

INCH-POUND

MIL-W-15234C(SH)

13 June 1988

SUPERSEDING

MIL-W-15234B(SHIPS)

16 January 1967

(See 6.6)

MILITARY SPECIFICATION

WHITING

This specification is approved for use within the Naval Sea Systems Command, Department of the Navy, 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 whiting, calcium carbonate, for the manufacture of putty.

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.

SPECIFICATIONS

FEDERAL

A-A-379 - Linseed Oil, Raw (for Use in Organic Coatings).
PPP-P-1892 - Paint, Varnish, Lacquer, and Related Materials;
Packaging, Packing, and Marking of.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 5523, Department of the Navy, Washington, DC 20362-5101 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

DISTRIBUTION STATEMENT A Approved for public release; distribution unlimited

FSC 8010

MIL-W-15234C(SH)

STANDARDS

FEDERAL

FED-STD-141 - Paint, Varnish, Lacquer and Related Materials:
Methods of Inspection, Sampling and Testing.

FED-STD-313 - Material Safety Data, Transportation Data and
Disposal Data for Hazardous Materials Furnished to
Government Activities.

2.1.2 Other Government publication. The following other Government publication forms a part of this specification to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

PUBLICATION

DEPARTMENT OF LABOR

Code of Federal Regulations, Title 29, Part 1910.1200 - Safety
Hazard Communication.

(Copies of specifications, standards and publications required by contractors 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 issues of documents not listed in the DoDISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

AMERICAN CHEMICAL SOCIETY (ACS)

Specifications - Reagent Chemicals.

(Application for copies should be addressed to Applied Publications, American Chemical Society, 1155 16th Street, NW, Washington, DC 20006.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 81 - Standard Specification for Basic Carbonate White Lead
Pigment.

D 185 - Standard Test Methods for Coarse Particles in Pigments,
Pastes, and Paints. (DoD adopted)

D 280 - Standard Test Methods for Hygroscopic Moisture (and
Other Matter Volatile Under the Test Conditions) in
Pigments. (DoD adopted)

D 387 - Standard Test Method for Color and Strength of Color
Pigments With a Mechanical Muller. (DoD adopted)

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

MIL-W-15234C(SH)

(Nongovernment standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

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 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 Material. The material shall be in a dry and finely powdered form.

3.1.1 Prohibited material. Materials provided in accordance with this specification shall be asbestos free and shall contain no chromium or mercury. When specified in the contract or order, a certificate of compliance shall be prepared (see 6.2.2).

3.2 Quantitative requirements. The whiting shall conform to the quantitative requirements specified in table I.

TABLE I. Quantitative requirements.

Characteristics	Requirements	
	Minimum	Maximum
Moisture and other volatile matter, percent by weight	----	2.0
Calcium oxide, percent by weight	50.0	----
Carbon dioxide, percent by weight	40.0	----
Coarse particles retained on no. 325 sieve, percent by weight	----	30.0

3.3 Qualitative requirements. Whiting shall conform to the following qualitative requirements.

3.3.1 Mass color. When specified (see 6.2.1), the mass color of the whiting shall match that of a reference sample (see 4.3.5).

3.3.2 Sedimentation rate. The opaque suspension shall settle not less than 1.75 inches nor more than 3.25 inches in a period of 120 minutes, as specified (see 4.3.6).

3.3.3 Putty properties. The resulting putty shall have the following properties when whiting is mixed with white lead and linseed oil (see 4.3.7).

3.3.3.1 Working qualities. The putty shall show good adhesive and elastic properties and shall not be "short" or "mealy" (see 4.3.7.1).

MIL-W-15234C(SH)

3.3.3.2 Ductility. The putty shall have sufficient ductility to permit a reduction in diameter to 1/4 inch or less before rupture (see 4.3.7.2).

3.4 Material safety data sheet (MSDS). The contracting activity shall be provided a MSDS at the time of the contract award. The MSDS shall be provided in accordance with the requirements of FED-STD-313 and 29 CFR 1910.1200, Hazard Communication Standard. When FED-STD-313 is at variance with the CFR, 29 CFR 1910.1200 shall take precedence, modify and supplement FED-STD-313. The MSDS shall be included with each shipment of the material covered by this specification.

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 Quality conformance inspection. Quality conformance inspection shall consist of the examination and tests in table II. Failure to pass any test shall be cause for rejection of the lot.

TABLE II. Quality conformance inspection.

Examination or test	Requirement	Method
Pigment properties:		
Moisture and other volatile matter in pigment	Table I	4.3.1
Calcium oxide	Table I	4.3.2
Carbon dioxide	Table I	4.3.3
Coarse particles	Table I	4.3.4
Mass color	3.3.1	4.3.5
Sedimentation rate	3.3.2	4.3.6
Putty properties:		
Working qualities	3.3.3.1	4.3.7.1
Ductility	3.3.3.2	4.3.7.2

MIL-W-15234C(SH)

4.3 Test methods.

4.3.1 Moisture. The moisture and other volatile matter content of the whiting shall be determined in accordance with ASTM D 280.

4.3.2 Calcium oxide (CaO). The calcium oxide shall be determined in accordance with method 7301 of FED-STD-141 and reported as CaO. To convert percent CaCO_3 to percent CaO, multiply percent CaCO_3 by 0.560.

4.3.3 Carbon dioxide (CO_2). Weigh accurately 1 gram of a sample into a 300-milliliter (mL) Erlenmeyer flask. Add 25 mL of distilled water and a few drops of phenolphthalein indicator. If the sample (at room temperature) is alkaline to phenolphthalein, titrate against 0.5 normal HCl and record phenolphthalein alkalinity. Add bromcresol green indicator and a measured amount of 0.5 normal HCl to ensure excess acidity. Heat until all carbon dioxide is expelled. Cool and titrate the excess acid present against 0.5 normal NaOH. Calculate the difference between the phenolphthalein and bromcresol green end points as CO_2 .

$$1 \text{ mL } 0.500 \text{ N HCl} = 0.0110 \text{ gram } \text{CO}_2$$

4.3.4 Coarse particles. The coarse particle content of the whiting shall be determined in accordance with ASTM D 185.

4.3.5 Mass color. The mass color of the whiting shall be determined in accordance with ASTM D 387.

4.3.6 Sedimentation rate. Dry a portion of the whiting to constant weight at 150 degrees Celsius ($^{\circ}\text{C}$) (302 degrees Fahrenheit ($^{\circ}\text{F}$)). Place 9 grams of the dried whiting in a dry glass tube of 12 to 14 millimeters (mm) inside diameter (id) and 43 to 46 centimeters (cm) length. Add 45 mL of a dry 1:1 mixture, by volume, of xylene (ACS reagent grade) and raw linseed oil in accordance with A-A-379. Cork the tube, shake thoroughly to disperse the whiting, and set it aside for 24 hours. At the end of the 24-hour period, adjust the temperature to 25°C (77°F) and shake thoroughly to disperse the whiting. Allow the tube to stand quietly in a vertical position at a temperature of 25°C for 120 minutes and measure the distance the opaque suspension has settled out. The test is very sensitive to the presence of moisture. Erratic and nonreproducible results may be obtained if the sample of whiting, the reagents (xylene and linseed oil), the sample tube, or the cork stopper are not completely dry. In the event that results are obtained that are not reproducible, the entire test shall be repeated with completely dry materials. The id of the sample tube is also important, and tubes that do not exactly conform to the requirements shall not be used.

4.3.7 Preparation of putty. Putty shall be prepared by mixing whiting (previously air-dried at 25°C (77°F) and 50 percent relative humidity) with white lead and raw linseed oil in accordance with the following formula:

MIL-W-15234C(SH)

<u>Ingredient</u>	<u>Specification</u>	<u>Grams</u>
Whiting	Inspection sample	77
White lead, paste-in-oil (type B)	ASTM D 81	9
Raw linseed oil	A-A-379	14

4.3.7.1 Working qualities of putty. Work up the batch of putty to a temperature of 20 to 25°C (70 to 80°F) in the hands, adding additional raw linseed oil, if necessary, to obtain proper consistency. (The additional amount of oil added shall not exceed 3 grams.) The resultant putty shall not be sticky. Apply the prepared putty to the edge of a clean piece of window glass and work to a smooth bevel with a putty knife. Spread another portion to a very thin film on the glass. If the putty does not show these properties, repeat the test preparing fresh materials and allow the thoroughly worked mixture to soak for 48 hours in a nearly filled and tightly sealed container before proceeding.

4.3.7.2 Ductility of putty. The worked putty (see 4.3.7.1) shall be rolled into a cylindrical-shaped mass, approximately 1 inch in diameter. The cylinder shall be grasped with the hands at opposite ends and slowly pulled.

4.4 Inspection of packaging. Sample packages and packs, and the inspection of the preservation, packing and marking for shipment, stowage and storage shall be in accordance with the requirements of section 5 and the documents specified therein.

5. PACKAGING

(The packaging requirements specified herein apply only for direct Government acquisition.)

5.1 Packaging requirements. The whiting shall be preserved and packed level C or commercial, as specified (see 6.2.1) and marked in accordance with PPP-P-1892 and shall include bar codes and applicable packaging acquisition options therein as specified (see 6.2.1). The unit containers shall be of the size specified (see 6.2.1).

5.2 Material safety data sheet. A copy of the material safety data sheet shall be attached to the shipping document for each destination (see 3.4).

6. NOTES

6.1 Intended use. Whiting, as described in the specification, is intended for use as an ingredient in putty for shipboard use. It is essentially pure calcium carbonate. It is a bulky pigment, quite stable to light, and is unaffected by hydrogen sulfide. It is practically insoluble in water, but is soluble in all dilute acids with the evolution of carbon dioxide. A precipitated grade of calcium carbonate for use as a paint ingredient is covered by ASTM D 1199.

MIL-W-15234C(SH)

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Mass color, when required (see 3.3.1).
- (c) Level of preservation, packing and marking required (see 5.1).
- (d) Size of unit container (see 5.1).

6.2.2 Data requirements. When this specification is used in an acquisition and data are required to be delivered, the data requirements identified below shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (CDRL), incorporated into the contract. When the provisions of DoD FAR Supplement, Part 27, Sub-Part 27.475-1 (DD Form 1423) are invoked and the DD Form 1423 is not used, the data specified below shall be delivered by the contractor in accordance with the contract or purchase order requirements. Deliverable data required by this specification are cited in the following paragraph.

<u>Paragraph no.</u>	<u>Data requirement title</u>	<u>Applicable DID no.</u>	<u>Option</u>
3.1.1	Certificate of compliance	DI-E-2121	----

(Data item descriptions related to this specification, and identified in section 6 will be approved and listed as such in DoD 5010.12-L., AMSDL. Copies of data item descriptions required by the contractors in connection with specific acquisition functions should be obtained from the Naval Publications and Forms Center or as directed by the contracting officer.)

6.2.2.1 The data requirements of 6.2.2 and any task in sections 3, 4, or 5 of this specification required to be performed to meet a data requirement may be waived by the contracting/acquisition activity upon certification by the offeror that identical data were submitted by the offeror and accepted by the Government under a previous contract for identical item acquired to this specification. This does not apply to specific data which may be required for each contract regardless of whether an identical item has been supplied previously (for example, test reports).

6.3 Whiting should be purchased by net weight.

6.4 Material safety data sheets. Contracting officers will identify those activities requiring copies of completed Material Safety Data Sheets (MSDS) prepared in accordance with FED-STD-313. The pertinent Government mailing addresses for submission of data are listed in FED-STD-313. In order to obtain the MSDS, federal acquisition regulation (FAR) clause 52.223-3 must be in the contract.

MIL-W-15234C(SH)

6.5 Subject term (key word) listing.

Calcium carbonate
Putty, preparation of
Sedimentation rate

6.6 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Preparing activity:
Navy - SH
(Project 8010-N315)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER

MIL-W-15234

2. DOCUMENT TITLE

WHITING

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION (Mark one)

☐

VENDOR

☐

USER

☐

MANUFACTURER

☐

OTHER (Specify): _____

b. ADDRESS (Street, City, State, ZIP Code)

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

c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional

8. DATE OF SUBMISSION (YYMMDD)

(TO DETACH THIS FORM, CUT ALONG THIS LINE.)

INSTRUCTIONS: In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

(Fold along this line)

(Fold along this line)

DEPARTMENT OF THE NAVY

COMMANDER
NAVAL SEA SYSTEMS COMMAND (SEA 5523)
DEPARTMENT OF THE NAVY
WASHINGTON, DC 20362-5101

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 12503 WASHINGTON D. C.

POSTAGE WILL BE PAID BY THE DEPARTMENT OF THE NAVY

COMMANDER
NAVAL SEA SYSTEMS COMMAND (SEA 5523)
DEPARTMENT OF THE NAVY
WASHINGTON, DC 20362-5101

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES