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AEROSPACE MATERIAL SPECIFICATION

AMS 1378

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Revised

COMPOUND, CARBON SOIL AND PAINT REMOVER
Aircraft Turbine Engine Components
Room Temperature Application

1. SCOPE:

1.1 Form: This specification covers a carbon soil and paint remover compound in the form of a liquid.

1.2 Application: Primarily for removal of carbonaceous soils and paint from aircraft turbine engine parts by immersing the parts in liquid at room temperature.

1.3 Precautions: Remover compound may contain chemicals which, if improperly used, could be hazardous to the health and safety of operators. Protective clothing including eye shields, suitable gloves, and apron should be worn when preparing and using remover. Tanks shall be prepared and operated under conditions of adequate fume extraction and with due regard to the safety recommendations of the manufacturer of the remover together with local workshop safety regulations.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications and Aerospace Recommended Practices 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 2825 - Material Safety Data Sheets

2.1.2 Aerospace Recommended Practices:

ARP 1755 - Effect of Cleaning Agents on Aircraft Engine Materials, Stock Loss Test Method
ARP 1795 - Stress-Corrosion of Titanium Alloys, Effect of Cleaning Agents on Aircraft Engine Materials

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

ASTM D1568 - Sampling and Chemical Analysis of Alkylbenzene Sulfonates
ASTM D2667 - Biodegradability of Alkylbenzene Sulfonates
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-794 - Parts and Equipment, Procedures for Packaging and Packing of

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall be optional with the manufacturer but, when prepared in accordance with manufacturer's instructions, shall form a liquid product, with no solid sediment at room temperature, meeting the requirements of 3.2.

3.1.1 Compound containing volatile solvents shall be provided with an upper liquid seal serving to retard evaporation of solvents from the lower working layer. Solution make up, depth of seal if required, and solution control for the lower and seal phases shall be in accordance with manufacturer's instructions and purchaser's requirements.

3.2 Properties: Compound shall conform to the following requirements; tests shall be performed in accordance with specified test methods on the product supplied at the maximum concentration and temperature recommended by the manufacturer; if a seal is specified, tests shall be performed on the lower liquid layer through the seal:

3.2.1 Stock Loss: Test panels of alloys or electrodeposits shall not incur stock loss exceeding 0.000025 in. (0.625 μm) per surface and plasma deposited coatings shall not incur stock loss exceeding 0.0001 in. (2.5 m) when tested in accordance with ARP 1755, Category 1. Where required in ARP 1755, stock loss figures shall be reported. Vendor may indicate where remover is not recommended for particular alloys or surface coatings.

3.2.2 Pitting and Intergranular Attack: Test panels and bars used for the stock loss test of 3.2.1 shall neither exhibit pitting corrosion nor show visual evidence of degradation, when examined at 50X magnification under good oblique surface lighting conditions.

3.2.3 Biodegradability: Vendor shall supply evidence that surfactants used in the compound shall be at least 90% biodegradable, determined either in accordance with ASTM D2667 where relevant to surfactant type or by alternative methods appropriate to surfactant type as agreed upon by purchaser and vendor.

3.2.3.1 Evidence of surfacant biodegradability does not guarantee that the compound may be discharged in either concentrated or diluted form into public waterways or sewerage systems; manufacturers shall give advice on the means for disposal.

3.2.4 Storage Stability: 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.

3.2.5 Stress-Corrosion of Titanium Alloys: Compound shall not cause corrosion of titanium alloys, determined in accordance with ARP 1795, Method A or Method B.

3.2.6 Hydrogen Absorption: Compound shall be non-embrittling, determined in accordance with ASTM F519, Type 1a, 1c, or 2a, but using non-electroplated test specimens.

3.2.7 Performance: The compound, prepared and used in accordance with manufacturer's instructions, shall remove carbonaceous soils and paint from parts. Compounds which meet all other technical requirments of this specification shall be tested for cleaning performance in an approved engine overhaul facility for not less than six months, during which time at least ten turbofan or turbojet engines, or equivalent, shall be processed with satisfactory results before approval for service use is granted by the applicable engine manufacturer.

3.3 Quality: The compound, as received by purchaser, shall be clear, homogeneous, and free from solid particles and separation and from foreign materials 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 4.5. 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 material, processing, or both requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.3 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: Shall be in accordance with ASTM D1568, unless otherwise specified by purchaser. A lot shall be all compound produced in a single production run from the same batches of raw materials under the same fixed conditions and presented for vendor's inspection at one time. An inspection lot shall not exceed 6,000 gal (22,500 L). The compound may be packaged in smaller quantities under the basic lot approval provided lot identification is maintained.

4.4 Approval:

4.4.1 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 compound.

4.4.1.1 A new or revised compound may be conditionally approved pending completion of the storage stability test of 3.2.4. Full approval will be granted following testing for the other technical requirements after completion of storage stability testing.

4.4.2 Vendor shall use ingredients, manufacturing procedures, 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 material, 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 Reports:

4.5.1 Unless waived by purchaser, the vendor of the compound shall furnish with the initial shipment 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 stability test may be omitted. This report shall include the purchase order number, lot number, AMS 1378, manufacturer's identification, and quantity.