

INCH-POUND

MIL-P-82797(OS)
29 December 1989
SUPERSEDING
WS 22170A
9 December 1986

MILITARY SPECIFICATION

PRIMER FOR THERMAL BARRIER MATERIAL AND HIGH-TEMPERATURE SEALANTS

This specification is approved for use by 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 the requirements for one type of adhesive primer, referred to herein as the primer.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 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 listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

STANDARDS

FEDERAL

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

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commanding Officer, Naval Ordnance Station, Standardization Branch (3730), Indian Head, MD 20640-5000, 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

FSC 8040

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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MILITARY

MIL-STD-129 Marking for Shipment and Storage

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from: Military Specifications and Standards, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094).

2.1.2 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 are those cited in the solicitation.

CODE OF FEDERAL REGULATIONS (CFR)

49 CFR 100-199 Transportation

(Application for copies of CFRs should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402-0001.)

2.2 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 which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 445 Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.)

AMERICAN TRUCKING ASSOCIATION, INC.

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Association, Inc., Attn: Traffic Dept., 2200 Mill Road, Alexandria, VA 22314-4677.)

NATIONAL RAILROAD FREIGHT COMMITTEE

Uniform Freight Classification (UFC) 6000

(Application for copies should be addressed to the National Railroad Freight Committee, 222 South Riverside Plaza, Suite 1120, Chicago, IL 60606-5945.)

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(Non-Government standards and other publications are normally available from the organizations that prepare or 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 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), a sample of the primer shall be subjected to first article inspection (see 6.3) in accordance with 4.3.

3.2 Material. The primer shall be a dilute solution of moisture-reactive material in Varnish Makers and Painters (VM & P) naphtha and lesser amounts of compatible solvents.

3.3 Color. The primer shall be colorless to light straw color.

3.4 Physical properties. The physical properties of the primer shall be in accordance with table I.

TABLE I. Physical properties.

Property	Limits	
	Minimum	Maximum
Viscosity, centistokes	-	1.25
Nonvolatile content, weight percent	3.0	10.0

3.5 Shelf life. The primer specified herein shall have a shelf life of 6 months after date of shipment when stored below 32°C (90°F) in the original closed containers.

3.5.1 Shelf life extension. The shelf life expiration date on an individual lot may be extended for one additional 6-month period provided the material, upon retest, conforms to the requirements in table I.

3.6 Safety.

3.6.1 Toxic products. The material shall have no adverse effect on the health of personnel when used for its intended purpose. Questions pertinent to this effect shall be referred by the contracting activity to the appropriate

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departmental medical service who will act as an advisor to the contracting agency (see 4.1.2).

3.6.2 Material Safety Data Sheets (MSDS). The contractor shall prepare and submit an MSDS in accordance with FED-STD-313 as specified in the contract (see 6.2).

3.7 Workmanship. The primer shall be free from agglomeration, foreign matter, separation, dilution, and contamination.

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 (examinations and tests) 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 ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall 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 ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.1.2 Toxicological product formulations. The contractor shall have the toxicological product formulations and associated information available for review by the contracting activity to evaluate the safety of the material for the proposed use.

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

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

4.3 First article inspection. First article inspection shall consist of the quality conformance inspections (see 4.4). Failure to meet all of the requirements specified herein shall be cause for rejection of the first article sample.

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4.4 Quality conformance inspection. Quality conformance inspection shall consist of the tests specified in table II.

TABLE II. Quality conformance inspection.

Examinations and Tests	Requirement	Method
Visual examination	3.2, 3.3, 3.7, and Section 5	4.5.1
Viscosity	3.4	4.5.2
Nonvolatile content	3.4	4.5.3

4.4.1 Lot. A lot of primer shall consist of all material which is compounded and mixed in a single container in one mixing period without change in process or materials and offered for acceptance at one time. Lot acceptance shall be based on average test results.

4.4.2 Sampling.

4.4.2.1 For visual inspection. Sampling for visual inspection to determine conformance to section 5 shall consist of a random selection of at least 10 percent of the lot. Sampling to determine conformance to 3.7 shall be as specified in 4.4.2.2.

4.4.2.2 For tests. Sufficient material to conduct three tests for all physical properties specified in 3.4 shall be removed from each lot of primer.

4.5 Inspection methods. The following inspection methods shall be used. Unless otherwise specified in the applicable test method, all weights, volumes, temperatures, and times shall be measured to the nearest specified unit or decimal.

NOTE: Reagent grade chemicals shall be used for chemical reactions in the conduct of all tests defined herein. Solvents and indicators may be commercial nonreagent grade materials.

4.5.1 Visual examination. Visual examination shall be made to verify conformance to the requirements of 3.2, 3.3, 3.7, and section 5.

4.5.2 Viscosity. The viscosity of the primer shall be determined in accordance with ASTM D 445 and the following:

- a. Ensure that the temperature of the primer is $25 \pm 1^{\circ}\text{C}$ ($77 \pm 2^{\circ}\text{F}$).

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- b. Record individual and average values to the nearest 0.1 centistokes.

4.5.3 Nonvolatile content. Five to ten grams of the primer shall be transferred as rapidly as possible to a cup 3.0 ± 0.6 inches in diameter and 0.75 ± 0.15 inch in depth. A fitted cover shall immediately be placed over the cup and the weight accurately determined. The weight of the empty cup and the cover shall be determined prior to testing and subtracted from the total weight to calculate the initial sample weight. The cover shall then be removed and the primer heated for a minimum of 6 hours at $46 \pm 3^\circ\text{C}$ ($115 \pm 5^\circ\text{F}$). It shall then be cooled in a desiccator, the cover replaced, and weighed within 0.01g accuracy. The final weight less the tare weight is the final sample weight. The percent of nonvolatiles shall be calculated as follows:

$$\text{Percent of nonvolatiles} = \frac{\text{Final sample weight}}{\text{Initial sample wt.}} \times 100$$

4.6 Inspection of packaging. The primer containers and container markings shall be visually examined to verify compliance with Section 5.

5. PACKAGING

5.1 Packaging. Unless otherwise specified in the contract or order (see 6.2), packaging shall be level C as specified herein.

5.1.1 Level C. The primer shall be packaged to afford adequate protection against loss, contamination, deterioration, and damage during shipment from the supply source to the first receiving activity and during storage under the shelf life period and conditions specified in 3.5. Containers in the same shipment shall be of the same size. The packaging shall conform to UFC 6000, National Motor Freight Classification, 49 CFR 171-178, or to other carrier rules and regulations as applicable to the mode of transportation.

5.2 Marking.

5.2.1 Standard marking. In addition to any special marking required by the contract or order (see 6.2), interior and exterior containers shall be marked in accordance with MIL-STD-129.

5.2.2 Special marking. In addition to the marking requirements of 5.2.1, each container marking shall include the following:

- a. Title, number, and date of this specification.
- b. Manufacturer's name and address.
- c. Net weight of contents.
- d. Shelf life and inspection/test date for extension (see 3.5.1).
In addition, the marking shall include the following:

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"SHELF LIFE EXTENSION

THE SHELF LIFE OF AN INDIVIDUAL LOT MAY BE EXTENDED FOR ONE ADDITIONAL 6-MONTH PERIOD PROVIDED THE PRIMER, UPON RETEST, CONFORMS TO THE VISCOSITY AND NONVOLATILE CONTENT REQUIREMENTS OF MIL-P-82797."

- e. Storage conditions.
- f. Toxicity warning (if applicable).

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 primer is intended for general use in structural bonding of the Mk 104 Standard Missile Dual Thrust Rocket Motor components.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number and date of this specification.
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.1.2).
- c. Whether first article inspection is required (see 3.1 and 6.3).
- d. Material Safety Data Sheets required (see 3.6.1 and 6.5).
- e. Special marking, if other than as specified in 5.2.2.
- f. Safety precautions required (see 6.6).

6.3 First article. When first article inspection is required, the contracting officer should provide specific guidance to offerors whether the item(s) should be a preproduction sample, a first article sample, a first production item, a sample selected from the first production items, or a standard production item from the contractor's current inventory (see 3.1), and the number of items to be tested as specified in 4.3. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first articles. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid

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that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.4 Possible material. The following material has been found to meet the requirements of this specification. This is given only for information and is not restrictive. DC 1204 primer manufactured by Dow Corning U.S.A., Midland, Michigan 48640-0997, has been found to meet the requirements of this specification.

6.5 Material Safety Data Sheets.. MSDS requirements are applicable to this specification and should be specified in the contract as required by the Federal Acquisition Regulation (FAR) Part 23, subpart 23.3. 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.

6.6 Safety precautions. The safety precaution requirements of the "Contractor's Safety Manual for Ammunition, Explosives, and Related Dangerous Material" (DOD 4145.26M) are applicable and should be specified in the contract as required by the DOD FAR Supplement 28.7102.

NOTE: When this specification is used as part of the description of work to be accomplished by a Government activity, the safety precaution requirements of "Ammunition and Explosives Ashore" (OP5) should be made applicable.

6.7 Subject term (key word) listing.

Rocket Motor, Dual Thrust, Mk 104
Standard Missile

Preparing Activity:
NAVY-OS
(Project 8040-N146)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of 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.

I RECOMMEND A CHANGE:		1. DOCUMENT NUMBER MIL-P-82797	2. DOCUMENT DATE (YYMMDD) 29 December 1989
3. DOCUMENT TITLE PRIMER FOR THERMAL BARRIER MATERIAL AND HIGH TEMPERATURE SEALANTS			
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)			
5. REASON FOR RECOMMENDATION			
6. SUBMITTER			
a. NAME (Last, First, Middle Initial)		b. ORGANIZATION	
c. ADDRESS (Include Zip Code)		d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY NAVAL ORDNANCE STATION (CODE 3730) INDIAN HEAD, MD 20640-5000			
a. NAME		b. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON	
c. ADDRESS (Include Zip Code)		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289 2340	

