AEROSPACE
MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 3065C

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COMPOUND, CORROSION PREVENTIVE
Thin Film, Fingerprint Removing

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. APPLICATION: As a coating to neutralize the corrosive effect of fingerprints on metals, when applied cold before or immediately after handling. Primarily for use during shop processing and interplant shipment and not for extended storage.

3. MATERIAL: Shall consist of corrosion preventive organic substances dissolved or emulsified in a volatile solvent.

4. TECHNICAL REQUIREMENTS:

4.1 General:

4.1.1 Odor: Compound shall be free from disagreeable and offensive odors.

4.1.2 Toxicity: Compound shall contain no ingredients which may be injurious to persons using it under normal conditions and reasonable safety precautions.

4.1.3 Removability: Compound, after evaporation of the volatile portion, shall be readily removable by spraying with, or dipping in, AMS 3160 solvent; no residue shall remain on the piece.

4.2 Properties:

4.2.1 Physical Properties:

4.2.1.1	Flash Point, deg Fahr, min	100 (37.8 C)	ASTM D56-56
4.2.1.2	Viscosity, centistokes, at 100 F (37.8 C), max	30	ASTM D445-60
4.2.1.3	Corrosion, Copper Strip, at 212 F (100 C)	No pitting and no discoloration darker than ASTM Classification No. 1	ASTM D130-56
4.2.1.4	Film Thickness, in., max	0.001	See 4.2.1.4.1

4.2.1.4.1 Weigh a clean polished panel of shim stock. Immerse weighed panel in compound for 1 min., remove, and allow to drain and dry in air for 24 hours. Remove excess compound accumulated at bottom of panel with 2 clean blotters, one in each hand, applied to both sides of panel within 1/8 in. of bottom. Reweigh coated panel and calculate film thickness from the formula:

$$F = \frac{C - P}{2.54AD}$$

Where:

F = Film thickness in inches
C = Weight of coated panel in grams
P = Weight of uncoated panel in grams
A = Total area of both faces of panel in square centimeters
D = Density of nonvolatile portion in grams per cubic centimeter (May be determined by pycnometer after evaporation of solvent.)

4.2.2 Protection: Compound shall protect polished low carbon steel and sandblasted low carbon steel against corrosion for not less than 168 hr when tested as follows:

4.2.2.1 Panels of low carbon steel, some polished to surface roughness of 6 - 12 microinches and others sandblasted, shall be prepared to have smooth edges and rounded corners. Panels shall be wiped with clean dry cloth to remove loose abrasive, thoroughly rinsed in hot hydrocarbon solvent, finally rinsed in boiling anhydrous methanol, and then placed in a dust free enclosure for drying. Panels not to be used immediately shall be stored in a desiccator.

4.2.2.2 Panels shall be immersed in compound at room temperature for 1 min. without agitation, removed, and allowed to drain at room temperature overnight.

4.2.2.3 Panels shall be suspended vertically in a humidity cabinet maintained at 120 F ± 5 (48.9 C ± 2.8) and relative humidity of 95 - 100% with continuous condensation and with air flow of 7 - 9 linear ft per hr for 168 hours. Total corrosion of both surfaces, except within 1/8 in. of any edge, exceeding either one corroded area 2 mm in diameter or two areas each between 1 and 2 mm in diameter on a single panel will be cause for rejection.

4.2.3 Corrosiveness: When tested as follows, compound shall produce no evidence of pitting or other corrosion, or appreciable weight change, or other adverse effect on steel, silver, tin, zinc, cadmium, lead-indium, magnesium, aluminum, brass, and bronze specimens, couples or combinations thereof, glyceryl phthalate enamels, and phenolic varnish; weight change of lead shall be not greater than 10 mg per sq cm:

4.2.3.1 Panels of lead, low carbon steel, brass, bronze, aluminum, and magnesium, and electroplates of silver, tin, lead-indium, cadmium, and zinc, cleaned and, if possible, polished shall be provided; similar panels coated with either AMS 3120 or AMS 3125 enamel over a primer and panels coated with AMS 3132 varnish shall also be provided. Recommended panel size is 1 in. square.

4.2.3.2 Panels shall be weighed, immersed in compound for 72 hr, removed, and washed in clean hydrocarbon solvent, dried, and reweighed. Panels of lead shall be immersed separately and individually in 15 g of compound. Any significant change in weight or other evidence of corrosion of the metals, except lead or electroplates, or any loss of weight of lead greater than that permitted in 4.2.3, or any evidence of staining or deterioration of the enamel or varnish films will be cause for rejection.

4.2.4 Fingerprint Neutralization: Compound shall be capable of suppressing corrosion from fingerprints as shown by passing the following test:

4.2.4.1 Prepare a synthetic perspiration solution by dissolving 7 g of sodium chloride, 1 g of urea, and 4 g of lactic acid in 175 ml of distilled water and 525 ml of ethyl alcohol and adjust to pH of 3.5 ± 0.1, by addition of lactic acid or dilute ammonium hydroxide as necessary.

4.2.4.2 Prepare and clean 4 sandblasted panels as in 4.2.2.1. Dip each panel in synthetic perspiration solution for 5 sec, remove, and immediately immerse panels in compound for 3 immersions of 30 sec each. After the third immersion in compound, remove panels and allow to drain in air at room temperature for 24 hours. Wash compound from 2 panels with hydrocarbon solvent and examine for corrosion. Expose the remaining 2 panels to humidity as in 4.2.2.3 for 24 hr, remove, wash compound from panels with hydrocarbon solvent, and examine for corrosion. Any evidence of corrosion, pitting, or staining, except within 1/8 in. of any edge, will be cause for rejection.

4.2.5 Water Displacement: Compound shall be capable of displacing water to such a degree that sandblasted low carbon steel panels completely wetted with water and then immersed in the compound shall withstand the following test:

4.2.5.1 Prepare and clean 4 sandblasted panels as in 4.2.2.1. Immerse panels in tap water, remove, and immerse immediately in compound. Observe water-displacing properties after 30 sec immersion, remove, and observe continuity of oil film. Any break in the oil film will be cause for rejection. Allow 2 panels to drain in air at room temperature for 24 hr and expose the remaining 2 panels to humidity as in 4.2.2.3 for 24 hr, wash compound from all panels with hydrocarbon solvent, and examine all panels for corrosion. Any evidence of corrosion, except within 1/8 in. of any edge, will be cause for rejection.

5. REPORTS: Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report of the quantitative results of tests, made on the batch of compound from which the order was filled, to determine conformance to the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's identification, batch number, quantity, and date of shipment.

6. IDENTIFICATION: All containers shall be plainly marked to show the material specification number, purchase order number, quantity, batch number, and vendor's identification.

7. PACKAGING: Unless otherwise specified, compound shall be packaged in either 5 gal cans or 55 gal drums, as ordered.