Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 1625

Issued 1-15-78
Revised

DESMUTTER, ALUMINUM, POWDERED

1. SCOPE: This specification covers powdered materials, solutions of which are used to remove smut from aluminum surfaces treated with etch-type oxidation and corrosion removers.

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 Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods
AMS 4036 - Aluminum Alloy Sheet and Plate, Alclad One Side, 4.4Cu - 1.5Mg - 0.60Mn (Alclad One Side 2024; -T3 Sheet, -T351 Plate)
AMS 4037 - Aluminum Alloy Sheet and Plate, 4.4Cu - 1.5Mg - 0.60Mn (2024; -T3 Flat Sheet, -T351 Plate)

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

ASTM F484 - Stress Craze Test of Acrylic Plastics in Contact with Liquid and Semi-Liquid Compounds
ASTM F485 - Effects of Cleaners on Unpainted Aircraft Surfaces
ASTM F502 - Effects of Cleaning and Chemical Maintenance Materials on Painted Aircraft Surfaces

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

2.3.1 Military Specifications:

MIL-P-25690 - Plastic, Sheets and Parts, Modified Acrylic Base, Monolithic, Crack Propagation Resistant
MIL-C-38334 - Corrosion Removing Compound, Prepaint, for Aircraft Aluminum Surfaces

2.3.2 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 shall yield a product conforming to the requirements of 3.2.

Printed in U.S.A.

3.2 Properties: Desmutter shall conform to the following requirements; tests shall be conducted in accordance with specified test methods on a solution of the product at the lowest use dilution recommended by the manufacturer, unless otherwise specified:

3.2.1 Smut Removing Ability: The desmutter shall remove smut from aluminum alloy surfaces as well as, or better than, the control formula, determined in accordance with 3.2.1.1.

3.2.1.1 Clean six AMS 4037 aluminum alloy test specimens of convenient size by wiping with a clean cloth wet with methyl ethyl ketone or other suitable solvent. Immerse the specimens in 500 mL of undiluted MIL-C-38334, Type I, compound at 18° - 35° C (65° - 95° F) for 5 min. ± 0.25. The MIL-C-38334 compound shall not be agitated during the immersion period. Remove specimens and immediately flush away residual compound with flowing tap water. Immediately immerse three of the six specimens in the desmutter solution maintained at the midpoint of the manufacturer's recommended operating temperature range. When manufacturer makes no recommendation on temperature, the desmutter solution shall be maintained at 24° C ± 3 (75° F ± 5). Immerse the other three remaining specimens in the control solution of 3.2.1.1.1. The test solution and the control solution shall not be agitated during the immersion period. After 60 sec ± 15, remove the specimens from the solutions. Flush surfaces of the specimens with flowing water followed by rinsing with flowing, distilled or deionized water. Allow specimens to air dry. Visually compare the degree of smut removal from the specimens immersed in the desmutter solution with the specimens immersed in the control solution.

3.2.1.1.1 Desmutter Control Solution: Shall be a solution containing 10 g ± 0.5 of 90% by weight sodium bisulfate ($NaHSO_4$) and 10% by weight chromium trioxide (CrO_3) per litre of solution dissolved in distilled or deionized water and operated at 24° C ± 3 (75° F ± 5).

3.2.2 Effect on Unpainted Surfaces: The desmutter, tested in accordance with ASTM F485, shall not cause discoloration or permanent staining of unpainted aluminum alloy and titanium alloy surfaces.

3.2.3 Effect on Painted Surfaces: The desmutter shall neither decrease the hardness of the paint film by more than two pencil hardness levels nor shall it produce streaking, discoloration, or blistering of the paint film, determined in accordance with ASTM F502.

3.2.4 Effect on Plastics: The desmutter shall not craze, stain, or discolor MIL-P-25690 stretched acrylic plastic, determined in accordance with ASTM F484.

3.2.5 Etch Rate on Aluminum Alloy: The desmutter, tested in accordance with 3.2.5.1, shall not remove more than 10 mg from any single test specimen.

3.2.5.1 Clean three AMS 4036 alclad aluminum alloy specimens, approximately 0.040 x 1 x 2 in. (1 x 25 x 50 mm), by wiping with a clean cloth wet with methyl ethyl ketone or other suitable solvent. Allow specimens to air dry. Weigh each specimen to the nearest 0.1 milligram. Immerse specimens for 30 min. ± 0.25 in 500 mL of desmutter solution maintained at the highest temperature of the manufacturer's recommended operating range. When manufacturer makes no recommendation on temperature, the desmutter solution shall be maintained at 35° C ± 3 (95° F ± 5). Test solution shall not be agitated during the immersion period. Remove specimens and immediately flush residual desmutter solution from the specimen surfaces with flowing water followed by rinsing with flowing, deionized or distilled water. Allow to air dry. Reweigh specimens and calculate weight loss of each specimen.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the desmutter shall supply all samples 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 perform such confirmatory testing as he deems necessary to ensure that the desmutter 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 acceptance tests and as preproduction tests.

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 desmutter shall be taken at random from each lot to perform all required tests in triplicate; a lot shall be all desmutter manufactured at one time from one group of raw materials and presented for vendor's inspection at one time.

4.4 Approval:

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

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

4.5 Reports: Unless waived by purchaser, the vendor of the desmutter shall furnish with each shipment three copies of a report showing the results of tests to determine conformance to the technical requirements of this specification. This report shall include the purchase order number, material specification number, manufacturer's identification, lot number, and quantity.

4.6 Resampling and Retesting: If any sample used in the above tests fails to meet the specified requirements, disposition of the desmutter may be based on the results of testing three additional samples for each original nonconforming sample. Failure of any retest sample to meet the specified requirements shall be cause for rejection of the desmutter represented and no additional testing shall be permitted. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Packaging and Identification:

5.1.1 Desmutter shall be packaged in suitable containers of a size agreed upon by purchaser and vendor.

5.1.2 Each container shall be legibly marked to show AMS 1625, purchase order number, manufacturer's identification, lot number, and quantity.

5.1.3 Containers of desmutter shall be prepared for shipment in accordance with commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of this cleaner to ensure carrier acceptance and safe delivery. Packaging shall conform to carrier rules and regulations applicable to the mode of transportation.

5.1.4 For direct U.S. Military procurement, packaging shall be in accordance with MIL-STD-794, Level A or Level C, as specified in the request for procurement. Commercial packaging as in 5.1.1 and 5.1.3 will be acceptable if it meets the requirements of Level C.

6. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.