

MIL-E-37007A  
9 October 1975  

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SUPERSEDING  
MIL-E-37007 (DSA-DM)  
24 October 1973

## MILITARY SPECIFICATION

### EMBEDDING COMPOUND, LABORATORY, Paraffin and Plastic Polymers

#### 1. SCOPE

1.1 This specification covers one type of embedding compound suitable for supporting tissue specimens in histological procedures.

#### 2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue in effect on date of invitation for bids or request for proposals, form a part of this specification to the extent specified herein:

#### SPECIFICATIONS

##### Federal

PPP-T-76	Tape, Pressure-Sensitive Adhesive Paper (for Carton Sealing).
MMM-A-250	Adhesive, Water-Resistant (for Sealing Fiberboard Boxes).
PPP-B-585	Boxes, Wood, Wirebound.
PPP-B-601	Boxes, Wood, Cleated-Plywood.
PPP-B-621	Boxes, Wood, Nailed and Lock-Corner.
PPP-B-636	Boxes, Shipping, Fiberboard.
PPP-B-676	Box, Setup.

##### Military

MIL-L-10547	Liners, Case and Sheet, Overwrap; Water-Vaporproof or Waterproof, Flexible.
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FSC 6640

MIL-E-37007A

**STANDARDS****Military**

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129	Marking for Shipment and Storage.

(Copies of specifications and standards required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposals shall apply.

**AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

ASTM D-87	Melting Point of Petroleum Wax.
ASTM D-156	Saybolt Color of Petroleum Products.

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

**3. REQUIREMENTS**

3.1 Composition. The embedding compound shall be a balanced mixture of paraffin and plastic polymers. The paraffin and plastic polymers shall be mixed in such proportions that the melting point shall be  $56.5^{\circ}$  Centigrade ( $^{\circ}\text{C}.$ )  $\pm .5^{\circ}\text{C}.$  when tested as specified in 4.4.1.

\* 3.2 Color. The color of the embedding compound shall be not less than +23 when tested as specified in 4.4.2.

\* 3.3 Solubility. The embedding compound shall be totally soluble in Xylene, and no particles shall be floating or settling in the liquid when tested as specified in 4.4.3.

\* 3.4 Performance. The embedding compound which supports the tissue specimen shall set clear and shall show no evidence of granulation, flaking, crumbling or cracking. The tissue specimen shall not be damaged or distorted when sliced or cut by a microtome, razor or sharp knife when tested as specified in 4.4.4.

MIL-E-37007A

- \* 3.5 Size, shape and dimensions. The embedding compound shall consist of pellets which may vary in diameter from 1/8 to 1-9/16-inch (in.) and in thickness from 1/64 to 3/8-in.
- \* 3.6 Weight. The net weight of each package shall be not less than 2-1/2 pounds (lbs.).
- 3.7 Workmanship. Workmanship shall be first class throughout. The finished embedding compound shall not be discolored and shall be free from defects which detract from its appearance or may impair its serviceability.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements specified herein. Except as otherwise specified in the contract or purchase order, the supplier 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 Records. Records of examinations and tests performed by or for the contractor shall be maintained by the contractor and made available to the Government, upon the Government's request, at any time or from time to time, during the performance of the contract and for a period of 3 years after delivery of the supplies to which such records relate.

4.1.2 Inspection. Inspection, as used in this specification, is defined as both examination (such as visual or auditory investigation without the use of special laboratory appliances or procedures) and testing (determination by technical means of physical and chemical properties) of the item.

4.1.3 Certificate of quality. Certificate of quality, supplied by the manufacturer of the embedding compound, may be furnished in lieu of actual performance of such testing by the contractor, provided lot identity has been maintained and can be demonstrated to the Government. The certificate shall include the name of the contractor, the contract number, the name of the manufacturer or suppliers, the NSN, the item identification, the name of the material, the lot number, the lot size, the sample size, the date of testing, the test method, individual test results, and the specification requirements.

. MIL-E-37007A

**4.2 Sampling.**

4.2.1 Lot. For the purpose of this specification, a lot, batch or control is that single, uniform homogenous quantity of embedding compound produced from one formulation, subjected to the same compounding and manufacturing operation, and filled into final containers.

4.2.2 For examination. Sampling for examination shall be conducted in accordance with MIL-STD-105 and Table I. The unit of product shall be one package.

\* Table I Sampling for examination

	Inspection level	AQL (percent defective)
For visual examination		
Major defects	II *	1.0
Minor defects	II	2.5
For dimensional examination and weight	S-1	2.5

\* Inspection level for major defect 103 shall be S-1.

4.2.3 For tests. Sampling for tests shall be conducted in accordance with MIL-STD-105 and Table II. Inspection level shall be S-1.

Table II Sampling for tests

Characteristic	Requirement	Test procedure	AQL
Melting point	3.1	4.4.1	*
Color	3.2	4.4.2	*
Solubility	3.3	4.4.3	*
Performance	3.4	4.4.4	*

\* Acceptance number shall be zero.

4.3 Examination. The embedding compound shall be examined to determine compliance with all requirements contained in this specification.

4.3.1 Classification of defects. Examination shall be in accordance with the following classification of defects:

MIL-E -37007A

Table III Classification of defects

Category	Defect
<b>Major</b>	
101	Embedding compound not free from dirt, foreign particles or lumps.
102	Embedding compound not free from discoloration.
103	Embedding compound fails to solidify properly after returning to room temperature.
<b>Minor</b>	
201	Markings on unit carton missing, illegible or incomplete.

\* Examination shall not be restricted to the defects listed above.

4.3.2 Dimensional examination. The embedding compound shall be examined for defects in dimensions (see 3.5).

4.4 Tests. Tests shall be conducted to determine compliance with specification requirements.

4.4.1 Melting point. The melting point of the embedding compound shall be determined in accordance with ASTM D-87.

4.4.2 Color. The color of the embedding compound shall be determined in accordance with ASTM D-156.

4.4.3 Solubility. In a test tube containing  $25 \pm 2$  ml. of A.C.S. grade Xylene at 22-25°C., add 0.75 grams (gm.) of embedding compound which may be shredded for this test. Stopper the test tube and shake vigorously for 30 seconds. Allow test tube to set for 10 minutes, then observe the solution.

4.4.4 Performance. Consistent with histological technique, prepare a specimen of bone or cartilage for sectioning by embedding it with the embedding compound. Cut or slice the matrix with a sharp knife, razor or microtome and observe the condition of the tissue slices.

4.5 Examination of preparation for delivery. An examination shall be made to determine whether the packaging, packing and marking comply with the requirements of Section 5. Defects shall be scored as specified in Table IV. Sampling shall be in accordance with MIL-STD-105. The sample unit shall be one container fully prepared for delivery. The lot shall be the number of containers offered for inspection at one time. The inspection level shall be S-2, and the acceptable quality level shall be 4.0 defects per hundred units.

MIL-E-37007A

\* Table IV Examination of preparation for delivery

Examination	Defect
Containers	Not as specified.
Quantity	Quantity in interior packages and shipping containers not as specified.
Packaging and packing materials	Any component missing or damaged.
Workmanship	Inadequate application of components such as incomplete closure of container flaps, tape improperly applied or containers distorted.
Markings	Omitted, incorrect, illegible, improper size, location, sequence or method of application.

## \* 5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be Level A or C as specified (see 6.1).

5.1.1 Unit of issue. One package containing 2-1/2 lbs. of embedding compound as specified constitutes one unit of issue.

5.1.1.1 Level A.

5.1.1.1.1 Unit package. Embedding compound shall be packaged in a heat-sealed polypropylene bag and further packaged in a box of appropriate size constructed in accordance with PPP-B-636, type CF, class domestic or PPP-B-676. Closure shall be adequate to prevent accidental opening.

5.1.1.2 Level C. Units shall be packaged in standard commercial containers of the size and kind commonly used, which will afford the degree of protection required for shipment and use of the product for its intended purpose.

5.2 Packing. Packing shall be Level A, B or C as specified (see 6.1).

5.2.1 Level A. Eight units shall be packed in a box designed for a type 2 load and constructed in accordance with PPP-B-585, class 3, style 3; PPP-B-601, over-seas type; PPP-B-621, class 2; or PPP-B-636, class weather-resistant. Closure and strapping shall be as specified in the appendix of the applicable box specification.

5.2.1.1 Case liner. Each Level A wood box shall be lined with a waterproof case liner conforming to MIL-L-10547. Closure and sealing shall conform to applicable paragraphs of appendix thereto. Case liner shall not be required for fiberboard boxes. Fiberboard box shall be waterproofed as specified in the appendix of PPP-B-636.

MIL-E-37007A

5.2.2 Level B. Eight units shall be packed in a box designed for a type 2 load and constructed in accordance with PPP-B-585, class 2, style 3; PPP-B-601, domestic type; PPP-B-621, class 1; or PPP-B-636, type CF, class domestic. Closure shall be as specified in the appendix of the applicable box specification.

5.2.3 Level C. The subject commodity shall be packed in substantial commercial containers of the type, size and kind commonly used for the purpose, so constructed as to insure acceptance and safe delivery by common or other carriers, at the lowest rate, to point of delivery called for in the contract or purchase order.

### 5.3 Marking.

5.3.1 Unit package. In addition to any commercial markings, each unit package shall be marked in accordance with MIL-STD-129. Lot (control) number shall be shown. Marking shall include the legend:

"STORE AT CONTROLLED ROOM TEMPERATURE (59°-86°F.)"

5.3.2 Exterior container. Exterior container shall be marked in accordance with MIL-STD-129. Lot (control) number shall be shown. Marking shall include the legend:

"STORE AT CONTROLLED ROOM TEMPERATURE (59°-86°F.)"

## 6. NOTES

6.1 Ordering data. Procurement documents should specify the following:

- a. Title, number and date of this specification.
- b. National Stock Number (NSN).
- c. Selection of applicable levels of packaging and packing  
(see 5.1 and 5.2).

6.2 This specification covers the following item as it appears in the Federal Supply Catalog:

<u>National Stock No.</u>	<u>Item Identification</u>
6640-00-549-6682	EMBEDDING COMPOUND, LABORATORY, Paraffin and Plastic Polymers

6.3 This specification does not cover all types, classes, grades or sizes of the commodity indicated by the title of this specification, or those which are commercially available, but is intended to cover the type normally procured to meet military requirements.

MIL-E-37007A

6.4 The margins of this specification 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 irrespective of the marginal notations and relationship to the last previous issue.

Custodians:

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Navy - MS  
Air Force - 03

Preparing activity:

Defense Supply Agency - DM

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MIL-E-37007A, Embedding Compound, Laboratory		
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