

TT-S-1732
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SUPERSEDING
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MIL-A-12352A(CE)
May 27, 1958

FEDERAL SPECIFICATION

SEALING COMPOUND; PIPE JOINT AND THREAD,

LEAD FREE GENERAL PURPOSE

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE

1.1 Scope. This specification covers a lead free, antiseize sealing compound for use in joints and threaded parts on low-pressure steam and water lines.

2. APPLICABLE DOCUMENTS

2.1 The following specifications and standards of the issue in effect on date of invitation for bids or request for proposal form a part of this specification to the extent specified herein:

Federal Specifications

PPP-B-601	- Boxes, Wood, Cleated-Plywood.
PPP-B-636	- Box, Fiberboard.
PPP-B-640	- Boxes, Fiberboard, Corrugated, Triple-Wall.
PPP-C-96	- Cans, Metal, 28 Gage and Lighter.

(Activities outside the Federal Government may obtain copies of Federal Specifications and Standards as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.)

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes

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are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, D. C., Atlanta, Chicago, Kansas City, Mo., Ft. Worth, Denver, San Francisco, and Auburn, Wash.)

(Federal Government activities may obtain copies of Federal Specifications and Standards and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Standards

MIL-STD-105

- Sampling Procedures and Tables for Inspection by Attributes.

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

3. REQUIREMENTS

3.1 Description. The pipe joint and thread compound shall be a lead free, nonhardening lubricant, noncorrosive to ferrous metals and suitable for use on pipelines carrying water and steam. The compound shall be furnished ready for use without thinning. When tested as specified in 4.4, the compound shall prevent galling, leaks, and seizing of threaded parts in water and steam lines.

3.2 Materials. Materials and processes for compounding shall be selected by the supplier and shall be subject to all provisions of this specification. The sealing compound shall contain no shellac, glycerol, lead or lead compounds. Selected materials shall not cause deleterious or injurious effects upon the health of those consuming potable water flowing through the pipes to which this compound has been applied.

3.3 Service properties. The material shall be capable of being applied by paddle at temperatures ranging from minus 10° F. to plus 140° F. When tested as specified in 4.4, it shall form a flexible, nonshrinking bond that will inhibit rust and corrosion and will not gall, seize, or block the threads.

3.3.1 Heat and water resistance. When tested as specified in 4.4.1, the coating shall remain essentially in its original condition and shall not be removed by boiling water.

3.3.2 Leak resistance. When tested as specified in 4.4.2, no leakage shall occur at the joint.

3.3.3 Cold and hot application properties. When tested as specified in 4.4.3, the compound shall be easily applied at minus 10° F. and plus 140° F., and no leakage shall occur at the joint.

3.4 Workmanship. The sealing compound shall be a smooth homogeneous mixture, free from lumps, cakes, skins and abrasives.

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 as specified herein. Except as otherwise specified in the contract or 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 this specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Classification of inspection. Inspection shall be classified as follows:

- (a) Quality conformance inspection (see 4.3).
- (b) Inspection of preparation for delivery (see 4.5).

4.3 Quality conformance inspection.

4.3.1 Batch. A batch shall consist of a quantity of compound produced in one operation prior to packaging.

4.3.1.1 Sampling. Two 1-pint samples of compound shall be selected at random from each batch for testing as specified in 4.4. Failure of any test by either sample shall be cause for rejection of the batch from which the samples were taken.

4.4 Test procedure.

4.4.1 Heat and solubility test. A thin layer or coating of the compound shall be applied to the surface of a 6-inch by 1-inch by 1/16-inch black iron strip. The coated strip shall then be placed horizontally in an electrically heated oven and subjected to a temperature of 150° F. for 1 hour.

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The temperature shall then be raised to 350° F. for 6 hours, after which the strip shall be allowed to cool below 200° F., then immersed in boiling distilled water for 36 hours. Nonconformance to 3.3.1 shall constitute failure of this test.

4.4.2 Threaded joint test. Three short lengths of standard weight 4-inch pipe shall be jointed with standard couplings to a tight fit of 500 foot-pounds torque. The test section shall then be filled with tap water at room temperature and pressurized to 150 psig for 30 plus or minus 5 minutes and checked for leakage. If no leakage occurs, the pipe threads shall be backed off until leakage is just evident. The pipe shall then be removed with extreme care so as to prevent any thread damage, the threads coated with the compound in accordance with the manufacturer's instructions, and the pipe rejoined and tightened to the foot-pounds torque at which leakage occurred. The assembled coated joints shall be subjected to saturated steam internally at 80 psig for 24 hours. The joints shall then be subjected to steam at a pressure of 150 psig and a temperature of 365° F. for 4 hours. At the end of this period, the steam is turned off and the system is subjected to boiler water at 150 psig and a temperature of 200° F. for a period of two hours. Nonconformance to 3.3.2 shall constitute failure of this test.

4.4.3 Cold and hot tests. The compound and three short sections of standard weight 4-inch pipe with couplings shall be conditioned at minus 10° F. for 4 hours. While at this temperature, the compound shall be applied to the threads and the joints made up tightly to the torque at which leakage occurred in 4.4.2. Repeat the above procedure using another sample of the compound and 4-inch pipe with couplings conditioned at 140° F. The joints shall then be tested as specified in 4.4.2. Nonconformance to 3.3.3 shall constitute failure of this test.

4.5 Inspection of preparation for delivery.

4.5.1 Quality conformance inspection of pack.

4.5.1.1 Unit of product. For the purpose of inspection, a completed pack prepared for shipment shall be considered a unit of product.

4.5.1.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.5.2 Examination. Samples selected in accordance with 4.5.1.2 shall be examined for the following defects. AQL shall be 2.5 defects per 100 units.

- 101. Materials not as specified for unit package.
- 102. Cans not coated per Plan B, PPP-C-96, for level A.
- 103. Cans not coated per Plan A, PPP-C-96, for level C.
- 104. Containers not waterproof sealed with tape for level of packaging.
- 105. Weight limitation of any specified container exceeded.
- 106. Strapping not zinc coated for level A packing.
- 107. Tape banding not as specified for level B.
- 108. Packages not overpacked for level B when specified.
- 109. Packages not as specified for level B civil procurement.
- 110. Marking illegible, incorrect, or missing.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A or C as specified (see 6.2).

5.1.1 Level A. The compound shall be furnished in the quantities as specified (see 6.2) in 1/2-pint, pint, and quart round cans conforming to the requirements of PPP-C-96, type V, class 2. The cans shall have a Plan B exterior coating. The filled 1/2-pint and pint cans shall be packaged to conform to the level A packing requirements of PPP-C-96. Quart cans shall be packaged, 12 each, (4x3) in containers conforming to PPP-B-636, W5c. Containers shall be closed and waterproof sealed with tape in conformance to specification requirements.

5.1.2 Level C. The compound shall be furnished in the quantities and cans as specified in 5.1.1, except that Plan A coating shall be used. Containers need not be weather resistant and waterproof sealing shall not be required.

5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2).

5.2.1 Level A. The compound, packaged as specified in 5.1, shall be packed in boxes conforming to PPP-B-601, overseas type, style I in quantities up to the weight limitation of the container. Strapping shall be zinc coated.

5.2.2 Level B. The compound, packaged as specified in 5.1.1 shall require no additional packing except that boxes shall be reinforced with tape banding as specified in PPP-B-636. Compound, packaged as specified in 5.1.2, and when specified (see 6.2) compound, packaged as specified in 5.1.1, shall be overpacked in a box conforming to PPP-B-601, domestic type, style optional, or PPP-B-640, class 2, style optional up to the weight limitation of the container. Strapping need not be zinc coated. When specified for civil agency procurement (see 6.2), compound supplied in cans and packaged as specified in 5.1.2 shall be packed in a fiberboard box and in quantities as specified in the appendix to PPP-C-96 for level B requirements. The boxes shall be closed in accordance with method II of the appendix to PPP-B-636.

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5.2.3 Level C. The compound, packaged as specified in 5.1, shall be packed in accordance with level C requirement of PPP-C-96.

5.3 Marking.

5.3.1 Civil agencies. In addition to any special marking required in the contract or purchase order, all interior packages and shipping containers shall be marked in accordance with PPP-C-96.

5.3.2 Military agencies. Marking of interior packages and shipping containers shall be in accordance with PPP-C-96.

6. NOTES

6.1 Intended use. The compound is intended as a general purpose thread, joint, and antiseize compound for threaded fittings for steam and water at pressures up to 150 pounds per square inch and temperatures up to 350° F. This material may also be used on flared or cone-type fittings in gaseous systems above 150 psi when such a requirement exists and there is compatibility between the system media and the compound.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Quantities of product required (see 5.1.1).
- (c) Level of packaging and packing required (see 5.1 and 5.2).
- (d) When overpacking shall be used for level B (see 5.2.2).
- (e) When special containers are specified for civil procurement (see 5.2.2).

6.3 Certification. The contracting officer should require the supplier to certify that all containers were filled from accepted batches of compound (see 4.3.1.1).

MILITARY CUSTODIANS:

Army - ME
Air Force - 84

Preparing activity:

Army - MF

CIVIL AGENCIES INTEREST:

GSA - FSS
HEW
VA

Review activities:

Army - MR, MD

User activity:

Army - CE

Orders for this publication are to be placed with the General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein. Price 10 cents each.

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