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AEROSPACE MATERIAL SPECIFICATION

AMS 3060

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Revised

COMPOUND, RUST INHIBITING
Aircraft Engine Components

1. SCOPE:

1.1 Form: This specification covers a rust-inhibiting compound in the form of a liquid concentrate or a water soluble powder.

1.2 Application: Primarily for use in preservation of steel engine components during overhaul, inspection, and re-assembly cycles of gas turbine engines.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods
AMS 2640 - Magnetic Particle Inspection
AMS 2825 - Material Safety Data Sheets
AMS 3021 - Reference Fluid for Testing Di-Ester (Polyol) Resistant Material
AMS 6350 - Steel Sheet, Strip, and Plate, 0.95Cr - 0.20Mo (0.28 - 0.33C) (SAE 4130)

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D93 - Flash Point by Pensky-Martens Closed Tester
ASTM D445 - Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)
ASTM D892 - Foaming Characteristics of Lubrication Oils
ASTM D974 - Neutralization Number by Color-Indicator Titration
ASTM F519 - Mechanical Hydrogen Embrittlement Testing of Plating Processes and Aircraft Maintenance Chemicals

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Military Standards:

MIL-STD-290 - Packaging of Petroleum and Related Products

3. TECHNICAL REQUIREMENTS:

3.1 Material: Composition of the compound shall be optional with the manufacturer, but shall be compounded to meet the requirements of 3.2.

3.1.1 Toxicity: The compound shall not be injurious to personnel when used, for the intended purpose, in accordance with manufacturer's recommendations.

3.2 Properties: Compound shall conform to the following requirements, determined in accordance with specified methods on the compound prepared for use in accordance with manufacturer's instructions:

3.2.1 Corrosion Protection: Test panels shall exhibit no discoloration or pitting, determined in accordance with 4.5.1.

3.2.2 Compatability: Test panels shall have foaming characteristics, flash point, viscosity, and neutralization number within 4% of the preproduction values established as in 4.4.1, determined in accordacne with 4.5.2.

3.2.3 Surface Appearance: Test panels, after application, shall be free of residues that interfere with evaluation of 0.015 in. (0.38 mm) and larger linear indications when inspected by magnetic particle inspection in accordance with AMS 2640.

3.2.4 Hydrogen Embrittlement: Compound shall be non-embrittling, determined in accordance with ASTM F519, Type 1a, 1c, or 2a.

3.2.5 Biodegradability: Surfactants used shall be not less than 90% biodegradable. The vendor of the compound shall obtain certification from the surfactant manufacturer stating percent biodegradability of the surfactant and indicating test method used in determination of biodegradability.

3.2.6 Storage Life: Compound stored at 25°C ± 5 (77°F ± 9) for one year shall show no visual evidence of deterioration and shall meet all other technical requirements of this specification.

3.3 Working Life: Aqueous solutions of the compound prepared, used, and maintained in accordance with manufacturer's instructions shall meet the other technical requirements of this specification for a period of time or for a volume of work as agreed upon by purchaser and vendor.

3.4 Quality: Compound, as received by purchaser, shall be homogeneous and free fromm impurities detrimental to usage of the compound.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the compound shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.6. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the compound conforms to the requirements of this specification.

4.2 Classification of Tests: Tests to determine conformance to all technical requirements of this specification are classified as preproduction tests and shall be performed prior to or on the initial shipment of compound to a purchaser, when a change in ingredients or processing requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.

4.3 Sampling: Sufficient compound shall be selected at random from each lot to perform all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure, or, if not specified therein, not less than two.

4.3.1 A lot shall be all compound produced in a single production run from the same batches of component ingredients under the same fixed conditions and presented for vendor's inspection at one time. An inspection lot shall be not more than 1000 gal (3750 L) of compound.

4.4 Approval:

4.4.1 Sample compound shall be approved by purchaser before compound for production use is supplied, unless such approval be waived by purchaser. Results of tests on production compound shall be essentially equivalent to those on the approved sample.

4.4.1.1 A new or revised compound may be conditionally approved pending completion of the storage life test of 3.2.6. Full approval will be granted following testing for the other technical requirements after completion of storage life testing.

4.4.2 Vendor shall use ingredients, manufacturing procedures and processes, and methods of inspection on production compound which are essentially the same as those used on the approved sample compound. If necessary to make any change in ingredients or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in ingredients or processing, or both, and, when requested, sample compound. Production compound made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Test Methods:

4.5.1 Corrosion Test: Three panels of AMS 6350 steel, nominally 0.020 x 3 x 4 in. (0.50 x 75 x 100 mm), shall be degreased, grit blasted with 100 mesh or finer aluminum oxide at 60 - 90 psi (415 - 620 kPa) to produce a clean, matte finish, cleaned with filtered compressed air, and submerged for 30 sec ± 3 in the test compound prepared in accordance with manufacturer's recommended dilution for usage. The panels shall be lifted from the test compound, allowed to drain for approximately one min., and immediately set at a 45 deg angle on a perforated tray in a test vessel of sufficient size to hold the test specimens. The test vessel shall contain distilled or deionized water to a level of 1/2 in. (12 mm) below the perforated tray on which the specimens are set. The lid shall be lightly greased to ensure air tight fit. The test shall be conducted for 72 hr ± 1 at 24° - 27°C (75° - 80°F).

4.5.2 Compatibility Test: Three panels of AMS 6350 steel, nominally 0.020 x 3 x 4 in. (0.50 x 75 x 100 mm), shall be prepared as in 4.5.1 except that after the 30 sec immersion and one-min. drain period, the panels shall be immersed in 1 L of AMS 3021 oil for 24 hr at 25°C ± 5 (77°F ± 9). After removal of the panels, the oil shall be tested for foam tendency in accordance with ASTM D892, flash point in accordance with ASTM D93, viscosity in accordance with ASTM D445, and neutralization number in accordance wth ASTM D974.

4.6 Reports:

4.6.1 Unless waived by purchaser, the vendor of the compound shall furnish with the initial shipment of compound a report showing the results of tests to determine conformance to the technical requirements of this specification except that for a new or revised compound, the results of the storage life test may be omitted. This report shall include the purchase order number, lot number, AMS 3060, manufacturer's identification, and quantity.

4.6.2 A material safety data sheet conforming to AMS 2825 or equivalent shall be supplied to each purchaser prior to, or concurrent with, the report of preproduction test results or, if preproduction testing be waived by purchaser, concurrent with the first shipment of compound for production usage. Each request for modification of compound formulation shall be accompanied by a revised data sheet for the proposed formulation.

4.6.3 Unless waived by purchaser, the vendor of the compound shall furnish with each subsequent shipment a report stating that the compound is of the same basic composition and has essentially the same properties as the approved sample compound. If results of the storage life test were not included in the report on the initial shipment of compound, the results of that test shall be included in the report on the first shipment following completion of that test. This report shall include the purchase order number, lot number, AMS 3060, manufacturer's identification, and quantity.