MIL-S-45180D
4 June 1984
SUPERSEDING
MIL-S-45180C
31 May 1974

MILITARY SPECIFICATION

SEALING COMPOUND, GASKET, HYDROCARBON FLUID AND WATER RESISTANT

This specification is approved for use by the Army Materials and Mechanics Research Center, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers requirements for thread and gasket sealing compounds that are resistant to fuel, engine oils, and water.

1.2 Classification. This specification covers three types of sealing compounds:

Type I - Hardening
Type II - Nonhardening
Type III - Nonhardening (low viscosity)

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. Unless otherwise specified, the following specifications, standards, and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Director, US Army Materials and Mechanics Research Center, ATTN: DRXMR-SMS, Watertown, MA 02172 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

/ FSC 8030 /

SPECIFICATIONS

FEDERAL

O-A-548 - Antifreeze/Coolant, Engine, Ethylene Glycol, Inhibited, Concentrated
QQ-A-250/4 - Aluminum Alloy 2024, Plate and Sheet
QQ-B-613 - Brass, Leaded and Nonleaded, Flat Products (Plate, Bar, Sheet and Strip)
QQ-C-576 - Copper Flat Products with Slit, Slit and Edge-rolled, Sheared, Sawed or Machined Edges (Plate, Bar, Sheet and Strip)
QQ-T-425 - Tinplate (Electrolytic)
TT-S-735 - Standard Test Fluids, Hydrocarbon
WW-T-700/1 - Tube, Aluminum, Drawn, Seamless, 1100
PPP-C-96 - Can, Metal, 28 Gage and Lighter
PPP-T-1637 - Tube, Shipping, Collapsible

STANDARDS

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129 - Marking for Shipment and Storage
MIL-STD-1188 - Commercial Packaging of Supplies and Equipment

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein.

DEPARTMENT OF TRANSPORTATION

ICC ATA 111-D - Department of Transportation Regulations - Transportation of Hazardous Materials

(Application for copies should be addressed to the ATA Traffic Department, 1616 P Street, N. W., Washington, DC 20036.)

DRAWINGS

AIR FORCE - NAVY AERONAUTICAL STANDARDS

AN 817 - Nut, Tube Coupling, long

(Copies of specifications, standards, handbooks, drawings, and publications required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 Other publications. The following document(s) form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 48 - Gray Iron Castings
ASTM A 109 - Steel, Carbon, Cold-Rolled Strip
ASTM D 56 - Flash Point by Tag Closed Tester
ASTM D 471 - Rubber Property - Effect of Liquids
ASTM D 1084 - Viscosity of Adhesives
ASTM D 2556 - Apparent Viscosity of Adhesives Having Shear-Rate-Dependent Flow Properties

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

(Industry association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies).

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 Solubility. The solubility of the sealing compound shall be as specified in table I when tested in accordance with 4.6.2. The aromatic fluid and ethylene glycol shall conform to the specifications in table I. The solubility of type III material in water shall be tested in accordance with 4.6.8.

TABLE I. Solubility.

Fluid	Type I % Max.	Type II % Max.	Type III % Max.
Aromatic fluid, TT-S-735, type II	12	10	15
Aromatic fluid, TT-S-735, type III	8	9	12
Ethylene glycol, O-A-548	8	5	13
Distilled water	4	6	2
ASTM D471 Oil No. 1	8	10	4
ASTM D471 Oil No. 2	8	10	4
ASTM D471 Oil No. 3	8	10	4

3.2 Torque release. The torque release shall not be more than the following applicable maximum percent increase when tested in accordance with 4.6.3:

Type I - 100 percent
Type II - 70 percent
Type III - 40 percent

3.3 Volatile content. The volatile content shall be as follows when tested in accordance with 4.6.4:

Type I - 15.0 ± 3 percent
Type II - 13.0 ± 2 percent
Type III - 24.0 ± 3 percent

3.4 Flow test (vertical). Flow shall not be more than 1/4 inch (6.3 mm) when tested in accordance with 4.6.5.

3.5 Viscosity. The viscosity of the sealing compound shall be as specified in table II when tested in accordance with 4.6.6.

TABLE II. Viscosity.

Type I	Type II	Type III
4,000-20,000 poises	4,000-20,000 poises	30-680 poises (3,000-68,000 centipoises)

3.6 Ash content. The ash content of the sealing compound shall be as follows when tested in accordance with 4.6.7:

Type I - 48 ± 5 percent
Type II - 48 ± 5 percent
Type III - 15 ± 3 percent

3.7 Water-soluble material (type III only). The nonvolatile portion of the compound shall not be more than 2 percent soluble in water when tested in accordance with 4.6.8.

3.8 Corrosion. The following metals (of the specification as shown in table III) after 5 day treatment (immersion) with the compound as specified in 4.6.9, shall not exceed the maximum change in weight (loss or gain) as listed in table III.

TABLE III. Corrosion loss or gain in weight.

Maximum loss or gain in milligrams per square centimeter (mg/cm^2)			
Test strip specification	Type I	Type II	Type III
Tinned Iron	0.7	0.7	0.7
Steel	0.7	0.7	0.7
Aluminum Alloy	0.1	0.1	0.1
Cast Iron	1.2	1.0	1.2
Brass	0.3	0.3	0.3
Copper	0.2	0.2	0.2

3.9 Flash point. The flash point of the sealing compound shall not be less than 10°C(50°F) when tested in accordance with 4.6.10.

3.10 Flexibility (types II and III only). The flexibility of the sealing compound shall be as follows when tested in accordance with 4.6.11:

Type II sealing compound shall not crack when flexed at -34 ± 1°C (-30 ± 2°F).

Type III sealing compound shall not crack when flexed at -34 ± 1°C (-30 ± 2°F).

3.11 Consistency. Types I and II sealing compound shall be of such consistency that it may be applied with a spatula or stiff brush (see 4.5.1). Type III sealing compound shall be of such consistency that it may be applied with an ordinary paint brush.

3.12 Toxicity. The gasket sealing compound shall have no adverse effect on the health of personnel (see 6.3).

3.13 Workmanship. The compound shall be a smooth and homogenous mixture, free from lumps, caked material, and particles of foreign matter.

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.

4.2 Classification of inspections. All inspection shall be to determine compliance with the requirements of this specification to serve as a basis for acceptance.

4.3 Lot. A lot shall consist of sealing compound from the same manufacturer's batch. A batch is defined as that quantity of material which has been subject to some unit chemical or physical mixing process intended to make the final product substantially uniform.

4.4 Sampling.

4.4.1 Examination. Unless otherwise specified, a random sample of filled containers shall be selected in accordance with level S-1 of MIL-STD-105.

4.4.2 Tests. A sample consisting of one gallon of sealing compound shall be taken from each lot for tests.

4.5 Examination.

4.5.1 Visual. Sample units selected in accordance with 4.4.1 shall be examined for the defects and at the acceptable quality level shown is table IV.

TABLE IV. Methods of examination.

Material	AQL percent	Classification of defect	Defect	Method of inspection
		Critical	None defined	
Sealing compound (see 3.13)	2.5	Major 101	Not homogeneous	Visual
		Major 102	Lumps or caked material	Visual
		Major 103	Foreign matter	Visual
(see 3.11)		Major 104	Wrong consistency 1/	Visual
Container, open (see 5.1.1)	2.5	Major 105	Improper type	Visual
		Major 106	Improper fill 2/	Approved scale 3/
Container, closed (see 5.1.1)	2.5	Major 107	Leakage	Visual
		Major 108	Improper closure	Visual
Container, closed (see 5.1.1.1.3)	2.5	Major 109	Missing brushes (if applicable)	Visual

1/ The sealing compound and surroundings shall be at room temperature (70° to 90°F).

2/ The actual weight of a container filled with the minimum required quantity of sealing compound shall be the basis for determining the acceptable weight of subsequent containers.

3/ Approved by procuring activity.

4.5.2 Packaging, packing and marking for shipment. Examination shall be made for the defects and at the acceptable quality level (AQL) as shown in table IV to determine compliance with Section 5.

4.6 Tests.

4.6.1 Test specimens. Unless otherwise specified, the sealing compound shall be tested without treatment or preconditioning of any kind and tests shall be conducted at a temperature of 24° ± 2°C (75°C ± 5°F) and a relative humidity of 50 ± 5 percent.

4.6.2 Solubility. Each of the fluids in table V shall be used separately as the immersion medium at the indicated temperatures.

TABLE V. Immersion media and temperatures.

Immersion media	Temperature		
	Type I	Type II	Type III
Aromatic fluid, TT-S-735, type II	23 ± 2°C (74 ± 5°F)	23 ± 2°C (74 ± 5°F)	23 ± 2°C (74 ± 5°F)
Aromatic fluid, TT-S-735, type III	23 ± 2°C (74 ± 5°F)	23 ± 2°C (74 ± 5°F)	23 ± 2°C (74 ± 5°F)
Ethylene glycol O-A-548	70 ± 2°C (158 ± 2°F)	70 ± 2°C (158 ± 2°F)	70 ± 2°C (158 ± 2°F)
Distilled water	93 ± 2°C (200 ± 5°F)	93 ± 2°C (200 ± 5°F)	----- -----
ASTM Oil No. 1	70 ± 2°C (158 ± 2°F)	70 ± 2°C (158 ± 2°F)	70 ± 2°C (158 ± 2°F)
ASTM Oil No. 2	70 ± 2°C (158 ± 2°F)	70 ± 2°C (158 ± 2°F)	70 ± 2°C (158 ± 2°F)
ASTM Oil No. 3	70 ± 2°C (158 ± 2°F)	70 ± 2°C (158 ± 2°F)	70 ± 2°C (158 ± 2°F)

4.6.2.1 Test panels. Three recessed aluminum panels, conforming to the design and measurement of figure 1, shall be used to test the solubility of each type of sealing compound in each immersion medium. The test panels shall be degreased with a suitable degreasing solvent. Care shall be exercised to avoid skin contact, inhalation, and ingestion of vapors. The panels shall then be placed in an oven at 70 ± 1°C (158 ± 2°F) for 1 h, cooled in a desiccator for 1 h, and then weighed to the nearest 1 mg.

4.6.2.2 Procedure. The test panels (see 4.6.2.1) shall be filled to the rim of recess with the sealing compound and dried in a circulating air oven for 48 h at 70 ± 2°C (158 ± 2°F). After removal from the oven and cooling to room temperature in a desiccator, the specimens shall be weighed to the nearest 1 mg and then immersed for 24 h in 250 ml of the respective fluids. For the aromatic fluids the panels shall be placed horizontally in the containers to prevent flow of the compounds. For the boiling water container a reflux con- denser is necessary to prevent loss of water. All immersion containers shall be covered to prevent loss of immersion fluid by evaporation. After ethylene glycol immersion, excess glycol shall be removed by immersing the specimen in water at 23 ± 2°C (74 ± 5°F) for 15 min. After immersion, all specimens shall be dried in a circulating air oven at 70 ± 1°C (158 ± 2°F) for 24 h. After removal from the oven, the specimens shall be cooled to room temperature in a desiccator for 1 h before weighing. Test panels shall be reweighed and percent change in weight shall be calculated as follows:

$$\% \text{ change in weight} = \frac{W1 - W2}{W_1 - W_p} \times 100$$

Where:

W_1 = weight of the panel plus sealing compound before immersion.

W_2 = weight of the dried panel plus sealing compound after immersion.

W_p = weight of panel.

4.6.2.3 Report. Results shall be reported as the average of 3 calculations of percent change in weight for each type of sealing compound and immersion medium.

4.6.3 Torque release (test fittings). Three hydraulic fitting assemblies comprised of a union, and an AN-817 nut, and a section 1/2-in flared aluminum tubing conforming to WW-T-700/1 shall be utilized for this test. The sealing compound shall be brushed on the threads of the clean union to fill the threads approximately level, and then assembled with nut and tubing. After assembly has been completed, excess compound which has extruded shall be wiped from the flange. The assembly shall be tightened to 200 in-lbs. torque and placed in a circulating air oven for 7 days at 70° ± 1°C (158 ± 2°F). After removal from the oven, excess compound on the outer edge of the joint shall be removed by scraping and the assembly shall be placed in a desiccator at room tem- perature for 24 h. Torque required to break the seal shall then be determined with the same wrench used for the assembling of the fittings. Results shall be reported as the average of the three readings.

4.6.4 Volatile content. Approximately 5 g of the compound shall be placed in an accurately weighed flat-bottom, metal dish having a diameter of about 6 cm and depth of about 2 cm. The dish with the compound shall be weighed and then placed in a circulating air oven at 70° ± 1°C (158 ± 2°F) for 48 h. After removal from the oven, the dish shall be cooled to room temperature in a desiccator for 1 h and then reweighed. Percent of volatile content shall be calculated as follows:

$$\text{Volatile content, percent} = \frac{W_1 - W_2}{W_1 - W_d} \times 100$$

Where:

W_1 = weight of dish and sample before drying.

W_2 = weight of dish and sample after drying.

W_d = weight of empty dish.

4.6.5 Flow test (vertical).

4.6.5.1 Types I and II. Three aluminum alloy panels conforming to QQ-A-250/4 approximately 1 in by 6 in (25 mm by 150 mm) shall be coated over a 1 in by 2 in (25 mm by 50 mm) section with 1/8-in coating of sealing compound. A scribe line shall be made on the uncoated surface of the metal 1/4 in (6mm) below the compound. Immediately after coating, the panels shall be placed in the vertical positions with the scribe line at the bottom and allowed to stand in this position for 1 h at 70° ± 1°C (158 ± 2°F) to determine the flow of the com- pound in reference to the scribe line. Results shall be reported as the average flow of the three readings.

4.6.5.2 Type III. Three aluminum alloy panels conforming to QQ-A-250/4 approximately 1 in by 6 in (25 mm by 150 mm) shall be coated over a 1 in by 2 in (25 mm by 50 mm) section with 1/32-in coating of sealing compound. A scribe line shall be made on the uncoated surface of the metal 1/4-in below the compound. Immediately after coating, the panels shall be placed in the vertical positions with the scribe line at the bottom and allowed to stand in this position for 1 h at 24° ± 2°C (75 ± 5°F) to determine the flow of the compound in reference to the scribe line. Results shall be reported as the average flow of the three readings.

4.6.6 Viscosity. The viscosity of sealing compound shall be determined in accordance with ASTM D 2556 for non-Newtonian materials (i.e. shear-rate-dependent materials). The viscosity of sealing compound shall be determined in accordance with ASTM D 1084 (Procedure B) for materials that have Newtonian flow characteristics (i.e. viscosity independent of shear stress or shear rate).

4.6.7 Ash content. Weigh about 2 g of the sealing compound in a previously weighed porcelain crucible. Heat the crucible and contents to approximately 925°C (1700°F) in an electric muffle furnace, or if not available, a gas burner yielding a similar temperature, is also suitable. Cool in a dessicator for 1 h and reweigh. Reheat to approximately 925°C (1700°F) and cool in a desiccator until a constant weight is obtained. Calculate the percent of ash as follows:

$$\frac{(A - B)}{(C - B)} \times 100 = \text{percent ash}$$

Where:

A = weight of residue and crucible.
B = weight of crucible.
C = weight of sample and crucible.

4.6.8 Water-soluble material (type III only). The determination of water-soluble material in type III sealing compound shall be as follows:

Place 10 g of sealing compound in a 400 ml beaker and add 100 ml of distilled water. Boil the mixture for 10 min and filter while hot through No. 40 Whatman or equivalent filter paper into a previously weighed porcelain evaporation dish (W_o). Evaporate the filtrate to dryness at a temperature just below the boiling point of water (100°C) (212°F). Heat the dish and contents in an air circulating oven at 100 ± 2°C (212 ± 3°F) for 1 h, cool in a desiccator to room temperature, weigh (W_f). Calculate the percent of water-soluble material as follows:

Eq. 1 $$\text{\% water-soluble material} = \frac{W_n}{W_s - W_v} \times 100$$

Where:

W_n = weight of nonvolatile component which is water-soluble.

W_s = weight of sealing compound (original sample).

W_v = weight of volatile component (see 4.6.4).

($W_s - W_v$) is the total weight of the nonvolatile component in the sealing compound.

Eq. 2 $$W_n = W_f - W_o$$

Where:

W_o = weight of dish (original).

W_f = weight of dish containing residue after heating.

Eq. 3 $$W_v = x\ W_s$$

Where:

x = % volatile content

4.6.9 Corrosion. Test strips for the corrosion test shall conform to the following specifications as specified by the contracting officer.

(1)	Tinned Iron	QQ-T-425
(2)	Steel	ASTM A 109
(3)	Aluminum Alloy	QQ-A-250/4
(4)	Cast Iron	ASTM A 48
(5)	Brass	QQ-B-613
(6)	Copper	QQ-C-576

The test strips shall have dimensions of 8.8 cm x 1.2 cm x 0.3 cm and a surface area of approximately 22 cm^2. The strips (with the exception of tinned iron) shall be polished to remove pit burrs and irregularities from the faces and edges and finished with a 240 grit polishing medium. The tinned iron shall be free from pit burrs and irregularities and shall be polished with a clean cloth. All specimens shall be held in a suitable holder to avoid contact with the hands. After polishing, the specimens shall be cleaned by swabbing in hot naptha and a final rinse in warm methanol. Follow this by drying in an air circulated oven at 66°C (150°F) for 2 h. After drying, weigh the strips to the nearest 0.1 mg. The weighed strips shall be arranged in the order of metals as above. The strips shall be joined in a metal-to-metal contact by fastening with a steel bolt that passes through holes drilled near one end of each strip. The strips are so bent, that except for one small terminal area near the bolt, the strips are not in contact one with another. The strips shall then be immersed into the sealing compound for a period of 120 h (5 days) at 66°C (150°). At the end of the test period, remove the strips and wash thoroughly with isopropyl alcohol and follow with an acetone rinse. A soft hair brush may be used in this process. The cleaned strips shall be oven dried thoroughly at 66°C (150°), cooled to room temperature in a dessicator, and weighed to the nearest 0.1 mg. Any changes in weight shall be attributed to corrosion.

4.6.10 Flash point. The flash point of the sealing compound shall be determined in accordance with ASTM D 56.

4.6.11 Flexibility (types II and III only). Prepare two smooth brass panels conforming to QQ-B-613, 6 in x 2.5 in x 0.025 in (152 mm x 53 mm x 0.6 mm) and clean with acetone. Apply a 0.002 in (0.05 mm) thick coat of sealing compound across one surface of each panel, using a doctor blade. Allow to air dry 6 days at room temperature, then 2 h at 70 ± 1°C (158 ± 2°F). Prepare two panels for each material being tested. Panels coated with type II sealing compound shall be cooled at -34 ± 1°C (-30 ± 2°F) for 4 h prior to test. Panels coated with type III sealing compound shall be cooled at -34 ± 1°C (-30 ± 2°F) for 16 h prior to test. While still at the test temperature and with the coated side outward, rapidly bend the test specimens through an angle of 180 degrees over a mandrel of 1/8-in (3.1 mm) diameter.

4.7 Rejection.

4.7.1 Examination. Any nonconforming sample units shall be rejected and if the number of rejected units is greater than the acceptance number for the sample size, the lot shall be rejected.

4.7.2 Tests. A lot shall be rejected for failure to comply with the test requirements when tested in accordance with 4.6.

4.8 Retest.

4.8.1 Examination. Retests shall be permitted in accordance with MIL-STD-105.

5. PACKAGING

5.1 Preservation. Preservation shall be level A, C or commerical as specified (see 6.2).

5.1.1 Level A.

5.1.1.1 Nonflammable liquid.

5.1.1.1.1 Unless otherwise specified, type I and II compounds shall be unit packed in collapsible tubes of approximately 1 oz, 2-1/4 oz, or 8 oz capacity and shall conform to PPP-T-1637 of the type and class normally used for unit packing this type of product.

5.1.1.1.2 Alternatively, type I and II compounds may be unit packed in 1 pint, 1 quart, or 1 gallon metal cans conforming to PPP-C-96 of type normally used in unit packing this type compound.

5.1.1.1.3 Type III compound shall be unit packed in 1/4 pint, 1 pint or 1 gallon metal cans conforming to PPP-C-96 of type normally used to unit pack this type of compound. One-quarter pint and 1 pint containers shall be fitted with a brush applicator.

5.1.1.1.4 Closure of specified containers shall be in accordance with container specifications and appendices thereto as applicable.

5.1.1.2 Flammable liquids. When the flash point of the sealing compound is such that it meets the Department of Transportation definition of flammable liquid, the compound shall be unit packed in accordance with the applicable requirements of ATA Hazardous Materials Tariff 111-D.

5.1.2 Level C.

5.1.2.1 Nonflammable liquids. The sealing compound shall be preserved to afford adequate protection against corrosion, deterioration and damage during shipment from the supply source to the first receiving activity for immediate use or for controlled humidity storage.

5.1.2.2 Flammable liquids. See 5.1.1.2.

5.1.3 Commercial. When specified, commercial preservation shall be in accordance with MIL-STD-1188 for nonhazardous material.

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

5.2.1 Level A.

5.2.1.1 Nonflammable liquids. Compound unit packed in collapsible tubes or metal cans as specified in 5.1.1.1 shall be packed in accordance with PPP-T-1637 or PPP-C-96, as applicable.

5.2.1.2 Flammable liquids. Compound classified as "Flammable Liquid" in accordance with ATA Hazardous Materials Tariff 111-D (see 5.1.1.2) shall be packed in accordance with the applicable requirements therein.

5.2.2 Level C.

5.2.2.1 Nonflammable liquids. The sealing compound shall be packed to afford adequate protection against damage during shipment within the Continental United States direct from the supply source to the first receiving activity. This level as a minimum shall conform to applicable carrier rules and regulations.

5.2.2.2 Flammable liquids. See 5.2.1.2

5.2.3 Commercial. When specified, packing shall be in accordance with MIL-STD-1188 for nonhazardous material.

5.3 Marking.

5.3.1 Nonflammable liquids. Interior packages and exterior containers shall be marked in accordance with MIL-STD-129. In addition the following marking shall appear on each container:

(a) Store in a cool place
(b) Date of manufacture
(c) Manufacturer's instructions for use (to include thinning directions, if applicable)

5.3.2 Flammable liquids. When the compound is classified as a "Flammable Liquid" in accordance with ATA Hazardous Materials Tariff 111-D (see 5.1.1.2), interior packages and exterior containers shall be marked in accordance with the applicable requirements contained therein and any markings required by MIL-STD-129. In addition the following marking shall appear on each container:

(a) Store in a cool place
(b) Date of manufacture
(c) Manufacturer's instructions for use (to include thinning directions, if applicable)

5.3.3 Commercial. When specified, marking shall be in accordance with MIL-STD-1188 for nonhazardous material.

6. NOTES

6.1 Intended use. The sealing compound is intended for sealing threads and gaskets where resistance to engine oils, fuel, and water is required.

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

(a) Title, number and date of this specification.
(b) Type of sealing compound required (see 1.2).
(c) Quantity desired.
(d) Selection of applicable levels of preservation, packing and marking (see 5.1, 5.2 and 5.3).
(e) Size and type of container (see 5.1).

6.3 Toxicity. Any questions raised regarding toxicity should be referred to the Surgeon General who will act as advisor to the procuring activity.

Custodians:

Army -- MR
Navy -- SH
Air Force -- 99

Review activities:

Army -- ME
Navy -- SH
Air Force - 84

User activities:

Navy -- AS, YD

Preparing activity:

Army -- MR

Project Number 8030-0469

(WP#'s ID-2420A/DISC-0029A, FOR AMMRC USE ONLY)

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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.

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER
MIL-S-45180D

2. DOCUMENT TITLE

3a. NAME OF SUBMITTING ORGANIZATION

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

4. TYPE OF ORGANIZATION *(Mark one)*

- ☐ VENDOR
- ☐ USER
- ☐ MANUFACTURER
- ☐ OTHER *(Specify)*: _____

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)*

DD FORM 82 MAR 1426

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