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| NOT MEASUREMENT SENSITIVE |
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MIL-DTL-81997D

18 February 2004

SUPERSEDING

MIL-DTL-81997C

10 October 2002

DETAIL SPECIFICATION

POUCHES, CUSHIONED, FLEXIBLE,
ELECTROSTATIC-PROTECTIVE, TRANSPARENT

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

1. SCOPE

1.1 Scope. This specification covers flexible, electrostatic-protective, transparent pouches used in military preservation.

1.2 Classification. The types of pouches are as follows (see 6.2):

Type I - Double-walled electrostatic shielding reclosable pouches containing permanently encapsulated cushioning

Type II - Single-walled static dissipative pouches with cushioned inner walls

1.3 Part or identifying number (PIN). Part numbers are used to identify pouches covered by this specification. The part number will specify a given pouch in accordance with the following established system:

Part Number: M81997-YYY

where X = the type of pouch (see 1.2)

 where type I = 1

 type II = 2

 YY = the pouch size designator (see table I)

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| Comments, suggestions, or questions on this document should be addressed to: Commander, Naval Air Warfare Center Aircraft Division (Code 414100B120-3), Highway 547, Lakehurst, NJ 08733-5100 or emailed to Tom.Omara@navy.mil . Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at www.dodssp.daps.mil . |
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For example, the specification part number for a pouch conforming to MIL-DTL-81997, type II, with dimensions of 6 inches x 6 inches would be:

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

2.2 Government documents.

2.2.1 Specifications and standards. The following specifications and standards 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 SPECIFICATIONS

PPP-C-795 - Cushioning Material, Packaging (Flexible Closed Cell Plastic Film, for Long Distribution Cycles)

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-81705 - Barrier Materials, Flexible, Electrostatic Protective, Heat-Sealable.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-2073-1 - DoD Standard Practice for Military Packaging.

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch> or <http://dodssp.daps.dla.mil> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 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 the documents are those cited in the solicitation or contract.

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AMERICAN SOCIETY FOR QUALITY (ASQ)

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

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

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, 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 Materials.

3.2.1 Type I. Cushioning material conforming to PPP-C-795, class 2 (thin thickness), and barrier material conforming to MIL-PRF-81705, Type III, shall be used.

3.2.2 Type II. Cushioning material conforming to PPP-C-795, class 2 (thin thickness), shall be used.

3.3 Construction.

3.3.1 Type I. Type I pouches shall be formed by placing together 1 sheet of barrier material (heat-sealable side shall face cushioning material) and 1 sheet of cushioning material (cushioning medium shall face heat-sealable side of barrier material – smooth side of cushioning material shall become the innermost surface of pouch), then folding both in half, heat seal along both sides.

3.3.1.1 Closure (Type I). The open end or top edge of type I pouches shall be provided with a reclosable zipper-type interlocking closure. The closure shall be effected by two strips – a rib element on one side of the pouch and a complementary groove element on the other side – that shall be heat sealed to the pouch. The zipper so formed shall be closable by applying finger pressure. The strips shall have a flange a minimum of 1/2 inch in width extending above the zipper closure. A colored line, approximately 1/4 inch above and parallel to the zipper track, shall be marked to indicate where the flange shall be pulled to open the zipper. The closure material shall be electrostatic protective and meet all the requirements of MIL-PRF-81705, type II.

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3.3.2 Type II. Type II pouches shall be constructed solely of cushioning material conforming to PPP-C-795, Class 2 (thin thickness). Pouches shall be formed using two sheets of material, or by folding one sheet of material in half, and heat sealing along two sides and the bottom edge as required. The cushioning medium shall face toward the outside of the pouch (smooth side of cushioning material shall become the inner surface of pouch).

3.4 Dimensions and tolerances. The length and width of pouches shall be as specified in the contract or purchase order. For type I pouches, width shall be measured between the inside corners of the reclosable seal when open. For type II pouches, the width shall be measured from the inside edges of the side seams.

For type I pouches, length shall be measured from the inside edge of the bottom seam or fold to the inside edge of the reclosable seal when closed. For type II pouches, length shall be measured from the inside edge of the bottom seam or bottom fold to the inside edge of the opening. Width and length tolerances shall be +1/4 inch and -1/8 inch. Common pouch stock sizes are listed in table I.

TABLE I. Common pouch sizes and designators.

| Size designator | Inside dimensions (W x L) (inches) |
|-----------------|---------------------------------------|
| 01 | 2-1/2 x 3 |
| 02 | 2-1/2 x 6 |
| 03 | 3 x 5 |
| 04 | 4 x 6 |
| 05 | 4 x 8 |
| 06 | 4 x 12 |
| 07 | 6 x 6 |
| 08 | 6 x 8 |
| 09 | 8 x 12 |
| 10 | 10 x 10 |
| 11 | 10 x 12 |
| 12 | 10 x 13 |
| 13 | 12 x 12 |

3.5 Identification. Each pouch shall be identified with the following information: This specification number and revision; type; pouch manufacturer's name; month and year of pouch fabrication. When specified (see 6.2), the following additional precautionary markings shall be applied to or accompany each pouch:

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ATTENTION
STATIC SENSITIVE DEVICES
HANDLE ONLY AT STATIC SAFE WORK STATIONS

The color and position of these precautionary markings are optional. A label or labels containing the precautionary markings shall be secured to an outer face of the pouch using adhesive or any method that provides a secure attachment.

3.6 Seam continuity. Heat sealed seams and the reclosable closure for type I pouches shall be complete and unbroken around the perimeter of the pouch, as specified in 4.5.

3.7 Seam strength. Heat seals shall meet the requirements of MIL-STD-2073-1, Appendix G (see 4.6).

3.8 Sealing recommendations (type II only). Each unit package containing type II pouches shall include a sheet legibly marked with the following heat-sealing information:

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

3.9 Workmanship. Pouches shall be free from any foreign matter, tears, cuts, splits, slits, creases, 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 all the visual examinations listed in 4.4, the seam continuity test, and heat-sealed seam test specified in 4.5 and 4.6, respectively.

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4.3.1 Sampling for conformance inspection. For the purpose of determining the sample size in accordance with ASQC-Z1.4, the lot size (see 6.3) shall be expressed in number of pouches produced in one production run and shall use an inspection level of S-1 for testing and S-3 for visual examination.

4.4 Visual examination of end item for defects in materials, construction, closure, dimensions and tolerance, identification, and sealing recommendations. The sample unit for the end item visual inspection shall be one pouch. The sample unit shall be visually inspected and measured to ensure it meets the requirements specified in 3.2, 3.3, 3.3.1, 3.4, 3.5, 3.8, and 3.9.

4.5 Seam continuity test. Water containing a dye such as methyl violet shall be poured into the pouch so that the water solution will cover an entire side of the pouch when laid on its side. The pouch shall be closed with a supplemental final heat seal or by closing the zipper closure, as applicable. Manually hold the pouch in a vertical attitude. Rotate the bag 360° in 90° increments so that each sealed edge is on the bottom for thirty seconds. Dye leakage through any original heat seal or the zipper closure indicates failure to meet the seam continuity requirement.

4.6 Heat-sealed seam test. Heat-sealed specimens shall be tested in accordance with the heat-sealed seam test specified in MIL-STD-2073-1, Appendix G, using a static load of 2-1/2 pounds. The number of specimens to be tested from each pouch shall be reduced when the size of the pouch precludes testing the prescribed number of specimens.

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 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 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. Pouches covered by this specification are intended for use in the packaging of electronic components, circuit boards, and assemblies sensitive to the damaging effect of electrostatic discharge. The pouches are designed for use as interior

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packages directly in contact with the contained part. Where additional cushioning, electromagnetic interference or electrostatic shielding, or watervaporproof barriers are required, they are to be used only outside the pouches, not inside them. The pouches may be used during assembly, handling, storage, and shipment of any electrostatic discharge sensitive item. There are no commercial equivalents that meet the physical, electrostatic protection, and corrosion requirements necessary to protect materiel that is exposed to the operational naval aviation environment. Specifically, specialized Method of Preservation GX of MIL-STD-2073-1C uses MIL-DTL-81997 to provide watervaporproof and electrostatic discharge protection for applicable items encountering the above conditions approved under MIL-STD-2073-1C.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Type of pouch (see 1.2).
- c. Size of pouches (inside length and width dimensions) (see 3.4 and table I).
- d. If additional pouch identification marking is required (see 3.5).
- e. If first article inspection is required (see 4.2).
- f. Packaging requirements (see 5.1).

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

6.4 Subject term (keyword) listing.

Bag
Container
Packaging material
Preservation
Reclosable

6.5 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 – SM
Navy – AS
Air Force – 11
DLA – DH

Preparing activity:

Navy – AS

(Project 8105-0386)

Review activities:

Army – AT, AV, EA, GL3, MI
Navy – MC, OS, SA, SH

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 www.dodssp.daps.mil.