INCH-POUND
MIL-DTL-21567B (OS)
26 August 2009
SUPERSEDING
MIL-C-21567A (OS)
26 October 1973

DETAIL SPECIFICATION
COMPOUND, SILICONE, SOFT FILM

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 one grade of silicone compound with a corrosion inhibitor for application to unpainted threaded or nonthreaded mating surfaces of ferrous components between -65 degrees Fahrenheit (ºF) (-53.89 degrees Celsius (°C)) and 160 ºF (71.1 °C). It is also appropriate for use as a lubricant for components fabricated from rubber (see 6.1).

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 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 cited in the solicitation or contract.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-1916	DOD Preferred Methods for Acceptance of Product

(Copies of this document are available online at http://assist.daps.dla.mil/ or from the Standardization Documents Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

Comments, suggestions, or questions on this document should be addressed to DEPARTMENT OF THE NAVY, Indian Head Division, NSWC, Code E11G3, Document Control, 4123 Artisans Court, Suite 103, Indian Head, MD 20640-5085 OFFICIAL BUSINESS, or emailed to amanda.penn@navy.mil. Since contact information can change, you may want to verify the currency of this information using the ASSIST Online database at http://assist.daps.dla.mil.

FEDERAL SPECIFICATIONS

QQ-L-201	Lead Sheet
QQ-S-698	Steel, Sheet and Strip, Low Carbon

FEDERAL STANDARDS

FED-STD-791	Lubricants, Liquid Fuels and Related Products; Testing Method of

(Copies of these documents are available online at http://assist.daps.dla.mil/quicksearch/ or from the Standardization Documents Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 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 are those cited in the solicitation or contract.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM-B36/B36M	Standard Specification for Brass Plate, Sheet, Strip and Rolled Bar
ASTM B 69	Standard Specification for Rolled Zinc
ASTM B 117	Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM-B187/B187M	Standard Specification for Copper, Bus Bar, Rod, and Shapes and General Purpose Rod, Bar, and Shapes
ASTM B 209	Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
ASTM D 217	Standard Test Methods for Cone Penetration of Lubricating Grease
ASTM D 942	Standard Test Method for Oxidation Stability of Lubricating Greases by the Oxygen Pressure Vessel Method
ASTM D 1092	Standard Test Method for Measuring Apparent Viscosity of Lubricating Greases
ASTM D 4057	Standard Practice for Manual Sampling of Petroleum and Petroleum Products
ASTM D 6184	Standard Test Method for Oil Separation from Lubricating Grease (Conical Sieve Method)

(Copies of these documents are available online at http://www.astm.org or from the American Society for Testing and Materials Customer Service, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

IPC

IPC J-STD-006	Requirements for Electronic Grade Solder Alloys and Fluxed and Non-Fluxed Solid Solders for Electronic Soldering Applications

(Copies of this document are available from http://www.ipc.org/Default.aspx or from IPC, 3000 Lakeside Drive, Suite 309S, Bannockburn, IL 60015-1219.)

SAE INTERNATIONAL

SAE AMS 4375	Sheet and Plate, Magnesium Alloy Annealed and Recrystallized 3.0AI - 1.0Zn - 0.20Mn (AZ31B-0)
SAE AMS 5032	Wire, Steel 0.18 - 0.23C (SAE 1020) Annealed
SAE AMS 5516	Steel, Corrosion-Resistant, Sheet, Strip, and Plate 18Cr - 9.0Ni (SAE 30302) Solution Heat Treated

(Copies of these documents are available on line at http://www.sae.org or from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, 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 (see 6.3) shall be subjected to first article inspection in accordance with 4.2. A first article inspection shall be required at the discretion of the procuring activity if:

a. There has been more than 12 months since production of the latest accepted lot,
b. There has been a relocation of the production facility,
c. There has been a major change in personnel or procedures, or
d. There has been a change in the source of supplies for the materials used in the manufacture of the silicone compound.

3.2 Materials. The materials used in the manufacture of this compound shall consist of components of a grade and quality which will formulate a compound that shall conform to the requirements of this specification.

3.3 Penetration. The normal worked penetration of the compound shall be no less than 260 or more than 320 tenths of a millimeter (mm) when determined in accordance with ASTM D 217.

3.4 Oil separation and evaporation. The compound shall show no more than 4.0 percent oil separation and no more than 2.0 percent evaporation loss.

3.5 Acid number. The acid number of the compound shall be determined, and this same acid number shall be used as the reference value required in 3.7.

3.6 Oxidation stability. The oxygen pressure drop shall not exceed 5.0 pounds per square inch in 100 hours at 210 ºF (98.8 ºC) when determined in accordance with ASTM D 942.

3.7 Change in acid number. The acid number of the compound after the oxidation stability test shall not exceed the value originally obtained in 3.5 by more than 5.

3.8 Apparent viscosity. The apparent viscosity of the compound at -65 ºF (-53.89 °C) shall not exceed the maximum values shown in Table I when determined in accordance with ASTM D 1092.

Table I. Apparent viscosity.

Rate of shear (sec^{-1})	Apparent viscosity (poises)
25	2500
100	1000
500	500

3.9 Corrosive effect on metals. The compound shall produce no attack, as indicated by rusting or pitting, on aluminum alloy, copper, lead magnesium alloy, solder, steel, zinc, cadmium-plated steel, and couples of each metal with each of the others. Slight darkening, as shown by comparison with freshly polished panels of the same metals, shall be permitted.

3.10 Seawater resistance. When tested for a minimum of 48 hours, there shall be no evidence of corrosion on at least two of the three panels. Corrosion on the edges of the panels or on the surfaces within ⅛-inch from the untaped edges and 5/16-inch in from the outside edges of the edge which had been taped shall be disregarded.

3.11 Flow point. The compound shall not flow at 160 °F (71.1 °C).

3.12 Insolubility. The compound shall show not more than 1.0 percent weight loss.

3.13 Abrasive. The compound shall show no abrasion.

3.14 Waterproof seal. The test paper from three of five tests shall show no pink coloration. Change in color within ⅛-inch of edges shall be discounted.

3.15 Volume change, rubber. After complete immersion for 168 hours at 158±2 ºF (70±-16.6 ºC) in the silicone compound, the volume change of elastomeric compounds, having low or medium volume swell in petroleum hydrocarbons, shall not exceed ±7 percent when determined in accordance with FED-STD-791, Method 3603.

3.16 Workmanship and texture. The component materials shall be thoroughly mixed to form a product free from dirt, grit, water, or other contaminants.

3.17 Compatibility. The silicone compound shall be tested for compatibility with the explosives and propellants prescribed by the procuring agency (see 6.4).

4. VERIFICATION

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

a. First article inspection (see 4.2)
b. Conformance inspection (see 4.3)

4.2 First article inspection. First article inspection shall consist of the examinations and tests specified in Table II. Failure of the first article sample to comply with the requirements of this specification shall result in the withholding of first article approval.

TABLE II. Inspection requirements.

Examination or test	Requirement paragraph	Test method		Inspection applicability	
		This specification	Accommodating specification	First article	Conformance
Material	3.2	-	-	X	X
Penetration	3.3	-	ASTM D 217	X	X
Oil separation and evaporation	3.4	4.5.1	-	X	X
Acid number	3.5	4.5.2	-	X	
Oxidation stability	3.6	-	ASTM D 942	X	
Change in acid number	3.7	4.5.3	-	X	
Apparent viscosity	3.8	-	ASTM D 1092	X	
Corrosive effect on metals	3.9	4.5.4	-	X	
Seawater resistance	3.10	4.5.5	-	X	
Flow point	3.11	4.5.6	-	X	X
Insolubility	3.12	4.5.7	-	X	
Abrasive	3.13	4.5.8	-	X	X
Waterproof seal	3.14	4.5.9	-	X	
Volume change, rubber	3.15	-	FED-STD-791, 3603	X	
Workmanship and texture	3.16	4.5.10	-	X	X
Compatibility	3.17	4.5.11	-	X	
Preparation for delivery	Section 5 and 6.5	4.5.12	-	X	X

4.3 Conformance inspection. Conformance inspection shall consist of the examinations and tests specified in Table II. Failure of a sample to comply with the requirements of this specification shall be cause for rejection of the lot represented.

4.4 Sampling.

4.4.1 First article samples. The sample shall be tested by the manufacturer or forwarded to a testing facility as directed by the procuring activity (see 6.2). The test sample shall consist of 10 pounds of silicone compound. If the sample is to be forwarded to a testing facility, the sample shall be plainly identified by securely attached, durable tags or labels with the following information:

a. Sample for first article inspection,
b. Compound, Silicone, Soft Film,
c. Name of manufacturer,
d. Product code number,
e. Date of manufacture, and
f. Submitted by (name) (date) for first article inspection in accordance with the requirements of MIL-DTL-21567.

4.4.2 Conformance inspection sampling.

4.4.2.1 Lot. For the purpose of sampling, a lot shall consist of compound taken from the same batch and offered for acceptance at one time. Each single batch shall be produced by the same manufacturing process.

4.4.2 Sampling for tests. A sample of no less than 2 pounds shall be selected from each lot prior to packaging. The sampling procedures shall be in accordance with ASTM D 4057.

4.4.2.3 Sampling for examination of filled containers. A random sample of filled containers shall be selected from each lot of compound in accordance with MIL-STD-1916, Verification Level II.

4.5 Test methods.

4.5.1 Oil separation and evaporation. Determine the oil separation in accordance with ASTM D 6184 with the following exceptions:

a. Suspend the cone from a rod supported on the top edges of the beaker without covering the beaker.
b. Maintain the oven at a temperature of 302 ºF (150 °C).
c. Ensure the sample is in the oven for 24 hours.

Determine the percent evaporation by taking the loss of weight of the entire assembly after 24 hours at the test temperature, divide by the weight of the sample used, and then multiply by 100. Calculate the percent oil separation by taking the gain in weight of the beaker, divide by the weight of the sample used, and then multiply by 100.

4.5.2 Acid number. Weigh approximately 10 grams (g) of grease to the nearest 0.1 g into a suitable flask, add 50 milliliters (ml) toluene, and shake until the sample is dissolved. Add 50 ml of a mixture of equal volumes of 95 percent ethyl alcohol and distilled water to which 0.5 ml of 1 percent phenolphthalein solution and sufficient standard alkali solution (0.1N KOH) has been added to give a faint pink color. Shake vigorously and heat to the boiling point of the alcohol-water layer. Titrate while hot with the standard alkali solution until a pink color persists after vigorous shaking. Verify the presence of the color by allowing the flask to stand until separation into two layers occurs.

Calculation:

$$\text{Neutralization number} = \frac{VN56}{W}$$

Where: V = ml of standard alkali solution used
N = normality of alkali solution
W = weight of grease

4.5.3 Change in acid number. Determine the acid number in accordance with 4.5.2 for the compound which has undergone the oxidation stability test.

4.5.4 Corrosive effect on metals. Completely coat clean, polished strips of metal of approximately the same size with the compound. Use metals that are aluminum alloy, copper, lead, magnesium alloy, solder, steel, zinc, or cadmium-plated steel conforming to ASTM B 209, ASTM B 187, QQ-L-201, SAE AMS 4375, IPC J-STD-006, QQ-S-698, ASTM B 69, or SAE AMS 5516, respectively, and the following couples: aluminum alloy and copper, aluminum alloy and cadmium-plated steel, magnesium alloy and steel, or brass and stainless steel. Ensure brass used conforms to requirements of ASTM B 36, and stainless steel type 302 conforms to the requirements of SAE AMS 5516 for type 302. Place the coated strips in a convection current air oven held at a temperature of 212±2 ºF (100±-16.6 ºC). After a period of 70 hours in the oven, remove the strips, wipe gently with a clean, lintless dry cloth, and visually inspect for evidence of corrosion.

4.5.5 Seawater resistance. Use test panels that are cold-rolled sheet steel, SAE AMS 5032 (SAE 1020), approximately 2 by 4 by ⅛ inches. Note the panels may be supported by two wire prongs extending from the 2-inch edge and parallel to the 4-inch edges. Fix the prongs by inserting stiff steel wires (3/64-inch in diameter by 1 ¼-inch long or long finishing nails minus the heads) into two holes, ¼ inch from each of and parallel to the 4-inch edges. Support panels thus prepared at a 45-degree angle on wooden bases, so constructed that the prongs can be inserted into holes drilled at a 45-degree angle in the bases. Prepare the panels by first grinding all surfaces to a finish equal to a 20±5 microinch roughness and then round all edges slightly. Clean the surfaces with No. 1G emery paper. Use strokes that are longitudinal, back and forth, and take care to include all surfaces of the panel except the end from which the prongs project. As a final step, clean each surface with an unused piece of the paper in order to ensure that the surface will be as uniform as possible. Take all roughness height readings at right angles to the lay by means of a standard profilometer. Rinse the panels in three separate washes of benzol and air-dry. Perform the final polishing of the panels and rinsing in benzene immediately before the compound is applied. Avoid contamination with perspiration from the fingers in all the operations where the panels are handled. Apply the compound to three panels in the following manner:

> Place a 4-inch length of ½-inch width pressure-sensitive tape, 0.002 to 0.003-inch thick over each long edge of the specimens to produce a 3/16-inch border of tape on both sides of each face of the specimens. Spread a relatively thick coating of compound over the face of each panel to be evaluated. Reduce coating to the thickness of the tape by drawing a piece of 10 mm outside diameter glass tubing (resting on the tape) from one end of the specimen to the other until a smooth surface on the film is obtained. Once reduced, remove the tape, and grease the areas where no grease is present without disturbing the area which had been greased originally. Then, coat the other surfaces of the specimens with a film of the compound to reduce corrosion.

Expose the coated panels to synthetic seawater spray for a minimum of 48 hours at 95+2-3 ºF (35+-16.6-−16.1 °C). The spray cabinet and solution shall conform to ASTM B 117.

4.5.6 Flow point. Allow three test panels 2 by 4 by ⅛ inches, prepared and coated as specified in 4.5.5, to stand vertically at room temperature for 24 hours. At the end of this period, remove the coating from the bottom half of one face of each panel, and scribe a line across the panels ⅛-inch below the parallel to the bottom edge of the coating remaining on the panel. Place the panel thus prepared in a vertical position in the oven and maintain at a temperature of 160 ºF (71.1 °C). At the end of 4 hours, remove and examine the panels for any evidence of flow of the compound.

4.5.7 Insolubility. Smear an accurately weighed portion of approximately 3.0 g of the compound around the inside of a 250-ml weighed glass beaker. Pour approximately 100 ml of distilled water, or enough to completely immerse the compound, into the beaker. Tightly cap the beaker with metal foil and let stand for a period of 7 days at a temperature of 77±5 ºF (25±2.8 °C). At intervals of approximately 24 hours, stir the water by moderate manual rotation of the beaker. At the end of 7 days,

pour off the water. Dry the beaker and compound for 20 hours in an oven at 160 ºF (71.1 °C) and follow by desiccation for approximately 4 hours over calcium chloride. Run a blank to determine the loss due to evaporation, which occurs during the drying treatment. Note a final weight less than the original weight of beaker and compound shall indicate removal of soluble constituents.

4.5.8 Abrasive. Mix approximately 75 ml of compound with 200 ml of benzene and stir until all soluble matter is in solution. Allow the solution to stand for 1 hour at room temperature to permit any insoluble matter to settle. Then, carefully decant the solution, wash the residue with 100 ml of benzene, and carefully decant again. Repeat this procedure with successively smaller portions of benzene until the solution is practically colorless. Rub the residue after the last decantation between two pieces of flat, clean glass plates. Consider the appearance of scratches on the glass plates as evidence of the presence of abrasive material.

4.5.9 Waterproof seal. Dip five ⅞-inch disks of filter paper in a 25 percent solution of cobaltous chloride, blotted off to remove excess solution, and then dry at 212 ºF (100 °C) until completely blue. Place the test paper disks in five Norma-Hoffman oxidation dishes and fill with the compound to be tested, avoiding incorporation of air bubbles. After leveling off the compound to the height of each dish, immerse the latter in water at 77±5 ºF (25±2.8 °C) for 24 hours. At the end of this period, examine the test paper disks for development of a pink color.

4.5.10 Workmanship and texture. Dip a steel test panel, 1 by 3 by ⅛ inches, prepared in accordance with 4.5.5, in the vertical position into a beaker filled with the compound from a well stirred original container. Remove the panel with a smooth vertical motion and examine for lumps, non-homogeneities, and contaminants.

4.5.11 Vacuum compatibility reactivity. Determine the reactivity with explosives for the silicone compound in accordance with vacuum compatibility test procedures below.

4.5.11.1 Vacuum compatibility test. Carry out the vacuum compatibility test in a glass unit, Figure 1. The vacuum compatibility test chamber may consist of an aluminum block or oil bath with thermoregulator capable of maintaining a test temperature of 100±0.5 ºC.

4.5.11.1.1 Calibration of glass tube. Determine the volume in ml of the 15.5-centimeter (cm) heating tube (Scientific Glass Apparatus, Cat. No. JV-6850 or equivalent) by running in mercury from a burette until the tube is filled to the level at which the ground glass joint of the capillary tube will make contact with the mercury. Subtract the volume of explosive from the indicated burette test readings. Represent the difference by the symbol A. Transfer 7.0 ml of mercury to the cup at the lower end of the capillary tube. Clamp the tube in an upright vertical position, and measure the height in mm of the mercury column in the capillary tube (approximately 25 mm). Measure (in mm) the length of each of the three parts of the capillary tube, and add these values to obtain total length. From the total length, subtract the height of the mercury column in the cup as previously obtained. Represent this difference by the symbol B_1. From the total length, subtract the height of the column of mercury in the cup measured at the end of the test described in 4.5.11.1.2. Represent this difference by the symbol B. Determine the capacity of the capillary tube per unit of length as follows: Transfer an accurately weighed sample of approximately 10 g of mercury to the cup at the lower end of the capillary tube. Manipulate the tube so that when it is horizontal, mercury is contained in a continuous section of the longest part of the tube, and measure the length of the mercury column. Repeat this twice with the mercury in two other parts of the long section of the tube. Calculate the average of the three measured lengths of the mercury column. Represent the unit capacity in ml/mm of the capillary tubing by the symbol C. Obtain this from the formula:

$$C = \frac{W}{DL}$$

Where:

C = unit capacity of capillary tubing, ml/mm
W = weight of mercury, g
D = density of mercury at temperature of determination, g/ml
L = average measured lengths of mercury column, mm.

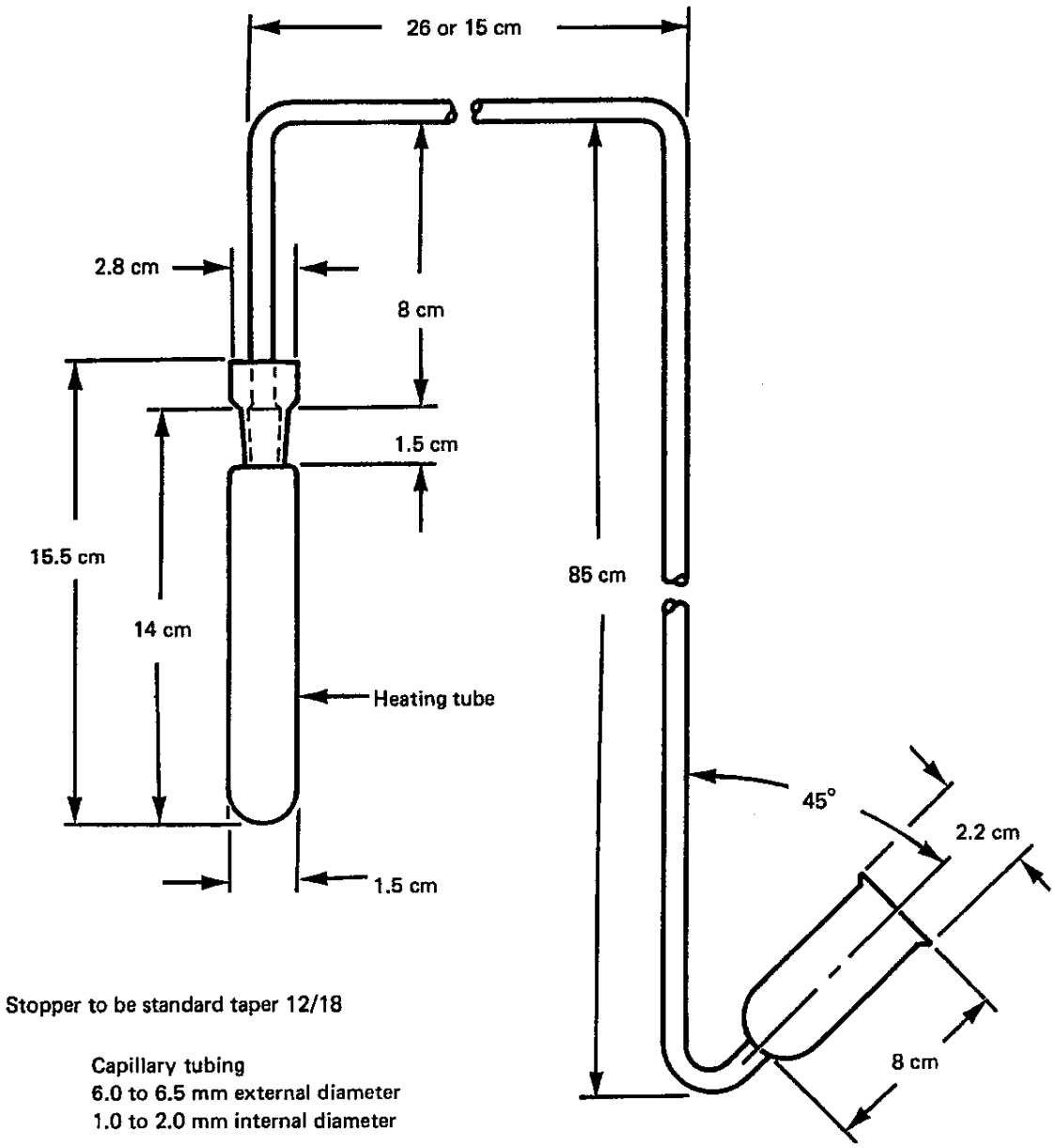

FIGURE 1. Apparatus for vacuum compatibility test.

4.5.11.1.2 Test procedure. Use 2N + 1 (where N equals the number of explosives used) tubes similar to the heating tube portion of the apparatus shown in the vacuum compatibility test method. For controls, add 0.2 g of the inert compound to one tube and 0.2 g of each explosive to additional individual tubes. Place uniform mixtures of 0.2/0.2 g of the inert compound and each of the explosives specified in the test in single separate tubes. Clamp the apparatus so that the long section of the capillary tube is in a nearly vertical position. Transfer 7.0 ml of mercury to the cup at the lower end of the capillary tube. Connect a vacuum pump to the lower end of the capillary tube, and evacuate the system until the pressure is reduced to approximately 5 mm of mercury. Facilitate evacuation of the capillary tube by placing the cup of the tube in a horizontal position so that mercury does not block the capillary opening. After evacuation, disconnect the pump. Seal the connection between the capillary tube and the heating tube with 1 ml of mercury. Measure the total vertical height of the column of mercury in the capillary tube. Measure and subtract the vertical height of the mercury in the cup. The difference shall be represented by the symbol H_1. Note the room temperature (t_1) and the barometric pressure. Subtract the value H_1 from the barometric pressure in mm. Represent this difference by the symbol P_1. Insert the heating tube in the vacuum stability test chamber. Maintain at the proper test temperature for 48 hours. Remove the heating tube and capillary tube assembly from the bath and allow to cool to room temperature. Measure the total vertical height of the column of mercury in the capillary tube, and subtract the vertical height of the mercury in the cup. Represent this difference by the symbol H. Note the room temperature (t) and the barometric pressure in mm. Subtract the value H from the final barometric pressure in mm; represent this difference by the symbol P.

4.5.11.1.3 Calculation of liberated gas volume. Calculate the volume of gas in ml liberated in the test, at standard conditions, using the following formula:

$$V = \frac{[A + C(B - H)]273P}{760(273 + t)} - \frac{[A + C(B_1 - H_1)]273P_1}{760(273 + t_1)}$$

Where:

A = volume of heating tube minus volume of explosive in test, ml
B = total length of capillary tube minus height of mercury column in the cup measured at end of test, mm
B_1 = total length of capillary tube minus height of mercury column in the cup measured before the test, mm
C = unit capacity of capillary tubing, ml per mm
H = total vertical height of column of mercury in capillary tube minus the vertical height of the mercury in the cup after test, mm
H_1 = total vertical height of column of mercury in capillary tube minus the vertical height of the mercury in the cup before test, mm
P = the value H subtracted from the final barometric pressure, mm
P_1 = the value H_1 subtracted from the initial barometric pressure, mm
t = temperature of the room after test, ºC
t_1 = temperature of the room before test, ºC

4.5.11.1.4 Calculation of reactivity. Calculate the reactivity gas of each of the explosive materials with each inert compound as follows; convert all individual volumes (*X*, *Y*, and *Z*) to a 1-g basis:

$$\text{Reactivity gas, ml} = X - \frac{(Y + Z)}{2}$$

Where: *X* = gas produced by the mixture of explosive material and inert compound, ml
Y = gas produced by the explosive material alone, ml
Z = gas produced by the inert compound alone, ml

4.5.12 Examination of filled containers. Examine each sample-filled container as specified in 4.4.2.3 for defects of construction of the container and the closure for evidence of leakage and for unsatisfactory markings. Weigh each filled container to determine the amount of contents. Reject any container in the sample having one or more defects or if under required fill. If the number of defective containers in any sample exceeds the acceptance number for the appropriate sampling plan of MIL-STD-1916, reject the lot represented by the sample. Rejected lots may be resubmitted for acceptance tests, provided the contractor has removed (or reworked) all nonconforming products.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DOD personnel or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service’s system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature which may be helpful but is not mandatory.)

6.1 Intended use. The compound covered by this specification is intended for use as an inhibitor and lubricant for mating threaded or nonthreaded surfaces of ferrous components. It is also intended for use as a lubricant for rubber components such as O-rings and gaskets associated with ammunition or other ordnance equipment. It can be used under extreme conditions of service and storage, wherein freezing at -65 ºF (-53.89 °C) or exudation and deterioration at 160 ºF (71.1 °C) is not permissible, and wherein water insolubility and sealing properties are essential.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification,
b. Quantity required,
c. Size and type of container in which silicone compound is to be furnished,
d. Whether first article inspection is required and, if so, specify the test activity (see 3.1 and 4.2),
e. Levels of packaging and packing,
f. Packaging requirements (see 5.1 and 6.5), and
g. Other options, choices, and alternatives of MIL-STD-290.

6.2.1 Conformance sampling. A Verification Level of II has been used successfully for quality conformance sampling. The contracting activity is cautioned that any deviation from this MIL-STD-1916 selection should be warranted and verified statistically.

6.3 First article. When a first article inspection is required, the contracting officer should provide specific guidance to offeror(s) whether the sample(s) should be a preproduction sample, a first article sample, a first production sample, a sample selected from the first production batches, or a standard production sample from the contractor's current inventory. The contracting officer should also include specific instructions in acquisition documents of the first articles. Invitation(s) for bid(s) should provide that the U.S. Government reserves the right to waive the requirements for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the U.S. Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior U.S. 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 Compatibility with explosives. Suitability of the silicone compound for use with a particular explosive or propellant should be determined by application to the procuring activity. The samples should consist of 10 pounds of the material, and the containers should be labeled with the following information:

a. Type of material,
b. Name and address of manufacturer,
c. Manufacturer's material designation,
d. Date, and
e. Test authorization letter file number and date.

6.4.1 The silicone materials previously accepted for first article show no evidence of incompatibility with the following explosives:

Dow Corning Compound -
DC-6 plus PBXN-101 (Cured)
DC-6 plus PBXN-101 (Uncured)
DC-6 plus Cyclotol 29/71[1] stabilized
DC-6 plus Explosive D
DC-6 plus Composition A-3[1]
General Electric Compound -
G-69 Silicone grease plus H-6.

[1] A compound that is compatible with these explosives would be judged satisfactory for use with H-6.

6.5 Preparation for delivery. The following packing and marking requirements should be specified in the contract.

6.5.1 Packaging, packing, and marking. The silicone compound (only when Government procurement is involved) should be packaged, packed, and marked in accordance with the provisions of MIL-STD-290 and in accordance with the details specified by the procuring activity with respect to the various options, choices, and alternatives indicated in MIL-STD-290 (see 6.2).

6.6 Previous sources of supply. The manufacturers listed below are previously approved sources. The procuring activity is cautioned that manufacturers listed below may no longer produce a product that meets the requirements of this specification.

Government Designation	Manufacturer's Designation	Test or Qualification Reference	CAGE Code	Manufacturer's name and information
None	G-697	NWS Yorktown NEDE-5052:WCH:rdh 24 August 1973	01139	Momentive Performance Materials Inc. (Formally General Electric Co.) (518) 533 4600 or +1 866 485 0683 http://www.momentive.com Internet_Admin@momentive.com
None	G-624	NWS Yorktown NEDE-5052:WCH:jdc 28 July 1975		
None	DC-4 compound	NWS Yorktown NEDE-5052:WCH:jdc 28 July 1975	71984	Dow Corning Corp. +1 989 496 7881 http://www.dowcorning.com

6.7 Subject term (key word) listing.

Ammunition
Ordnance equipment
PBXN-101
Cyclotol
Explosive D
Composition A-3

6.8 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians:
Navy – OS

Preparing activity:
Navy – OS
(Project No. 6850-2009-001)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://assist.daps.dla.mil/.