Changes from previous issue. 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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CONCLUDING MATERIAL

Custodians:

Army – GL
Navy – AS
Air Force – 11

Preparing activity:

Navy – AS
(Project 8105-2010-002)

Review Activities:

Army – AT, CR4, MI, SM
Navy – MC, OS, SA, SH, YD
Air Force – 71, 84
DLA – CC

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.daps.dla.mil>.