

NOT MEASUREMENT  
SENSITIVE

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MILITARY STANDARD

PREVENTIVE COMPOUNDS (CORROSION) AND INHIBITORS



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MIL-STD-1216A

DEPARTMENT OF DEFENSE  
Washington, DC 20301

Preventive Compounds (Corrosion) and Inhibitors

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1. This Military Standard is mandatory for use by all departments and agencies of the Department of Defense, to assure that selection of new items is limited to essential items, for which no comparable standard item exists. This document is not intended to restrict any service in selecting new items required to support state-of-the-art changes.
2. Recommended corrections, additions, or deletions should be addressed to Commanding Officer, U.S. Army Chemical Research, Development and Engineering Center, Attn: SMCCR-SPT-S, Aberdeen Proving Ground, MD 21010-5423.

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### FOREWORD

This is the first book format standard generated on corrosion preventive compounds and inhibitors. This standard is mandatory for use by all departments and agencies of the Department of Defense in the selection of items for application. It is intended to prevent the entry of unnecessary items (sizes, types, varieties) into the Department of Defense logistics system. This is not a procurement document. This document is not intended to restrict any service in selecting new items required to support state-of-the-art changes.

The Revision A of this standard has removed all phosphate coatings and black oxides previously covered in the Basic Standard (dated 16 June 1969) in view of their present content in MIL-HDBK-205.

This revision has also changed the title to Preventative Compounds (Corrosion) and Inhibitors, has removed obsolete references and added certain up to date safety data and requirements.

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### 1. SCOPE

1.1 Coverage. This standard is a presentation of nomenclature, symbols, physical and chemical properties and requirements, military and typical commercial uses, directions for use, packaging data, labeling, general safety precautions, storage information, and shelf life of military corrosion preventive compounds and inhibitors coming under FSC 6850. This standard does not necessarily include all classifications of the items represented by the title or those which are commercially available. It does contain items preferred for use in the selection of corrosion preventive compounds and inhibitors for application by the Department of Defense.

1.2 Application. Items listed herein accommodate essential requirements of the military and defense agencies, and will effect continued economies in all logistics functions when properly employed in new applications.

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## 2. REFERENCED 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.

## SPECIFICATIONS

## FEDERAL

O-L-160 Leak Preventive Compound, Radiator  
 O-I-501 Inhibitors, Pickling (For Use With Sulfuric Acid)  
 PPP-C-2020 Chemicals, Liquid, Dry, and Paste, Packaging of

## MILITARY

MIL-C-4339 Corrosion Preventive, Soluble Oil for Water Injection Systems  
 MIL-C-5545 Corrosion Preventive, Aircraft Engine, Heavy Oil Type  
 MIL-C-6529 Corrosion Preventive, Aircraft Engine  
 MIL-L-6081 Lubricating Oil, Jet Engine  
 MIL-L-6082 Lubricating Oil, Aircraft Reciprocating Engine (Piston)  
 MIL-L-7808 Lubricating Oil, Aircraft Turbine Engine, Synthetic Base  
 MIL-C-8188 Corrosion Preventive Oil, Gas Turbine Engine, Aircraft Synthetic Base  
 MIL-I-17433 Inhibitor, Hydrochloric Acid Descaling and Pickling Solutions  
 MIL-I-22110 Inhibitor, Corrosion, Volatile, Crystalline Powder  
 MIL-I-24453 Inhibitor, Corrosion, Soluble Oil  
 MIL-I-25017 Inhibitor, Corrosion/Lubricity Improver, Fuel Soluble  
 MIL-T-36812 Test Kit, Reserve, Alkalinity, Antifreeze  
 MIL-A-46153 Antifreeze, Ethylene Glycol, Inhibited, Heavy Duty  
 MIL-C-51047 Compound, Antiseepage, For Cooling System, Internal Combustion Engine (Metric)  
 MIL-A-53009 Additive, Antifreeze Extender, Liquid Cooling Systems  
 MIL-G-53042 Gum Preventive Compound, Gasoline

## STANDARDS

## FEDERAL

FED-STD-313 Material Safety Data Sheets, Preparation and the Submission of

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 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.



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## CODE OF FEDERAL REGULATIONS (CFR)

Title 29	Department of Labor, Occupational Safety and Health Administration
Title 40	Protection of the Environment; Environmental Protection Agency
Title 49	Department of Transportation; Hazardous Materials Regulations

## DEPARTMENT OF DEFENSE (DOD)

DODISS	Department of Defense Index of Specifications and Standards
DOD 4145.19-R-1	Storage and Materials Handling
DOD 4160.21-M	Defense Utilization and Disposal Manual
DOD 6050.5	DOD Hazardous Materials Information System, Hazardous Item Listing
TB MED 502 (DLAM 1000.2)	Occupational and Environmental Health Respiratory Protection Program
TB MED 506	Occupational and Environmental Health Occupational Vision
TM 38-250	Packaging, Materials Handling - Preparation of Hazardous Materials for Military Air Shipment

## NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

Registry of Toxic Effects of Chemical Substances  
Recommendation for Environmental Exposure Limits

(Application for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

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 shall be 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.

## AMERICAN CONFERENCE OF GOVERNMENT INDUSTRIAL HYGIENISTS (ACGIH)

TLVs<sup>o</sup> Threshold Limit Values for Chemical Substances in the Work Environment Adopted by American Conference of Government Industrial Hygienists (ACGIH) with Intended Changes.

(Application for copies should be addressed to American Conference of Governmental Industrial Hygienists, 6500 Glenway Avenue, Bldg D-7, Cincinnati, OH 45211.)

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.

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3. DEFINITIONS (Not Applicable)

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## 4. GENERAL REQUIREMENTS

4.1 Packaging Data and Labeling. All chemicals included in this standard shall be packaged in accordance with Federal Specification PPP-C-2020 and all applicable documents referenced therein. Shipping containers shall be labeled in accordance with current Department of Transportation (DOT) Hazardous Materials Regulations applicable to each chemical. When shipping by military aircraft the requirements of TM 38-250 shall apply. In addition, each item shall be packaged and labeled as specified in the applicable contract or order. All labels shall also comply with Hazard Communication Standard, 29 CFR 1910.1200(f).

4.2 Hazardous Materials Information. DOD 6050.5, DOD Hazardous Materials Information System (HMIS) acquires, reviews, stores, and disseminates Material Safety Data Sheet (MSDS) information for all hazardous materials used by DOD. The contractual acquisition of a MSDS is accomplished through use of Federal Acquisition Regulation, paragraph 52.223-3, Hazardous Material Identification and Material Safety Data. The MSDS is prepared in accordance with the instructions of FED-STD-313; and shall comply with requirements of Hazard Communication Standard, 29 CFR 1910.1200(g).

4.3 Safety.

4.3.1 Personal Protective Measures. The necessary respiratory, eye and skin protection to be used when handling chemicals shall be prescribed by the responsible installation industrial hygiene, medical and safety authorities.

4.3.1.1 Respiratory Protection. Respirators, approved by the National Institute for Occupational Safety and Health (NIOSH) or the Mine Safety and Health Administration (MSHA) for the compounds being used, may be employed for intermittent exposure or for supplementing other control measures (refer to TB MED 502 or DLAM 1000.2). Ventilation shall be adequate to remove hazardous concentrations.

4.3.1.2 Skin Protection. Personnel using these compounds shall be provided with and required to use impervious gloves, sleeves, aprons, and boots whenever indicated. Protective creams and ointments commonly known as "barrier creams" may be of value in certain cases. However, barrier creams shall not be used to replace protective clothing. In case of contact with the skin, wash affected areas thoroughly with water. Eye lavages and emergency showers shall be located where there is a potential for direct contact with harmful chemicals.

4.3.1.3 Face and Eye Protection. Personnel using these compounds shall be provided with and required to wear chemical splash-proof safety goggles. In addition, face shields shall be provided and worn over the goggles if splashing could occur. In case of contact with the eyes, immediately irrigate with copious amounts of water for at least 20-30 minutes, and obtain medical attention. (Refer to TB MED 506.)

4.3.1.4 Training. Employers shall provide employees with training and information including MSDS on all chemical items in their work area, in accordance with 29 CFR 1910.1200(h), to ensure that employees know potential hazards of the chemicals with which they come in contact and the symptoms of exposure as well as how these chemicals affect the body and bodily functions. Employees shall be adequately trained to render first aid.

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4.3.1.5 Exercise. Participation in training exercises shall be stressed to demonstrate skills in the use of personal protective equipment and emergency response equipment.

4.3.2 Storage Conditions. DOD 4145.19-R-1 describes general storage practices and requirements for hazardous materials in the DOD supply system. Specific requirements provided in the following paragraphs are supplementary in nature and shall be observed in consonance with the DOD storage regulations.

4.3.2.1 Flammable, Combustible, Pyrophoric and Ignitable materials. A flammable material is generally any solid, liquid, vapor or gas that ignites easily and burns rapidly. Combustible materials are generally those that are difficult to ignite and burn slowly. The DOT, in Part 173, Subpart D, Section 173.115 of 49 CFR, defines a flammable liquid as one having a closed cup flash point below 100°F (37.8°C). A combustible liquid is defined, by DOT in the above reference, as one having a closed cup flash point at or above 100°F and below 200°F (93.3°C). A pyrophoric liquid is defined, by DOT in the above reference, as one that ignites spontaneously in dry or moist air at or below 130°F (54.4°C). Materials with flash points of 200°F or higher are not considered to be nonflammable or noncombustible, but are to be considered as burnable. The Environmental Protection Agency (EPA), in Part 261, Subpart C, Section 261.21 of 40 CFR (refers only to materials that have become waste materials), designates the criteria for flammable and combustible materials and oxidizers that exhibit the characteristic of ignitability (I). Liquids with closed cup flash points of less than 140°F (60°C) are defined by EPA as ignitable. The autoignition point (temperature) of a substance is generally defined as the minimum temperature required to initiate or cause self-sustained combustion in the absence of a spark or flame. Materials that ignite easily under normal industrial conditions are considered to be dangerous fire hazards. Such Materials shall be stored in a manner to prevent ignition and combustion. Easily ignitable substances, such as reducing agents, shall be kept away from strong oxidizing agents. All containers shall be tightly sealed. It is important to provide adequate ventilation in storage areas, and to locate the storage areas of these items away from fire hazards. Ample fire control equipment shall be easily accessible. Storage buildings, rooms and cabinets shall comply with provisions of the National Fire Codes. The building shall be electrically grounded and signs posted to prevent the lighting of matches or smoking in the area. Flammable storage areas shall be equipped with smoke or fire detection equipment.

4.3.2.2 Water-Sensitive Fire and Explosive Hazardous Materials. These are materials that react on contact with water or steam to ignite or evolve heat or explosive gases. Such materials exhibit the characteristic of reactivity (R) as designated by the EPA in Section 261.23 of the above reference. (Refers only to materials that have become waste materials.) These materials shall be stored in well-ventilated, cool, dry areas. All containers shall be tightly sealed. These materials are a fire hazard in contact with water or moisture; therefore, it is essential that no sprinkler be used. Otherwise, the building shall conform to that required for storage of flammable materials. The building shall be water-proof, located on high ground, and separated from other storage areas.

4.3.2.3 Incompatible Materials. Materials that are chemically incompatible shall be segregated in the storage of both serviceable and unserviceable items. The degree of segregation will depend upon DOD 4145.19-R-1 and local supplemen-

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tary requirements that insure safe storage conditions. Hazardous storage compatibility codes are provided in the HMIS referred to in 4.2.

**4.3.3 Chemical Hazardous Exposure Limits.** Chemical hazardous exposure limits for airborne concentrations of substances are obtained from the current TLVs\* Threshold Limit Values for Chemical Substances in the Work Environment, adopted by the American Conference of Government Industrial Hygienists (ACGIH); current Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL), 29 CFR, Section 1910.1000; and NIOSH Recommendation for Environmental Exposure Limits. Such information is also shown in MSDSs and the HMIS referred to in 4.2. Carcinogenic substances are listed by OSHA in Category I for confirmed carcinogens, and in Category II for suspected carcinogens. Category I substances have standard exposure limits set at the lowest possible levels. Category II substances have standard exposure limits set to prevent acute or chronic effects.

**4.3.4 Toxicity.** Toxicity information for chemical compounds is available from various publications and from MSDSs, which are collected in DOD 6050.5 Hazardous Materials Information System.

**4.3.4.1 EPA Toxic (T).** Some chemical compounds have been designated by the EPA as toxic (T) in accordance with the criteria shown in Part 261, Subpart B, Section 261.119(a)(3) of 40 CFR. (Refers only to materials that have become waste materials.) Some commercial chemical products are listed as toxic under Subpart D, Section 261.33(f).

**4.3.4.2 EPA Acute Hazardous Toxicity (H).** Some chemical compounds have been designated by the EPA as acute hazardous (H) in toxicity in accordance with the criteria shown in Subpart B, Section 261.11(a)(2) of the above reference. (Refers only to materials that have become waste materials.) Some commercial chemical products are listed as acute hazardous in toxicity under Subpart D, Section 261.33(e).

#### **4.4 Pollution and Disposal.**

**4.4.1 Pollution Potential.** All items described in this standard shall be assumed to have a pollution potential. However, to minimize this potential, the proper use, storage and disposal methods shall be strictly followed.

**4.4.2 Disposal of Excess of Unserviceable Material.** To minimize disposal problems, it is recommended that no more than a one year's supply of each item listed in this standard be stocked. When stocks have been declared excess or unserviceable, they will be disposed of in accordance with the Defense Utilization and Disposal Manual, DOD 4160.21-M, and applicable DOD Policy Memoranda. Guidance can be obtained from your servicing Defense Reutilization and Marketing Office (DRMO) on procedures required for proper reporting and turn-in.

**4.4.3 Disposal and Storage of Hazardous Wastes.** Items are classified and managed as hazardous wastes as defined by the Resource Conservation and Recovery Act (RCRA) (Public Law 94-580). Items have been identified as meeting the characteristics (i.e., ignitable, corrosive, reactive or EP toxic) or are listed (i.e., toxic or acute hazardous) according to Identification and Listing of Hazardous Waste, Part 261; 40 CFR; or have been determined to be hazardous wastes by declaration of the Defense Reutilization and Marketing Service (DRMS) in

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accordance with procedures set forth in DOD 4160.21-M. Disposal of such items shall be managed in accordance with the Installation Environmental Office, the DRMO, or the Safety and Health Office to insure proper reporting of disposal and treatment actions to the US EPA and State; and shall be managed in accordance with Federal, State and local laws. The three main disposal methods are turn-in to the DRMO, on-post disposal by installation personnel, or disposal by commercial contract. Hazardous wastes that cannot be used, or disposed of as stated in 4.4.3.4.2, shall be stored under environmentally safe conditions until suitable methods of disposal are determined. Short-term storage (less than 90 days) requires proper containment (i.e., packaging and facilities) in accordance with Section 262.34, Part 262 of the above reference. Long-term storage (greater than 90 days) requires permitting by the EPA or by the State under Public Law 94-580 (RCRA), in compliance with the requirements of 40 CFR Parts 264 and 265. Physical custody will be accomplished by the activity with conforming storage or most nearly conforming storage. When physical custody is in question, the Post Commander will make the final decision. In all cases where the wastes are to be collected, stored, transported and disposed of at a State or local permitted disposal facility, the identity and description of the waste shall be maintained and recorded in accordance with Part 262 of the above reference. Transportation of the waste shall be in accordance with Part 263 of the above reference, Standards Applicable to Transporters of Hazardous Waste.

**4.4.3.1 Cleanup of Liquid Spills.** To control the migration of spilled or leaking liquids, dike around the item with an inert, dry absorbent (e.g., clay, sawdust or vermiculite) or follow installations spill plans (Spill Prevention Control and Countermeasure Plan and Installations Spill Contingency Plan). Control entry to the spill site and segregate salvageable materials away from the spill area. Initiate waste cleanup operations immediately in accordance with local procedures. The residue shall be safely handled and transported to an approved or permitted disposal or storage facility. Packaging, labeling, transportation and record-keeping requirements for this waste material are determined by the appropriate Federal and State agencies and local procedures. It is recommended that all activities involving disposal preparation and transportation to commercial facilities be properly coordinated with the appropriate Federal and State agencies responsible for health and environmental aspects of hazardous materials. It is imperative that the proper description of waste accompany the packaged item at all times. Final disposal of the waste item shall be accomplished by reutilization, transfer, donation or sales by DRMS in accordance with DOD 4160.21-M or by ultimate disposal as described in 4.4.3.2. Spill residue, including contaminants, to be turned in to the DRMO shall first be properly identified, containerized, and labeled. For large scale spills that grossly contaminate the environment, the Chemical Transportation Emergency Center (CHEMTREC), can be called for assistance. Applicable procedures of the local spill control plan shall be followed. Necessary respiratory, eye, and skin protection measures are to be used while performing cleanup operations.

**4.4.3.2 Ultimate Disposal.** Ultimate disposal shall be accomplished at a permitted or approved hazardous waste treatment or disposal facility designated by the Installation Environmental Office, DRMO, or Safety and Health Offices.

**4.4.4 DISCLAIMER.** RECOMMENDED DISPOSAL INSTRUCTIONS ARE FORMULATED FOR USE BY ELEMENTS OF THE DEPARTMENT OF DEFENSE. THE UNITED STATES OF AMERICA IN NO MANNER WHATSOEVER EITHER EXPLICITLY OR IMPLICITLY WARRANTS, STATES, OR INTENDS SAID INSTRUCTION, TO HAVE ANY APPLICATION, USE OR VIABILITY BY OR TO ANY PERSON

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OR PERSONS CONTRACTING OUTSIDE THE DEPARTMENT OF DEFENSE OR ANY PERSON OR PERSONS CONTRACTING WITH ANY INSTRUMENTALITY OF THE UNITED STATES OF AMERICA AND DISCLAIMS ALL LIABILITY FOR SUCH USE. ANY PERSON USING THESE INSTRUCTIONS WHO IS NOT A MILITARY OR CIVILIAN EMPLOYEE OF THE UNITED STATES OF AMERICA SHOULD SEEK COMPETENT PROFESSIONAL ADVICE TO VERIFY AND ASSUME RESPONSIBILITY FOR THE SUITABILITY OF THESE INSTRUCTIONS TO THEIR PARTICULAR SITUATION REGARDLESS OF SIMILARITY TO A CORRESPONDING DEPARTMENT OF DEFENSE OR OTHER GOVERNMENT SITUATION.

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## 5. DETAILED REQUIREMENTS

5.1 Name. Additive, Antifreeze Extender, Liquid Cooling System.

5.1.1 Technical Description. The additive consists of a blend of sodium metaborate (98% by weight  $\text{Na}_2\text{B}_2\text{O}_7 \cdot 8\text{H}_2\text{O}$ ), potassium silicate (38.8% by weight with a weight ratio of  $\text{SiO}_2$  to  $\text{K}_2\text{O}$  is 2.1 to 1.0) and sodium mercaptobenzothiazole (50% by weight aqueous solution) all in an aqueous solution.

5.1.1.1 Requirements. Requirements in accordance with MIL-A-53009 are shown in Table I.

TABLE I. Requirements of antifreeze additive extender.

Constituents	Requirements	
	Min	Max
	<u>% By Wt</u>	<u>% By Wt</u>
Distilled or deionized water (total added)	62.8	64.0
Sodium Metaborate ( $\text{Na}_2\text{B}_2\text{O}_7 \cdot 8\text{H}_2\text{O}$ )	28.7	29.3
Potassium Silicate Solution	4.4	4.8
Sodium Mercaptobenzothiazole (aqueous solution)	2.85	3.15

5.1.2 Specifications. MIL-A-53009; Additive, Antifreeze Extender, Liquid Cooling Systems.

5.1.3 Use. The additive is intended for use in used MIL-A-46153 antifreeze and in water at a concentration of three percent (one-half quart additive per seventeen quart antifreeze or water). Used antifreeze is defined as antifreeze that tests green to yellow when tested as specified in TB-750-651 using MIL-T-36812, Test Kit, Reserve Alkalinity, Antifreeze. Additive is to be used in lieu of O-I-490 in all military vehicles or equipment using MIL-A-46153 antifreeze or water. It is not intended for use in commercial antifreeze.

5.1.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.1.5 Storage. Liquid cooling system corrosion inhibitor shall be stored in a dry place in tightly closed containers which exclude ultraviolet light. (Refer to 4.3.2)

5.1.6 Disposal. For appropriate procedures, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

An EPA Hazardous Waste Classification is not listed in 14 CFR.



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5.2 Name. Boiler Compound, Briquets  
(Hazardous)

5.2.1 Technical Description. Briquets shall be formed under pressure after the ingredients have been thoroughly mixed. Each briquet shall weigh from 0.8 to 1 pound, and shall be so shaped as to pass readily through a 3½ inch diameter aperture. When placed in water, briquets shall dissolve slowly and shall neither become soft nor disintegrate within 5 hours of the commencement of submergence.

5.2.1.1 Requirements. The commercial requirements for briquets are as shown in Table II.

TABLE II. Chemical composition of briquets.

Constituents	Requirements	
	Min	Max
	<u>% By Wt</u>	<u>% By Wt</u>
Quebracho or chestnut tannin (sulfited or unsulfited)	14	15
Sodium sulfite (90 to 97 percent pure)*	50	55
Anhydrous disodium phosphate	14	15
Soda ash (ordinary light)	10	11
Binder	---	10

\*Impurities to consist of sodium sulfate, sodium carbonate, or equivalent.

5.2.2 Specifications. None.

5.2.3 Use. The briquets are intended for military use in the treatment of boiler feed-water. They are to be used where the natural alkalinity of the water is not sufficient to maintain the alkalinity of the boiler water within required limits. The briquets are compounded for use with zeolite softened water which has not been deaerated. Water treated with briquets must be prevented by positive means from mixing with any water supply used for potable purposes. Typical commercial applications are the same.

5.2.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.2.5 Storage. This material should be stored in a dry area. When stored under ideal conditions, it will have an indefinite shelf life.

5.2.6 Disposal. For appropriate procedures, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

An EPA Hazardous Waste Classification is not listed in 40 CFR.

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5.3 Name. Compound, Antiseepage, For Cooling System, Internal Combustion Engine (Metric)

5.3.1 Technical Description. Cooling system antiseepage compound shall be in the form of a loose granular material and shall be essentially a mixture of ground almond and ground roasted peanut shells, a polyvinyl alcohol, and a small amount of antirust material such as castor oil. The material shall be nonabrasive and free of any material which may have a harmful effect on the radiator or other components of the cooling system of an internal combustion engine. The compound shall not clog the tubes of the radiator or heater and shall be readily removable from the cooling system by means of cooling system cleaners.

5.3.1.1 Requirements. Requirements are shown in Table III. There is no rosin when tested in accordance with MIL-C-51047.

TABLE III. Chemical requirements of leak preventive compound, radiator, antiseepage.

Properties	Requirements	
	Min	Max
Apparent density of water insoluble material	1.10	1.15
Ash content of water insoluble material, % by weight	0.5	1.0
Neutralization number	---	4.0
Water mixture, pH	5.1	5.6
Ethylene glycol mixture, pH	7.4	7.9
Polyvinyl alcohol, % by weight	13.5	---
Water extractable material (other than polyvinyl alcohol), % by weight	---	10.0
Water insoluble material, % by weight	75.0	---
Volume of water insoluble materials, mL	---	45.0

5.3.2 Specifications. MIL-C-51047; Compound, Antiseepage, For Cooling System, Internal Combustion Engine (Metric).

5.3.3 Use. For military use, antiseepage compound is intended for sealing cracks and crevices in the cooling system of internal combustion engines, especially wet sleeve engines, and for stopping seepage of the coolant into the cylinder combustion chamber and into the crankcase of the engine. The compound is also intended for sealing pinhole leaks in the radiator and cooling system of internal combustion engines. The compound is not intended to stop seepage of the coolant at the circulating pump shaft. The compound is not intended to replace, and must be used in conjunction with, a corrosion inhibitor meeting specification O-I-490. Typical commercial applications are the same.

5.3.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

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5.3.5 Storage. Radiator leak preventive compound should be stored in the packages in which they are received. This material has an indefinite shelf life. (Refer to 4.3.2)

5.3.6 Disposal. For appropriate procedure, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

An EPA Hazardous Waste Classification is not listed in 40 CFR.

5.4 Name. Corrosion Preventive, Aircraft Engine

5.4.1 Technical Description. The concentrate material shall contain no material of known toxicity, and the vapor shall not cause discomfort or injury. The concentrate material shall be an additive designed to be mixed with lubricating oils.

5.4.1.1 Requirements. The requirements shown in Table IV are for a blend, by volume, of 1 part of Type I concentrate and 3 parts of lubricating oil qualified under specification MIL-L-6082 Grade 1100, or for Type II ready mixed material.

TABLE IV. Requirements of corrosion preventive, aircraft engine.

Properties	Requirements	
	Min	Max
Ash content (% by weight)	---	0.015
Carbon residue (% by weight)	---	2.0
Flash point (°F)	400	---
Pour point (°F)	---	10
Viscosity (Saybolt Universal Second at 210°F)	90	110

5.4.2 Specifications. MIL-C-6529; Corrosion Preventive, Aircraft Engine.

5.4.3 Use. For military use the concentrate material is intended, after mixing with lubricating oil, to prevent corrosion damage to aircraft engines and equipment. The mixture for turbojet aircraft engines should be 1 part concentrate to 3 parts lubricating oil qualified under Specification MIL-L-6081, grade 1010, and for reciprocating aircraft engines 1 part concentrate to 3 parts lubricating oil qualified under Specification MIL-L-6082, grade 1100. Typical commercial applications are the same as those for the military.

5.4.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.4.5 Storage. Corrosion preventive shall be stored in a cool, well ventilated area. Containers shall be kept upright and tightly closed. Do not store near heat, sparks, flame, other ignition sources.

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5.4.6 Disposal. For appropriate procedures, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

5.5 Name. Corrosion Preventive, Aircraft Engine, Gas Turbine

5.5.1 Technical Description. The corrosion-preventive oil shall be transparent, uniform in appearance, and shall be free from sediment and suspended water. Additives to impart oxidation stability, corrosion inhibiting properties, and antiwear properties are permitted, except that metal-organic compounds of titanium are prohibited. If a tricresyl phosphate additive is used, it shall not contain more than one percent of the ortho isomer. The concentrate material shall contain no material of known toxicity, and the vapor shall not cause discomfort or injury.

5.5.1.1 Requirements. Requirements in accordance with MIL-C-8188 are as shown in Table V.

TABLE V. Properties of corrosion-preventive oil.

Properties	Requirements	
	Min	Max
Flash point (°F)*	400	---
Pour point (minus °F)	---	75
Total acid number	---	0.30
Viscosity, centistokes at 100°F	11.0	---
Viscosity, centistokes at 210°F	3.0	---
Viscosity, centistokes at -65°F		18000

\*Cleveland Open Cup

5.5.2 Specifications. MIL-C-8188; Corrosion-Preventive Oil, Gas Turbine Engine, Aircraft Synthetic Base.

5.5.3 Use. For military use the corrosion-preventive oil is intended for the preservation of turboprop and turbojet engines when used with oil as specified in MIL-L-7808. The corrosion-preventive oil should be capable of limited use, not to exceed 25 hours, as an aircraft engine lubricant and will be used for both preservation and final acceptance runs of aircraft engines requiring the use of Specification MIL-L-7808 oils. Typical commercial applications are the same as those for military use.

5.5.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.5.5 Storage. Corrosion-preventive oil shall be stored in a cool, well ventilated area. Containers shall be kept upright and tightly closed. Do not store near heat, sparks, flame, other ignition sources. (Refer to 4.3.2)

5.5.6 Disposal. For appropriate procedures, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

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5.6 Name. Corrosion Preventive, Aircraft Engine, Heavy Oil

5.6.1 Technical Description. The corrosion preventive shall not contain materials known to be toxic. It shall be a thoroughly mixed one-to-one (1:1) proportion of the corrosion preventive and any oil conforming to MIL-L-6082 grade 1100. A dye, National Brilliant Oil Blue BMA or an equivalent, shall be completely dissolved in the corrosion preventive, and shall be present as one part in 10,000 by weight for identification purposes.

5.6.2 Specifications. MIL-C-5545; Compound Corrosion Preventive, Aircraft Engine, Heavy Oil Type.

5.6.3 Use. The corrosion preventive compound is intended for military use on internal parts and surfaces of reciprocating aircraft engines and equipment to prevent damage by corrosion. This corrosion preventive compound is to be employed only for static preservation and is to be removed from the engine prior to flight. Typical commercial uses are the same as those for the military.

5.6.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.6.5 Storage. Heavy oil, corrosion preventive shall be stored in a cool, well ventilated area. Containers shall be kept upright and tightly closed. Do not store near heat, sparks, flame, other ignition sources. (Refer to 4.3.2)

5.6.6 Disposal. For appropriate procedures, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

5.7 Name. Corrosion Preventive, Soluble Oil

5.7.1 Technical Description. The soluble oil shall contain not less than 85 percent, by weight, mineral oil and shall contain suitable emulsifying and corrosion preventive agents. These agents shall have a petroleum metal sulfonate as a principal constituent. The soluble oil shall contain a minimum of fatty acids and fatty acid soaps. The finished oil shall be clear and homogeneous. It shall not contain suspended matter or sediment.

5.7.1.1 Requirements. Requirements in accordance with MIL-C-4339 are as shown in Table VI.

TABLE VI. Properties of corrosion preventive, soluble oil.

Properties	Requirements	
	Min	Max
Ash content (% by weight)	---	2.0
Pour point (°F)	---	30
pH (temp of 77°F)*	8.5	10.0
Water content (% by weight)	---	3.0

\* Mixture of one part oil and nine parts distilled water.

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5.7.2 Specifications. MIL-C-4339; Corrosion Preventive, Soluble Oil for Water Injection Systems.

5.7.3 Use. For military use the finished oil is intended to be used to prevent corrosion caused by water-alcohol mixtures in ground handling equipment and aircraft water injection systems. This oil is not intended for preservation of other components. Typical commercial applications are the same as those for the military.

5.7.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.7.5 Storage. Soluble oil, corrosion preventive shall be stored in a cool, well ventilated area. Containers shall be kept upright and tightly closed. Do not store near heat, sparks, flame, other ignition sources. (Refer to 4.3.2)

5.7.6 Disposal. For appropriate procedures, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

Soluble oil, corrosion preventive has an EPA Hazardous Waste Classification - Ignitable; Waste Number D001.

### 5.8 Name. Inhibitor, Corrosion, Lubricating Oil (Indoor Use)

5.8.1 Technical Description. Corrosion inhibitor, lubricating oil, shall be a solvent type rust inhibiting oil with very good water dispersing properties. It shall be an all around thin film rust preventive for indoor exposure only that meets accepted salt spray and humidity requirements. It shall have a flash point of not less than 150°F. The useable temperature range of this corrosion inhibitor shall be 68°F to 77°F.

### 5.8.2 Specifications. None.

5.8.3 Use. For military use corrosion inhibitor lubricating oil is intended to be used as a rust inhibitor on parts or materials which have been black oxide finished. It will also protect highly finished parts during working processes. The solvent will evaporate leaving a transparent residual film. Typical commercial applications are the same as those for the military.

5.8.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.8.5 Storage. The corrosion inhibitor shall be in covered storage away from heat or open flame and it should be kept from freezing. When stored under ideal conditions, this material has an indefinite shelf life. (Refer to 4.3.2)

5.8.6 Disposal. For appropriate procedures, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

Lubricating oil, corrosion inhibitor for indoor use has an EPA Hazardous Waste Classification - Ignitable; Waste Number D001.

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5.9 Name. Inhibitor, Corrosion, Lubricating Oil (Outdoor Use)

5.9.1 Technical Description. Corrosion inhibitor lubricating oil, for outdoor use is formulated from refined petroleum oil, petroleum sulfonate, petroleum oxidate, an anti-oxidant, and a coupling agent. The moisture absorbing soft film shall be 0.0015 inch thick. It shall have a light amber color with a mild petroleum oil odor, and with a flash point of not less than 180°F.

5.9.2 Specifications. None.

5.9.3 Use. For military use corrosion inhibitor is intended to be used as a rust and corrosion inhibitor for between-flight protection of jet turbine compressors and as a varnish and carbon remover for jet engine compressors. Typical commercial application is the same as that for the military.

5.9.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.9.5 Storage. Corrosion inhibitor, lubricating oil, shall be stored in a covered storage area to prevent it from freezing. Containers should be kept closed or its solvent phase will evaporate increasing its viscosity and film thickness. The shelf life of this material under normal storage conditions shall exceed one year but should be checked periodically after it is a year old. (Refer to 4.3.2)

5.9.6 Disposal. For appropriate procedures, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

Corrosion inhibitor, lubricating oil, has an EPA Hazardous Waste Classification - Ignitable; Waste Number D001.

5.10 Name. Inhibitor, Corrosion/Lubricity Improver, Fuel Soluble

5.10.1 Technical Description. Corrosion inhibitor, fuel soluble shall be a homogeneous mixture of material uniform in appearance and visually free from grit, undissolved water, or other adulteration. The material shall be readily and completely soluble in all grades of automotive and aircraft engine fuels. The composition of this material has no limitations and is subject to any change according to required serviceability of the inhibitors. There shall be no adverse reactions on the properties of fuels to which it is added and it shall be thoroughly compatible with the fuel. It shall have a pour point of 0°F or less. The minimum allowable concentration added to the fuel shall not cause precipitation, cloudiness, or other evidence of noncompatibility. Corrosion inhibitor shall not cause injury or irritation to the skin and shall not emit poisonous, noxious, or irritant vapors.

5.10.2 Specifications. MIL-I-25017; Inhibitor, Corrosion, Fuel Soluble.

5.10.3 Use. For military use the corrosion inhibitor is intended as an additive in automotive and aircraft engine fuels for the prevention of corrosion in fuel handling, transportation, and storage equipment. The allowable concentration for use is 54 grams of finished corrosion inhibitor per cubic meter of fuel. Typical commercial applications are the same as those for the military.

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5.10.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.10.5 Storage. Fuel soluble, corrosion inhibitor shall be stored in a cool, well ventilated area. Containers shall be kept upright and tightly closed. Do not store near heat, sparks, flame, other ignition sources. (Refer to 4.3.2)

5.10.6 Disposal. For appropriate procedures, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

Fuel soluble, corrosion inhibitor has an EPA Hazardous Waste Classification - Ignitable; Waste Number D001.

5.11 Name. Inhibitor, Corrosion, Soluble-Oil

5.11.1 Technical Description. This material is a petroleum base soluble-oil corrosion inhibitor, compounded with such additives as necessary to minimize rust formation and corrosion in water systems. The pour point of the compound shall not exceed 30°F. Water content shall not exceed 3 percent. Corrosion inhibitor shall not cause injury or irritation to the skin and shall not emit poisonous, noxious, or irritant vapors.

5.11.1.1 Requirements. Requirements are as shown in Table VII.

TABLE VII. Requirements for Soluble Oil, Corrosion, Inhibitor.

Properties	Requirement	
	Min	Max
Flash point	121°C (250°F)	---
Pour point	---	-1.1°C (30°F)
Water content (% by wt)	---	5

5.11.2 Specifications. MIL-I-24453; Inhibitor Corrosion, Soluble Oil.

5.11.3 Use. For military use, the corrosion inhibitor, soluble-oil is intended to minimize rust formations and corrosion in water systems. Typical commercial application are the same.

5.11.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.11.5 Storage. Petroleum base, soluble-oil, corrosion inhibitor shall be stored in a cool, well ventilated area. Containers shall be kept upright and tightly closed. Do not store near heat, sparks, flame, other ignition sources. (Refer to 4.3.2)

5.11.6 Disposal. For appropriate procedures, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)



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Petroleum base, soluble-oil, corrosion inhibitor has an EPA Hazardous Waste Classification - Ignitable; Waste Number D001.

5.12 Name. Inhibitor, Corrosion, Vapor Barrier  
(Hazardous)

5.12.1 Technical Description. Corrosion inhibitor, vapor barrier shall be a composition of dicyclohexylamine nitrate and diisopropylamine nitrate. It shall be a single phase chemical which is volatile, vaporizing at a constant rate. The vapor shall be odorless, non-toxic, invisible, and rust inhibiting. This composition shall neutralize the action of oxygen and moisture, thus making it impossible for rust to form.

5.12.2 Specifications. MIL-I-22110; Inhibitors, Corrosion, Volatile Crystalline.

5.12.3 Use. Corrosion inhibitor, vapor barrier is intended for military use as a preservative for ferrous metals, aluminum-base alloys, components containing zinc plate, cadmium, zinc base alloys, magnesium-base alloys, lead-base alloys, and alloys of other metals (including solders and brazing alloys) having less than 30 percent zinc and 9 percent lead. Direct contact with non-ferrous metals except aluminum and aluminum-base alloys shall be avoided. Packs containing this inhibitor must be sealed to prevent escape of vapor. Typical commercial applications are the same.

5.12.4 Safety. The general requirements for safety covered in 4.3 apply. Each package shall bear the following precautionary label:

**WARNING!**

KEEP IN COOL, DRY PLACE. KEEP CONTAINERS CLOSED, WHEN NOT IN USE.  
DO NOT RUB OR WIPE EYES WHILE HANDLING THIS PRODUCT. AFTER HANDLING,  
WASH HANDS. PRODUCT MAY CONTAIN MILD IRRITANT TO EYES AND HANDS.

5.12.5 Storage. Vapor barrier, corrosion inhibitors shall be stored at an ambient temperature of not more than 100°F and in a dry area keeping containers tightly sealed to prevent the escape of vapors. This storage area shall be well ventilated. Containers shall be checked every six months for volatility of composition. Do not store near heat, sparks, flame, other ignition sources. (Refer to 4.3.2)

5.12.6 Disposal. For appropriate procedures, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

Vapor barrier, corrosion inhibitor has an EPA Hazardous Waste Classification - Ignitable; Waste Number D001.

5.13 Name. Inhibitor, Corrosion, Water Soluble  
(Hazardous)

5.13.1 Technical Description. Water soluble corrosion inhibitor is in reality a rust inhibitor in powder form and the chemical analysis is as follows:

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Calcium oxide CaO	10 percent
Sodium chromate Na <sub>2</sub> CrO <sub>4</sub>	3 percent
Sodium phosphate tribasic Na <sub>3</sub> PO <sub>4</sub>	87 percent

5.13.2 Specifications. None.

5.13.3 Use. For military use, water soluble corrosion inhibitor is used in conjunction with an abrasive in the cleaning of ferrous metals. After cleaning, it is used as a rinse to prevent rust and corrosion of ferrous metals. It will increase the inside storage time of ferrous metals, and improve paint adhesion results. Typical commercial applications are the same.

5.13.4 Safety. Corrosion inhibitor containing sodium chromate is highly toxic and irritating to eyes, skin and mucous membranes. Inhalation of dust or mists shall be avoided. Contact with the eyes, skin and clothing shall be avoided. Wash thoroughly after handling. Corrosion inhibitor containing sodium chromate shall be used with adequate ventilation. Sodium chromate is a human carcinogen. The TLV for chromium compounds as Cr(II) and Cr(III) is 0.5 mg/m<sup>3</sup>. The TLV for chromium compounds as Cr (VI) is 0.05 mg/m<sup>3</sup>. (Refer to 4.3.1)

If heated to decomposition, sodium chromate may emit toxic or irritating fumes.

5.13.5 Storage. Corrosion inhibitor containing sodium chromate shall be stored in a cool, dry, well ventilated place in tightly closed containers. (Refer to 4.3.2)

5.13.6 Disposal. For appropriate procedure, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4) If in solution reduce chromium(IV) to chromium(III) and add alkali to precipitate chromium(II) sludge. Where permitted by governing laws and regulations, the sludge can be encased in concrete for disposal in permitted landfill.

Sodium chromate has an EPA Hazardous Waste Classification - EP Toxic, Waste Number D007; Toxic, Waste Number U032.

5.14 Name. Inhibitor, Pickling Chemical (For Use With Hydrochloric Acid)

5.14.1 Technical Description. Pickling chemical inhibitor, when added to hydrochloric (muriatic) acid, diminishes the corrosive attack of the acid on metals. The inhibitor shall be a liquid nonfoaming product. The inhibitor shall contain not more than 0.01 percent of arsenic and be capable of uniformly dissolving in hydrochloric acid for maximum effectiveness immediately on mixing. The inhibited hydrochloric acid solution shall not stain metal nor leave films or deposits on metal surfaces.

5.14.2 Specifications. MIL-I-17433; Inhibitor, Pickling Chemical Hydrochloric Acid Bath.

5.14.3 Use. For the military, this inhibitor is intended to be added to hydrochloric acid solutions and used in the removal of mill scale and waterborne deposits from the water side of the equipment. It shall be used in the dilution recommended by the manufacturer and only in conjunction with hydrochloric (muriatic) acid. Typical commercial applications are the same.

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5.14.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.14.5 Storage. This material should be stored at an ambient temperature of not more than 100°F and in a dry area. Open containers should be used as soon as practical. After six months storage, this material should be tested before use. (Refer to 4.3.2)

5.14.6 Disposal. For appropriate procedure, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices (Refer to 4.4)

An EPA Hazardous Waste Classification is not listed in 40 CFR.

5.15 Name. Inhibitor, Pickling Chemical (For Use With Sulfuric Acid)

5.15.1 Technical Description. This inhibitor shall be a formulation of compounds which, when added to sulfuric acid pickling baths, diminish the attack of acid on descaled areas without appreciably retarding the descaling rate. The inhibited acid solution shall not stain the steel, and shall not leave films which would interfere with galvanizing, tinning, painting, electroplating, or other processes used for coating steel. The inhibitors shall not contain more than 0.10 percent arsenic. Inhibitors shall be available in solid and liquid form and shall be either foaming or nonfoaming in type as specified in the contract or order.

5.15.2 Specifications. O-I-501; Inhibitors, Pickling (For Use With Sulfuric Acid).

5.15.3 Use. For the military, this inhibitor is intended to be used in the pickling of steel plate forgings and other steel articles. This inhibitor contains long-life, heat-stable products, and care should be taken to avoid excessive inhibitor build-up in the pickling bath and consequent long pickling cycles. It should be used only in conjunction with sulfuric acid, and should be used in the dilution as recommended by the manufacturers. Typical commercial applications are the same.

5.15.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.15.5 Storage. This material shall be stored in a cool dry area. The material shall be tested before use after six months. (Refer to 4.3.2)

5.15.6 Disposal. For appropriate procedure, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

An EPA Waste Classification is not listed in 40 CFR.

5.16 Name. Leak Preventive Compound, Radiator

5.16.1 Technical Description. Cooling system leak preventive compound shall consist of a volatile solution containing a filler, a water-dispersible binder, and additives, such as preservatives and rust inhibitors, required to prevent deterioration of the compound within the container and to protect the cooling system metals. The material shall be nonabrasive and shall be free of silicates

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or materials subject to fungal or bacterial attack for which no preservative is provided, and free of any other material which may have a harmful effect on the radiator or other components of the cooling system of an engine. The compound shall not clog the tubes of the radiator and shall be readily removable from the cooling system by means of cooling system cleaners.

### 5.16.2 Specifications. O-L-160; Leak Preventive Compound, Radiator

5.16.3 Use. For military use, the cooling system leak preventive compound is intended as a temporary seal for small cracks and pinhole leaks in a high velocity zone. The water soluble binder found in a leak preventive compound usually hardens only when in contact with air and heat. This compound is not intended to function as an antiseepage and cooling system conditioner. Typical commercial applications are the same.

5.16.4 Safety. The general requirements for safety covered in 4.3 apply. No other safety measures are needed.

5.16.5 Storage. Radiator leak preventive compound should be stored in the package in which it is shipped until ready for use. When the containers are kept tightly closed, this material has an indefinite shelf life. (Refer to 4.3.2)

5.16.6 Disposal. For appropriate procedure, contact the Installation Environmental Office, the DRMO, or Safety and Health Offices. (Refer to 4.4)

An EPA Hazardous Waste Classification is not listed in 40 CFR.

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## 6. NOTES

6.1 Intended use. This standard is intended to cite nomenclature, formulas, physical and chemical properties, specification requirements, military and typical commercial uses, safety information, storage information, and disposal information for corrosion preventive compounds and inhibitors preferred for application by the Department of Defense.

6.2 Subject term (key word) listing.

Additive, Antifreeze Extender, Liquid Cooling System  
Boiler Compound, Briquets (Hazardous)  
Compound, Antiseepage, For Cooling System, Internal Combustion Engine  
(Metric)  
Corrosion Preventive, Aircraft Engine  
Corrosion Preventive, Aircraft Engine, Gas Turbine  
Corrosion Preventive, Aircraft Engine, Heavy Oil  
Corrosion Preventive, Soluble Oil  
Hazardous wastes, disposal and storage of  
Information, hazardous chemicals  
Inhibitor, Corrosion, Lubricating Oil (Indoor Use)  
Inhibitor, Corrosion, Lubricating Oil (Outdoor Use)  
Inhibitor, Corrosion/Lubricity Improver, Fuel Soluble  
Inhibitor, Corrosion, Soluble Oil  
Inhibitor, Corrosion, Vapor Barrier (Hazardous)  
Inhibitor, Corrosion, Water Soluble (Hazardous)  
Inhibitor, Pickling Chemical (For Use With Hydrochloric Acid)  
Inhibitor, Pickling Chemical (For Use With Sulfuric Acid)  
Leak Preventive Compound, Radiator  
Safety, hazardous chemicals

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

6.4 Abbreviations. The use of abbreviations shall be in accordance with MIL-STD-12 where applicable. Metric system abbreviations and symbols shall be in accordance with ASTM E 380.

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**CONCLUDING MATERIAL**

**Lead Service Activity:**

Defense General Supply Center - GS

**Custodians:**

Army - EA  
Navy - AS  
Air Force - 68

**Preparing Activity:**

Army - EA  
Project Number 6850-1072

**Review Activities:**

Army - MD, ME  
Navy - MS, SH  
GSA/FSS (9FTE-10)





## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

*(See Instructions - Reverse Side)*

1. DOCUMENT NUMBER <b>MIL-STD-1216A</b>		2. DOCUMENT TITLE <b>PREVENTIVE COMPOUNDS (CORROSION) AND INHIBITORS</b>	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION <i>(Mark one)</i>	
b. ADDRESS <i>(Street, City, State, ZIP Code)</i>		<input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER <i>(Specify):</i> _____	
5. PROBLEM AREAS			
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b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
6. REMARKS			
7a. NAME OF SUBMITTER <i>(Last, First, MI)</i> - Optional		b. WORK TELEPHONE NUMBER <i>(Include Area Code)</i> - Optional	
c. MAILING ADDRESS <i>(Street, City, State, ZIP Code)</i> - Optional		8. DATE OF SUBMISSION (YYMMDD)	

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