

METRIC

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SUPERSEDING

MIL-C-62218A(AT)

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PERFORMANCE SPECIFICATION

CORROSION PREVENTIVE COMPOUNDS, COLD APPLICATION (FOR NEW AND FIELDIED MOTOR VEHICLES AND TRAILERS)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE.

1.1 Scope. This specification covers solvent dispersed corrosion preventive compound referred to herein as "compound" for spray, brush, or dip application on new and fieldied motor vehicles and trailers (see 6.1).

1.2 Classification. The compound covered by this performance specification is of the types specified below (see 6.1 and 6.2):

- | | |
|---------|---|
| Type I | - For new motor vehicles and trailers. |
| Type II | - For fieldied motor vehicles and trailers. |

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/BUE, Warren, MI 48397-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document, or by letter.

AMSC N/A

FSC 8030

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

MIL-PRF-62218B

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 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 documents cited in sections 3 and 4 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 listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

STANDARDS

FEDERAL

FED-STD-595	- Colors Used in Government Procurement.
FED-STD-791	- Lubricants, Liquid Fuels, and Related Products; Methods of Testing.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Bldg 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 which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)

ANSI/ASQC Z1.4	- Sampling Procedures and Tables for Inspections by Attributes (DoD Adopted).
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MIL-PRF-62218B

(Application for copies should be addressed to American National Standard Institute, 11 West 42nd Street, New York, NY 10036.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

B117	- Salt Spray (FOG) Testing Apparatus.
D93	- Flash Point by Pensky - Martens Closed Cup Tester (DoD Adopted).
D95	- Water in Petroleum Products and Bituminous Materials by Distillation (DoD Adopted).
D130	- Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test (DoD Adopted).
D609	- Preparation of Cold-Rolled Steel Panels for Testing Paint, Varnish, Conversion Coatings, and Related Coating Products (DoD Adopted).
D874	- Sulfated Ash from Lubricating Oils and Additives (DoD Adopted).
D1310	- Flash Point and Fire Point of Liquids by Tag Open-Cup Apparatus (DoD Adopted).
D1475	- Density of Paint, Varnish, Lacquer, and Related Products (DoD Adopted).
D3170	- Chipping Resistance of Coatings (DoD Adopted).
D3335	- Low Concentrations of Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy (DoD Adopted).
D3891	- Preparation of Glass Panels for Testing Paint, Varnish, Lacquer, and Related Products (DoD Adopted).
D4057	- Manual Sampling of Petroleum and Petroleum Products (DoD Adopted).

(Application for copies of all ASTM test methods should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

SOCIETY OF AUTOMOTIVE ENGINEERS, INC. (SAE)

J1959	- Corrosion Preventive Compound, Underbody Vehicle Corrosion Protection.
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(Application for copies of all SAE test methods should be addressed to Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.)

MIL-PRF-62218B

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.2.

3.2 Materials. Unless otherwise specified herein, the materials used shall be in accordance with the manufacturer's material specifications. The compound shall consist of a nonvolatile base material dispersed in a petroleum solvent. The compound shall be homogeneous, fluid, and shall meet the requirements of this specification. The compound shall have no detrimental effect on materials of construction or the performance of motor vehicles or trailers when used as intended (see 4.6.1 and 6.4).

3.2.1 Safety. The compound shall not contain any substance of a highly toxic nature. The compound shall have no adverse effect on the health of personnel when applied properly and used for its intended purpose (see 4.6.1).

3.2.1.1 Aromatic hydrocarbons. The compound shall not contain any benzene hydrocarbons (see 4.6.1).

3.2.1.2 Halogenated hydrocarbons. The compound shall not contain any halogenated hydrocarbons (see 4.6.1 and 4.6.4).

3.3 Chemical and physical characteristics.

3.3.1 Nonvolatile content.

3.3.1.1 Type I. The percentage by weight of the nonvolatile content to meet the performance requirements of 3.4, shall be established during testing. The nonvolatile content of any succeeding lot shall be within ± 5 percent (5%) of the established value (see 4.6.5).

3.3.1.2 Type II. The nonvolatile content, expressed as a percentage by weight, shall be established during testing except that the nonvolatile content shall be not less than 52% based on the compound as received as being 100%. The nonvolatile content of any succeeding lot shall be within ± 5 percent of the established value (see 4.6.5).

MIL-PRF-62218B

3.3.1.3 Weight per gallon. The weight per liter, expressed in grams per liter, shall be established during testing. The weight per liter of any succeeding lot shall be within $\pm 5\%$ of the established value (4.6.5).

3.3.1.4 Sulfated ash content. The sulfated ash content, expressed as a percentage by weight, shall be established during testing. When the established value is 0 to 0.5%, the sulfated ash content of any succeeding lot shall be within ± 0.05 of the established value. When the established value is 0.51% or higher, the sulfated ash content of any succeeding lot shall be within $\pm 10\%$ of the established value (see 4.6.5).

3.3.2 Water content. The amount of water present in the compound shall be not greater than 1% by weight (see 4.6.5).

3.3.3 Lead content. The amount of lead present in the nonvolatile portion of the compound shall be not greater than 0.015% by weight (see 4.6.5).

3.3.4 Flash point. The flash point of the compound shall be not less than 38 degrees Celsius ($^{\circ}\text{C}$) (100 degrees Fahrenheit ($^{\circ}\text{F}$)) (see 4.6.5).

3.3.5 Condition in container. The compound shall show no settling in a freshly opened, full container. There shall be no evidence of lumps, skins, or separation of the solvent (see 4.6.5.1).

3.3.6 Color. The color requirements specified herein apply to compounds that are intended only for use on combat or tactical vehicles and trailers (see 4.3 and 6.2).

3.3.6.1 Type I. The compound shall be translucent or the color shall be brown conforming to color chip 30051 of FED-STD-595 or black conforming to color chip 37038 of FED-STD-595. Fluorescent pigments and dyes shall not be used (see 4.6.3).

3.3.6.2 Type II. The color shall be brown conforming to color chip 30051 of FED-STD-595 or black conforming to color chip 37038 of FED-STD-595. Fluorescent pigments and dyes shall not be used (see 4.6.3).

3.4 Performance.

3.4.1 Film characteristics.

3.4.1.1 Type I. When sprayed on a vertical surface in a single back and forth motion to the manufacturer's designated wet film thickness, the compound shall produce a coating which is continuous and uniform upon evaporation of the solvent. The dry film thickness over metal

MIL-PRF-62218B

profile of the coating shall not be less 152 micrometers (μm) (6 mils) and shall vary not more than 12.7 μm (0.5 mil). The compound shall not sag at the manufacturer designated wet film thickness (see 4.6.6).

3.4.1.2 Type II. When sprayed on a vertical surface in a single back and forth motion to the manufacturer's designated wet film thickness, the compound shall produce a coating which is continuous and uniform upon evaporation of the solvent. The dry film thickness over metal profile of the coating shall be $203 \pm 51 \mu\text{m}$ (8 ± 2 mils). The compound shall not sag at the manufacturer's designated wet film thickness (see 4.6.6).

3.4.2 Creep.

3.4.2.1 Type I. When tested in accordance with 4.6.7, the compound shall show no evidence of creep of 6.4 millimeters (mm) (0.25 inches (in)) or more on clean test panels.

3.4.2.2 Type II. When tested in accordance with 4.6.7, the compound shall show no evidence of creep of 6.4 mm (0.25 in) or more on mildly corroded test panels.

3.4.3 Copper corrosion. The compound shall not be corrosive to copper. When tested in accordance with 4.6.8, the copper strip classification value shall not exceed 1b (slight tarnish, dark orange) as specified in ASTM D130 (see 4.6.8).

3.4.4 Fire resistance. The compound shall produce a coating which may char, but shall not support combustion for more than 15 seconds after the flame source is removed in accordance with ASTM D1310 (see 4.6.9).

3.4.5 Detergent resistance. The compound shall produce a coating which shall remain intact and continuous after immersion in a detergent solution (see 4.6.10).

3.4.6 Chip resistance. The compound shall produce a coating which shall resist chipping damage due to stones or other flying objects (see 4.6.11).

3.4.7 Solvent vapor wash resistance. The compound shall produce a coating which shall resist the washing action of the compound's solvent vapor in enclosed areas (see 4.6.12).

3.4.8 Condition to touch. The compound shall produce a coating which shall be dry to touch in 7 days (see 4.6.13).

3.4.9 Environmental. Unless otherwise specified herein, the environmental testing shall conform to SAE J1959.

MIL-PRF-62218B

3.4.9.1 Low temperature stability. The compound shall remain homogeneous after exposure to various temperatures as specified in 4.6.14.1.

3.4.9.2 Low temperature sprayability. The compound shall be sprayable at temperatures down to 4°C (40°F). The compound shall be considered sprayable at 4°C (40°F) if the film on the sprayed glass panel is continuous and uniform (see 4.6.14.2).

3.4.9.3 Low temperature flexibility. The compound shall produce a coating which shall be flexible at temperatures down to -29°C (-20°F) (see 4.6.14.3).

3.4.9.4 High temperature sprayability. The compound shall be sprayable at temperatures up to 38°C (100°F) (see 4.6.14.4).

3.4.9.5 High temperature flow resistance. The compound, after curing, shall produce a coating which shall not sag when exposed to temperatures up to 149°C (300°F) for 2 hours (see 4.6.14.5).

3.4.9.6 Salt fog.

3.4.9.6.1 Type I. When applied to a clean surface, the compound shall produce a coating which shall inhibit corrosion and other surface failures when exposed to a 1000 hours salt fog atmosphere in accordance with SAE J1959.

3.4.9.6.2 Type II. When applied to a test surface corroded by exposure to 120 hours of ASTM B117 salt fog, the compound shall produce a coating which shall inhibit corrosion and other failures when exposed to 1000 hours salt fog atmosphere in accordance with SAE J1959, except that the rating number shall be not less than 2.

3.4.9.7 Salt water immersion. The compound shall produce a coating which shall inhibit corrosion to a rating not less than 9 when immersed in salt water for 21 days (see 4.6.14.6).

3.4.9.8 Cyclic environmental conditions. The compound shall produce a coating which shall inhibit corrosion when exposed to cyclic environmental conditions, in accordance with SAE J1959, sections 3.9 and 3.12.

3.5 Workmanship. Workmanship shall be such quality as to assure that the compound furnished under the specification is uniform in qualities and condition and free from foreign materials (see 4.6.3).

MIL-PRF-62218B

3.6 Identification and marking. Identification and marking shall be permanent and legible and shall include as a minimum, the manufacturer's name and part number and the National Stock Number (NSN). Specific markings, if any, shall be as specified (see 4.3 and 6.2).

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 inspections (see 4.3).
 - 1. Test (see 4.4).

4.2 First article inspection. First article inspection shall be performed on a sample of the compound produced under the production contract when a first article sample is required (see 3.1). This inspection shall include the examinations of 4.3 (see table I) and the tests of table II.

TABLE I. Classification of defects.

Category	Defect	Method of examination
Critical	None	
<u>Major:</u>		
101	Color, not as specified (see 3.3.6).	Visual
102	Identification marking, improper (see 3.6).	Visual and SIE <u>1/</u>
<u>Minor:</u>		
201	Workmanship, faulty (see 3.5).	Visual and SIE
202	Packing, incorrect (see 5.1).	Visual

1/ SIE = Standard Inspection Equipment.

MIL-PRF-62218B

TABLE II. Classification of inspections.

Title	Requirement	Inspection	First article	Conformance	
				Examination	Control
Materials	3.2 thru 3.2.1.2	4.6.1	X	X	
Halogenated hydrocarbons	3.2.1.2	4.6.4	X		
Defects (see table I)	3.3.6, 3.5, and 5.1	4.6.3	X		
Nonvolatile contents	3.3.1	4.6.5	X		
Water content	3.3.2	4.6.5	X		
Lead content	3.3.3	4.6.5	X		
Flash point	3.3.4	4.6.5	X		
Condition in container	3.3.5	4.6.5.1	X		
Film characteristics	3.4.1	4.6.6	X		X
Creep	3.4.2	4.6.7	X		X
Copper corrosion	3.4.3	4.6.8	X		
Detergent resistance	3.4.5	4.6.10	X		X
Chip resistance	3.4.6	4.6.11	X		X
Solvent vapor wash resistance	3.4.7	4.6.12	X		X
Condition to touch	3.4.8	4.6.13	X		X
Low temperature stability	3.4.9.1	4.6.14.1	X		X
Low temperature sprayability	3.4.9.2	4.6.14.2	X		X
Low temperature flexibility	3.4.9.3	4.6.14.3	X		X
High temperature sprayability	3.4.9.4	4.6.14.4	X		X
High temperature flow resistance	3.4.9.5	4.6.14.5	X		X
Salt fog	3.4.9.6		X		
Salt water immersion	3.4.9.7	4.6.14.6	X		
Cyclic environmental conditions	3.4.9.8		X		

4.3 Conformance inspection.

4.3.1 Sampling. Samples from an inspection lot for conformance inspection shall be selected in accordance with ANSI/ASQC Z1.4. Each sample selected shall be inspected as specified herein for the defects listed in table I. Conformance to a lot shall be accepted when zero

MIL-PRF-62218B

(0) defects are found and rejected when one (1) or more defects are found. First article test samples shall not be shipped.

4.3.1.1 Sampling for tests. Samples for tests shall be selected in accordance with ASTM D4057.

4.4 Test. Samples selected in accordance with 4.3.1.1 shall be subjected to the conformance tests specified in table II.

4.5 Control tests. When specified (see 6.2), the compound shall be subjected to the control tests specified in table II. The frequency of control testing shall be determined by the Government (see 6.2).

4.6 Methods of inspection.

4.6.1 Materials. Conformance to 3.2 thru 3.2.1.2 shall be determined by inspection of contractor records providing proof or certification that materials conform to requirements. Applicable records shall include specifications, design data, receiving inspection records, processing and quality control standards, vendor catalogs and certifications, industry standards, test reports, and rating data.

4.6.2 Inspection conditions. Unless otherwise specified (see 6.2), all inspections shall be conducted under the following conditions:

- a. Air temperature: $23 \pm 10^{\circ}\text{C}$ ($73 \pm 18^{\circ}\text{F}$)
- b. Barometric pressure: $96 + 7, -10$ kilopascals (kPa) ($28.5 + 2, -3$ inches mercury (Hg)).
- c. Relative humidity: $50 \pm 30\%$.

4.6.3 Defects. Conformance to 3.3.6 through 3.3.6.2, 3.5, and 5.1 shall be determined by examination for the defects listed in table I. Examination shall be visual, tactile, or by measurement with standard inspection equipment.

4.6.4 Halogenated hydrocarbons. To determine conformance to 3.2.1.2, a small loop of 18 to 20 gage copper wire shall be heated in the flame of a Bunsen burner until there is no color to the flame. The loop shall be cooled and dipped into a sample of the compound being tested. The loop shall be cooled and dipped into a sample of the compound being tested. The loop shall then be placed in the outer portion of the flame and after the luminous flame had disappeared, there shall be no green coloration in the flame. A green coloration in the flame indicates the presence of a halogenated compound.

MIL-PRF-62218B

4.6.5 Chemical and physical characteristics. To determine conformance to 3.3.1 through 3.3.4, the compound shall be tested in accordance with the methods specified in table III.

TABLE III. Test methods for chemical and physical characteristics.

Characteristic	Method
Nonvolatile content	FED-STD-791, method 3480
Weight per gallon	ASTM D1475
Sulfated ash content	ASTM D874
Water content	ASTM D95
Lead content	ASTM D3335
Flash point	ASTM D93

4.6.5.1 Condition in container. To determine conformance to 3.3.5, the compound shall be observed in the container in which the material was submitted for test and prior to any agitation. The presence of lumps or skins shall be noted and a spatula or paddle shall be lowered into the container to establish evidence of settling or separation of the solvent.

4.6.6 Film characteristics. To determine conformance to 3.4.1, three test panels shall be prepared as specified in 4.6.6.1 and coated as specified in 4.6.6.2. The wet film shall be examined for evidence of sag. The test panels shall be permitted to air-dry in a vertical position for 7 days \pm 2 hours at a temperature of $25 \pm 3^{\circ}\text{C}$ ($77 \pm 5^{\circ}\text{F}$). To determine if the costing is continuous, the dry test panels shall be examined under 10X magnification. An Elcometer gage or an equivalent gage shall be used to determine the dry film thickness of the coating.

4.6.6.1 Preparation of test panels. Test panels shall be prepared from cold rolled steel, commercial quality, conforming to type 2 of ASTM D609. The test panels shall be approximately 102 by 305 mm (4 by 12 in) of any convenient size thickness greater than 0.64 mm (0.025 in). The edges shall be well rounded. The test panels shall be cleaned in accordance with Method D of ASTM D609. After cleaning, the test panels shall be stored in a desiccator and shall be used the same day they are prepared. The test panels shall be handled with forceps or other instruments at all times to avoid fingerprint corrosion.

4.6.6.2 Application of compound. The test panel shall be held in a vertical position and the compound shall be sprayed on the test panel in a single back and forth motion to the manufacturer's designated wet film thickness.

4.6.7 Creep.

4.6.7.1 Type I. To determine conformance to 3.4.2.1, the compound shall show no evidence of creep of 6.4 mm (0.25 in) or more on clean test panels. Two clean test panels made of cold rolled steel of commercial quality and a minimum of 6.4 mm (0.25 in) thick shall be

MIL-PRF-62218B

fastened together at the end with a 12.7 mm (0.5 in) overlap. The compound shall be applied to the top edge of the joint by means of a spatula. The test panels shall remain in a vertical position for 7 days at $25 \pm 1^\circ\text{C}$ ($77 \pm 2^\circ\text{F}$). Following the test period, the test panels shall be carefully separated and then examined for evidence of creep.

4.6.7.2 Type II. To determine conformance to 3.4.2.2, the compound shall show no evidence of creep 6.4 mm (0.25 in) or more on mildly corroded test panels made of the same material as in 4.6.7.1. The test panels shall be exposed to a salt fog for 24 hours in accordance with ASTM B117 prior to application of the compound.

4.6.8 Copper corrosion. To determine conformance to 3.4.3, the compound shall be tested as specified in ASTM D130. The test duration shall be 3 hours \pm 5 minutes and the test temperature shall be $100 \pm 1^\circ\text{C}$ ($212 \pm 2^\circ\text{F}$). The copper strip classification value shall not exceed 1b (slight tarnish, dark orange) as specified in ASTM D130.

4.6.9 Fire resistance. To determine conformance to 3.4.4, dry, coated, test panels shall be exposed to a flame of a Bunsen burner for 20 ± 1 seconds. The compound shall produce a coating which may char, but shall not support combustion for more than 15 seconds after the flame source is removed in accordance with ASTM D1310.

4.6.10 Detergent resistance. To determine conformance to 3.4.5, the coating compound, when applied to test panels, in accordance with the compound manufacturer's recommendation, shall produce a coating which shall remain intact and continuous after immersion in a detergent solution of 2.5 grams of sodium lauryl sulfate, or equivalent, per liter of water. The temperature of the detergent solution and rinse water shall be $50 \pm 1^\circ\text{C}$ ($122 \pm 2^\circ\text{F}$).

- a. Immerse the test panels in the detergent solution for 5 minutes.
- b. Rinse the test panels for 1 minute.
- c. Immerse the test panels in the detergent solution for 10 minutes.
- d. Rinse the test panels for 2 minutes.
- e. Repeat steps c and d.

4.6.11 Chip resistance. To determine conformance to 3.4.6, the compound shall produce a coating which shall resist chipping damage due to stones or other flying objects. To determine conformance to the requirement, the compound applied clean test panels as in 4.6.7.2 shall be tested as specified in ASTM D3170. The test temperature shall be $0 \pm 1^\circ\text{C}$ ($32 \pm 2^\circ\text{F}$). The chipping rating value shall not be less than 3A.

4.6.12 Solvent vapor wash resistance. To determine conformance to 3.4.7, when subject to a normal solvent vapor washing cycle to remove oils, dirt and grime, the compound shall

MIL-PRF-62218B

produce a coating which shall resist the washing action of the compound's solvent vapor in enclosed areas, and shall not show any signs of degradation. To determine conformance to the requirement, the compound applied to a suitable surface at the manufacturer's recommended wet film thickness, shall be placed in an enclosed area and subjected to $121 \pm 3^{\circ}\text{C}$ ($250 \pm 5^{\circ}\text{F}$) for 15 minutes. Following removal from the heat source, the compound coated surface shall be allowed to cool at room temperature for 15 minutes. There shall be no evidence of sagging, channeling, or removal of the compound from the prepared surface.

4.6.13 Condition to touch. To determine conformance to 3.4.8, the compound shall produce a coating which shall be dry to touch in 7 days, when dried at normal room temperature.

4.6.14 Environmental.

4.6.14.1 Low temperature stability. To determine conformance to 3.4.9.1, a pour point jar shall be filled to the mark with the compound and stoppered. The jar shall then be placed in a cold chamber maintained at $-29 \pm 0.5^{\circ}\text{C}$ ($-20 \pm 1^{\circ}\text{F}$). The jar shall remain in the cold chamber for $16 \text{ hours} \pm 15 \text{ minutes}$. Care shall be taken to avoid physically disturbing the compound. The jar shall then be removed from the cold chamber and allowed to remain at $25 \pm 3^{\circ}\text{C}$ ($77 \pm 5^{\circ}\text{F}$) for $8 \text{ hours} \pm 15 \text{ minutes}$. This cycle shall be performed for a total of four times, ending with the expiration of the last exposure at $-29 \pm 0.5^{\circ}\text{C}$ ($-20 \pm 1^{\circ}\text{F}$). The jar shall then be removed from the cold chamber and allowed to remain at $25 \pm 3^{\circ}\text{C}$ ($77 \pm 5^{\circ}\text{F}$) for $6 \text{ hours} \pm 10 \text{ minutes}$ after which the jar shall be inverted six times and allowed to stand at $25 \pm 3^{\circ}\text{C}$ ($77 \pm 5^{\circ}\text{F}$) for 1 hour. The compound shall be visually examined and shall show no evidence of settling or separation of the solvent. A spatula or paddle shall be lowered into the jar to establish evidence of settling or separation of the solvent.

4.6.14.2 Low temperature sprayability. To determine conformance to 3.4.9.2, compound held in suitable sealed storage containers shall be placed in a cold chamber and held at a temperature of $4 \pm 1^{\circ}\text{C}$ ($40 \pm 2^{\circ}\text{F}$) for a period of 24 hours. The manufacturer's designated spraying apparatus shall be conditioned at $4 \pm 1^{\circ}\text{C}$ ($40 \pm 2^{\circ}\text{F}$) for at least 2 hours. A glass plate measuring at least 254 by 254 mm (10 by 10 in), prepared in accordance with ASTM D3891, shall be conditioned at $4 \pm 1^{\circ}\text{C}$ ($40 \pm 2^{\circ}\text{F}$) for at least 2 hours. The compound shall be transferred to the spraying apparatus. The glass plate shall be held in a vertical position and the compound shall be sprayed on the glass plate to the manufacturer's designated wet film thickness. The glass plate shall be held in a vertical position at $25 \pm 3^{\circ}\text{C}$ ($77 \pm 5^{\circ}\text{F}$) for 7 days $\pm 2 \text{ hours}$. The compound shall be considered sprayable at 4°C (40°F) if the film on the sprayed glass panel is continuous and uniform. To determine if the coating is continuous, the glass plate shall be examined under 10X magnification. To determine if the coating is uniform, the dry film thickness (see 3.4.1) shall be measured as specified in 4.6.6.

MIL-PRF-62218B

4.6.14.3 Low temperature flexibility. To determine conformance to 3.4.9.3, three test panels shall be prepared, coated, and air-dried as specified in 4.6.6. The test panels shall then be conditioned at $-29 \pm 0.5^{\circ}\text{C}$ ($-20 \pm 1^{\circ}\text{F}$) for 2 hours. Each test panel shall be bent around a cylindrical mandrel, 4.8 mm (0.19 in) in diameter, which has been cooled to $-29 \pm 0.5^{\circ}\text{C}$ ($-20 \pm 1^{\circ}\text{F}$). Gloves shall be used in handling the test panels and no more than 5 seconds shall elapse from the time the chamber is opened and the test panel is bent. The test panels shall be examined under 10X magnification. There shall be no evidence of cracking, peeling, or chipping of the coating on the test panels.

4.6.14.4 High temperature sprayability. To determine conformance to 3.4.9.4, compound held in a suitable sealed storage container shall be placed in an oven and held at a temperature of $38 \pm 1^{\circ}\text{C}$ ($100 \pm 2^{\circ}\text{F}$) for a period of 24 hours. The manufacturer's designated spraying apparatus shall be conditioned at $38 \pm 1^{\circ}\text{C}$ ($100 \pm 2^{\circ}\text{F}$) for at least 2 hours. A glass plate, as specified in 4.6.14.2 shall be conditioned at $38 \pm 1^{\circ}\text{C}$ ($100 \pm 2^{\circ}\text{F}$) for at least 2 hours. The heated compound shall be sprayed on the glass plate as specified in 4.6.14.2. The compound shall be considered sprayable at 38°C (100°F) if the film on the sprayed glass panel is continuous and uniform. The film shall be examined and the dry film thickness shall be determined as specified in 4.6.14.2.

4.6.14.5 High temperature flow resistance. To determine conformance to 3.4.9.5, three test panels shall be prepared, coated, and air-dried as specified in 4.6.6. Using a stiff spatula, knife, or razor blade, remove a 25.4 mm (1 in) strip of the coating along one of the long edges of each test panel, after cutting the film parallel to the edge of the test panel and at a right angle to the surface of the test panel. A straight line shall then be drawn or scratched on each test panel, parallel to the cut edge of the film, and 3.2 mm (0.125 in) away from it. The test panel shall then be suspended vertically, with the exposed area downward, for 2 hours in a gravity convection oven maintained at $149 \pm 1^{\circ}\text{C}$ ($300 \pm 2^{\circ}\text{F}$). The test panels shall be removed from the oven and allowed to cool to $25 \pm 3^{\circ}\text{C}$ ($77 \pm 5^{\circ}\text{F}$). The position of the cut edge of the coating relative to the reference line drawn or scratched on each test panel shall be examined and measured. There shall be no movement of the coating toward the reference line.

4.6.14.6 Salt water immersion. To determine conformance to 3.4.9.7, three unscribed test panels shall be prepared in accordance with SAE J1959. The panels shall be immersed in salt water at a temperature of $25 \pm 1^{\circ}\text{C}$ ($77 \pm 2^{\circ}\text{F}$) for $21 \text{ days} \pm 2 \text{ hours}$. The salt water solution shall contain 27.6 grams of sodium chloride and 2.4 grams of calcium chloride per liter. The pH of the solution shall be adjusted to a value of 7.8 to 8.2 by addition of a 5% solution of sodium carbonate.

MIL-PRF-62218B

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, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. 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.

6.1.1 Type I. The compound furnished under this specification is intended to protect the underbody and the boxed-in and concealed areas of new motor vehicles and trailers (see 1.1 and 6.2).

6.1.2 Type II. The compound furnished under this specification is intended to preserve the underbody and the boxed-in and concealed areas of fielded motor vehicles and trailers. The compound can be effectively used over previously rusted areas if the rust is tightly adhering to the metal (see 1.1 and 6.2).

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Type of compound (see 1.2).
- c. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2.1 and 2.3).
- d. When first article is required (see 3.1).
- e. Color required (see 3.3.6).
- f. PIN number and marking (see 3.6 and 6.3).
- g. If control testing is required (see 4.5).
- h. If control testing is required, specify the frequency of testing (see 4.5).
- i. Inspection condition requirements (see 4.6.2).
- j. Packaging requirements (see 5.1).

MIL-PRF-62218B

Custodians:

Army - AT

Air Force - 99

Navy - YD1

Preparing Activity:

Army - AT

(Project 8030-0708)

Review Activities:

Army - AR, ME, MR

Air Force - 84

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

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

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
MIL-PRF-62218B

2. DOCUMENT DATE (YYMMDD)
960603

3. DOCUMENT TITLE Corrosion Preventive Compounds, Cold Application (For New and Fielded Motor Vehicles and Trailers)

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

d. TELEPHONE (Include Area Code)
(1) Commercial
(2) AUTOVON
(If applicable)

7. DATE SUBMITTED
(YYMMDD)

8. PREPARING ACTIVITY

a. NAME

b. TELEPHONE (Include Area Code)
(1) Commercial

(2) AUTOVON

(810) 574-8745

786-8745

c. ADDRESS (Include Zip Code) Commander
U.S. Army Tank-automotive and Armaments
Command, ATTN: AMSTA-TR-E/BLUE,
Warren, MI 48397-5000

IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:
Defense Quality and Standardization Office
5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466
Telephone (703) 756-2340 AUTOVON 289-2340