



AEROSPACE MATERIAL SPECIFICATION

AMS1551™**REV. B**

Issued	1995-11
Revised	2008-03
Reaffirmed	2017-04
Stabilized	2023-12

Superseding AMS1551A

Cleaner, Turbine Engine Gas Path
Aqueous Type

RATIONALE

Content is still relevant and technology is mature.

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1. SCOPE

1.1 Form

This specification covers petroleum distillate-free cleaner in the form of an aqueous-base liquid concentrate or a ready-to-use liquid.

1.2 Application

This cleaner has been used typically for cleaning installed turbine engines by spraying diluted cleaner or ready-to-use cleaner into the intake during either a starter crank operation or on-line engine cleaning in accordance with the engine manufacturer's procedure, but usage is not limited to such applications.

1.3 Classification

Cleaner conforming to this specification is classified as follows:

Class 1: Liquid concentrate

Class 2: Ready-to-use liquid

1.3.1 Class 1 shall be supplied unless Class 2 is ordered.

1.4 Dilution Water Requirements

Water used for dilution of the concentrate or during engine wash operations shall meet the requirements specified by the engine manufacturer.

1.5 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 ensure 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 cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AMS2416	Plating, Nickel-Cadmium, Diffused
AMS2470	Anodic Treatment of Aluminum Alloys, Chromic Acid Process
AMS2475	Protective Treatments, Magnesium Alloys
AMS4025	Aluminum Alloy, Sheet and Plate, 1.0Mg - 0.60Si - 0.28Cu - 0.20Cr (6061-0), Annealed
AMS4037	Aluminum Alloy, Sheet and Plate, 4.4Cu - 1.5Mg - 0.60Mn (2024; -T3 Flat Sheet, -T351 Plate), Solution Heat Treated
AMS4041	Aluminum Alloy, Alclad Sheet and Plate, 4.4Cu - 1.5Mg - 0.60Mn, Alclad 2024 and 1-1/2% Alclad 2024, -T3 Flat Sheet; 1-1/2% Alclad 2024-T351 Plate
AMS4045	Aluminum Alloy Sheet and Plate, 5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr, 7075: (-T6 Sheet, -T651 Plate), Solution and Precipitation Heat Treated
AMS4049	Aluminum Alloy, Sheet and Plate, Alclad, 5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr (Alclad 7075; -T6 Sheet, -T651 Plate), Solution and Precipitation Heat Treated
AMS4376	Plate, Magnesium Alloy, 3.0Al - 1.0Zn - 0.20Mn (AZ31B-H26), Cold Rolled and Partially Annealed
AMS4911	Titanium Alloy, Sheet, Strip, and Plate, 6Al - 4V, Annealed
AMS4916	Titanium Alloy Sheet, Strip, and Plate, 8Al - 1Mo - 1V, Duplex Annealed
AMS5040	Steel, Sheet and Strip, 0.15 Carbon, Maximum, Deep Forming Grade
AMS5045	Steel, Sheet and Strip, 0.25 Carbon, Maximum, Hard Temper
AMS5046	Carbon Steel, Sheet, Strip, and Plate, (SAE 1020 and 1025), Annealed
AMS5504	Steel, Corrosion and Heat-Resistant, Sheet, Strip, and Plate, 12.5Cr (SAE 51410), Annealed
AMS5510	Steel, Corrosion and Heat-Resistant, Sheet, Strip and Plate, 18Cr - 10.5Ni - 0.40Ti (SAE 30321), Solution Heat Treated
AMS5536	Nickel Alloy, Corrosion and Heat-Resistant, Sheet, Strip, and Plate, 47.5Ni - 22Cr - 1.5Co - 9.0Mo - 0.60W - 18.5Fe, Solution Heat Treated
AMS5544	Nickel Alloy, Corrosion and Heat Resistant, Sheet, Strip, and Plate, 57Ni - 19.5Cr -13.5Co - 4.2Mo - 3.0Ti - 1.4Al - 0.05Zr - 0.006B, Consumable Electrode or Vacuum Induction Melted, Annealed
AMS5608	Cobalt Alloy, Corrosion and Heat Resistant, Sheet, Strip, and Plate, 40Co - 22Cr - 22Ni - 14.5W - 0.07La, Solution Heat Treated
AMS7267	Rings, Sealing, Silicone (VSI) Rubber, Heat-Resistant, Low Compression Set, 70 - 80
AMS7271	Rings, Sealing, Butadiene-Acrylonitrile (NBR) Rubber, Fuel and Low Temperature Resistant, 60 - 70
AMS7273	Rings, Sealing, Fluorosilicone (FVMQ) Rubber, High Temperature Fuel and Oil Resistant, 70 - 80
AMS7276	Rings, Sealing, Fluorocarbon (FKM) Rubber, High-Temperature-Fluid Resistant, Low Compression Set, 70 to 80
ARP1755	Effect of Cleaning Agents on Aircraft Engine Materials, Stock Loss Test Method

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D 93	Flash Point by Pensky-Martens Closed Tester
ASTM D 445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)
ASTM D 1141	Substitute Ocean Water
ASTM D 1193	Reagent Water
ASTM D 1568	Sampling and Chemical Analysis of Alkylbenzene Sulfonates
ASTM D 2240	Rubber Property - Durometer Hardness
ASTM D 2667	Biodegradability of Alkylbenzene Sulfonates
ASTM D 4191	Sodium in Water by Atomic Absorption Spectrophotometry
ASTM D 4192	Potassium in Water by Atomic Absorption Spectrophotometry
ASTM E 70	pH of Aqueous Solutions with the Glass Electrode
ASTM E 442	Chlorine, Bromine, or Iodine in Organic Compounds by Oxygen Flask Combustion
ASTM F 483	Total Immersion Corrosion Test for Aircraft Maintenance Chemicals
ASTM F 484	Stress Cracking of Acrylic Plastics in Contact with Liquid or Semi-Liquid Compounds
ASTM F 502	Effects of Cleaning and Chemical Maintenance Materials on Painted Aircraft Surfaces
ASTM F 519	Mechanical Hydrogen Embrittlement Testing of Plating Processes and Aircraft Maintenance Chemicals
ASTM F 945	Stress-Corrosion of Titanium Alloys by Aircraft Engine Cleaning Materials
ASTM F 1104	Preparing Aircraft Cleaning Compounds, Liquid Type, Water Base, for Storage Stability Testing
ASTM F 1110	Sandwich Corrosion Test

2.3 U.S. Government Publications

Available from the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, <http://assist.daps.dla.mil/quicksearch/>.

MIL-P-25690	Plastic Sheets and Parts, Modified Acrylic Base, Crack Propagation Resistant
MIL-C-81751	Coating, Metallic Ceramic

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall be optional with the manufacturer but should contain water, biodegradable surfactants, and other additives as required to produce a homogeneous product meeting the requirements of 3.1.1 and 3.2. The compound shall contain no known or suspected human carcinogens, heavy metals, hydrocarbon solvents, phenol, or cresol.

3.1.1 Element Content

Cleaner shall not exceed the concentrations shown in Table 1, determined in accordance with specified test methods.