

AEROSPACE MATERIAL SPECIFICATION

Aqueous Cleaners for Cleaning Prior to Application of Sealing Compounds

1. SCOPE:

1.1 Form:

This specification covers liquid aqueous cleaners.

1.2 Application:

These aqueous cleaners have been used typically for cleaning aircraft primary and secondary structural surfaces prior to application of adhesion promoters and/or sealing materials, but usage is not limited to such applications.

1.3 Safety - Hazardous Materials:

While the materials, methods, applications and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to insure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

2. APPLICABLE DOCUMENTS:

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been canceled and no superseding document has been specified, the last published issue of that document shall apply.

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Documents
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2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org.

AMS 2473	Chemical Treatment for Aluminum Alloys, General Purpose Coating
AMS 2629	Fluid, Jet Reference
AMS 2825	Material Safety Data Sheets
AMS 3276	Sealing Compound, Integral Fuel Tanks and General Purpose, Intermittent Use to 360 °F (182 °C)
AMS 3375	Adhesive/Sealant, Fluorosilicone, Aromatic Fuel Resistant, One-Part, Room Temperature Vulcanizing
AMS 3819	Cloths, Cleaning, for Aircraft Primary and Secondary Structural Surfaces
AMS 4045	Aluminum Alloy Sheet and Plate 5.6Zn 2.5Mg 1.6Cu 0.23Cr 7075: (-T6 Sheet, -T651 Plate) Solution and Precipitation Heat Treated
AMS 4101	Aluminum Alloy Plate, 4.4Cu 1.5Mg 0.60Mn, (2124 - T851) Solution Heat Treated, Stretched, and Precipitation Heat Treated
AMS 4202	Aluminum Alloy Plate, 5.7Zn 2.2Mg 1.6Cu 0.22Cr, (7075-T7351) Solution Heat Treated, Stress Relieved by Stretching, and Precipitation Heat Treated
AMS 4911	Titanium Alloy, Sheet, Strip, and Plate 6Al - 4V, Annealed
MAM 4911	Titanium Alloy, Sheet, Strip, and Plate 6Al - 4V, Annealed
AMS 5046	Sheet, Strip, and Plate, Carbon Steel (SAE 1020 and 1025) Annealed
AMS 6419	Steel Bars, Forgings, and Tubing, 1.6Si 0.82Cr 1.8Ni 0.40Mo 0.08V (0.40-0.45C), Consumable Electrode Vacuum Remelted
AMS-C-27725	Coating, Corrosion Preventive, for Aircraft Integral Fuel Tanks
AMS-QQ-A-250/4	Aluminum Alloy, 2024, Plate and Sheet
AS5127/1	Test Methods for Aerospace Sealants, Two-Component Synthetic Rubber Compounds
PD2000	Procedures For an Industry Qualified Product Management Process

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM D 512	Chloride Ion in Water
ASTM D 1179	Fluoride Ion in Water
ASTM D 1193	Reagent Water
ASTM D 1475	Density of Paint, Varnish, Lacquer, and Related Products
ASTM D 3278	Flash Point of Liquids by Setaflash-Closed-Cup Apparatus
ASTM E 70	pH of Aqueous Solutions with the Glass Electrode
ASTM E 1252	General Techniques for Qualitative Infrared Analysis
ASTM F 483	Total Immersion Corrosion Test for Aircraft Maintenance Chemicals
ASTM F 519	Mechanical Hydrogen Embrittlement Evaluation of Plating Processes and Service Environments
ASTM F 1110	Sandwich Corrosion Test
ASTM G 38	Making and Using C-Ring Stress-Corrosion Test Specimens

2.3 U. S. Government Publications:

Available from DODSSP Subscription Service Desk, Building 4D, 700 Robins Avenue, Philadelphia, PA 19111-5094.

A-A-58054	Abrasive Mats, Non-Woven, Non-Metallic
A-A-59281	Cleaning Compound Solvent Mixtures
MIL-PRF-23377	Primer Coatings, Epoxy, High Solids
MIL-PRF-85582	Primer Coatings, Epoxy, VOC Compliant, Chemical and Solvent Resistant

3. TECHNICAL REQUIREMENTS:

3.1 Material:

The cleaning compound shall be an aqueous based liquid, formulated to meet the requirements of this specification. The cleaning compound shall not contain halogenated solvents, ozone depleting chemicals, or excessive hazardous air pollutants as defined and regulated by the United States Environmental Protection Agency or volatile organic compound (VOC) materials as defined or listed by the Clean Air Act.

- 3.1.1 Qualification: All products sold to this specification shall be listed, or approved for listing, on the qualified products list, PRI QPL AMS 3168. The qualified products list shall be in accordance with PD2000.

3.2 Properties:

The cleaning compound shall conform to the requirements of Table 1.

TABLE 1 - Properties

Paragraph	Property	Requirement	Test Method
3.2.1	Composition, Infrared Analysis	Same as data determined on qualification test sample	See 4.5.6
3.2.2	Density	± 2% of preproduction test value	ASTM D 1475
3.2.3	pH	7 to 12	ASTM E 70
3.2.4	Flash Point	100 °F (38 °C) minimum	ASTM D 3278
3.2.5	Free Chlorides	None	ASTM D 512, Method C
3.2.6	Free Fluorides	None	ASTM D 1179, Method B
3.2.7	Visible Dry Residue	No more residual contamination and/or streaking than the control solvent	4.5.7
3.2.8	Sandwich Corrosion	Shall not cause a corrosion rating greater than one on any test panel	ASTM F 1110
3.2.9	Total Immersion Corrosion	Weight change no more than 0.03 mg/sq cm/24 hours, no pitting, corrosion or heavy stain	4.5.8
3.2.10	Hydrogen Embrittlement	No rupture of specimens	ASTM F 519, Type 1a notched bars
3.2.11	Stress Corrosion	No corrosion	4.5.9
3.2.12	Cleaning Efficiency	20 lbf/inch width (3580 N/m), 100% cohesive failure for AMS 3276 sealant	4.5.10
		8 lbf/inch width (1401 N/m), 100% cohesive failure for AMS 3375 sealant	
3.2.13	Appearance	All components shall be miscible	See 4.5.11

3.3 Quality:

The cleaning compound, as received by purchaser, shall be uniform in quality and condition, and free from foreign materials and other contaminants detrimental to usage of the product

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The manufacturer of the cleaning compound shall supply all samples for supplier's tests and shall be responsible for performing all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to the requirements of this specification.