AEROSPACE MATERIAL SPECIFICATION

AMS1476™ REV. C

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Superseding AMS1476B

(R) Deodorant, Aircraft Toilet

RATIONALE

Changes in this revision include format/editorial changes as well update to specification revisions.

1. SCOPE

1.1 Form

This specification covers a biodegradable deodorant in the form of a liquid concentrate, solid, or gel.

1.2 Application

This deodorant has been used typically as an additive in aircraft toilet systems to control odor, color, and corrosion.

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 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 +1 724-776-4970 (outside USA), www.sae.org.

AMS4049	Aluminum Alloy Sheet and Plate, Alclad, 5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr, (Alclad 7075; -T6 Sheet, -T65l Plate), Solution and Precipitation Heat Treated
AMS-P-83310	Plastic Sheet, Polycarbonate, Transparent

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
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SAE WEB ADDRESS: **http://www.sae.org**

SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/AMS1476C

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 D56 Standard Test Method for Flash Point by Tag Closed Cup Tester

ASTM D445 Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)

ASTM D471 Standard Test Method for Rubber Property - Effect of Liquids

ASTM D1193 Standard Specification for Reagent Water

ASTM D1331 Standard Test Methods for Surface and Interfacial Tension of Solutions of Surface-Active Agents

ASTM D1568 Standard Test Methods for Sampling and Chemical Analysis of Alkylbenzene Sulfonates

ASTM E70 Standard Test Method for pH of Aqueous Solutions with the Glass Electrode

ASTM F483 Standard Practice for Total Immersion Corrosion Test for Aircraft Maintenance Chemicals

ASTM F484 Standard Test Method for Stress Crazing of Acrylic Plastics in Contact with Liquid or Semi-Liquid Compounds

ASTM F485 Standard Practice for Effects of Cleaners on Unpainted Aircraft Surfaces

ASTM F502 Standard Test Method for Effects of Cleaning and Chemical Maintenance Materials on Painted Aircraft Surfaces

ASTM F1110 Standard Test Method for Sandwich Corrosion Test

2.3 APHA Publications

Available from American Public Health Association, 1015 Eighteenth Street, N.W., Washington, DC 20036.

Standard Methods for the Examination of Water and Waste Water

2.4 ANSI Accredited Publications

ANSI Z400.1/Z129.1-2010 Hazardous Workplace Chemicals - Hazard Evaluation and Safety Data Sheet and Precautionary Labeling Preparation

3. TECHNICAL REQUIREMENTS

3.1 Material

Shall consist of a biodegradable material with suitable additives, such as deodorants, buffers, etc., necessary to provide a deodorant meeting the requirements of 3.2.

3.1.1 The deodorant shall be free of soaps; non-ionic, cationic, anionic, and amphoteric detergents are acceptable provided the deodorant contains adequate foam depressors to comply with 3.2.2.2.1.

3.1.2 The deodorant shall dilute readily with water with minimum agitation.

3.2 Properties

The deodorant shall conform to the following requirements; tests shall be performed in accordance with specified test methods.

3.2.1 Deodorant As Received in Concentrate Form

Shall be tested as the liquid concentrate, except that if the deodorant is received in the form of a solid or gel, it shall be dissolved at the ratio of 1 part by weight deodorant to 5 parts ASTM D1193, Type IV, water. If a residue (undissolved) is present, filter through a #40 filter paper prior to using for tests. However, such solids should be soluble at intended use dilution.

3.2.1.1 Flash Point

Shall be not lower than 93 °C (199 °F), determined in accordance with ASTM D56.

3.2.1.2 Color

The deodorant shall exhibit a deep blue color to mask organic waste and indicate a chemically-charged toilet. The dye shall be pH stable and shall not break down when tested for 72 hours ± 1 hour in a water solution having a pH of 3 to 11. Formic acid and sodium hydroxide shall be used for adjusting the pH of water solution.

3.2.1.3 Storage Stability

The deodorant shall be stable after storage at room temperature for not less than 12 months. The deodorant shall, if supplied as a liquid concentrate, show no evidence of layering or separation and shall contain no lumps or show evidence of skin formation after being subjected to five freeze-thaw cycles as in 3.2.1.3.1.

3.2.1.3.1 Two 6 ounce (175 mL) samples of deodorant shall be placed in two 8 ounce (250 mL) clear glass bottles or in ziplock-type plastic bags, sealed, and exposed for 8 hours ± 0.25 hour to -23 °C (-9 °F), or lower if necessary to completely freeze the deodorant samples. At the end of the freezing period, the samples shall be removed to a room temperature environment and allowed to thaw for 16 hours ± 0.5 hour. This shall constitute one complete freeze-thaw cycle. The samples shall be subjected to five complete freeze-thaw cycles. At the end of the fifth cycle, the samples shall be examined for conformity to 3.2.1.3.

3.2.1.4 Environmental Properties

Standards vary from area to area and, therefore, acceptance standards for the following environmental properties shall be as agreed upon by purchaser and vendor:

3.2.1.4.1 Biodegradability

Biodegradability of the surfactants used in the deodorant shall be certified by the manufacturer.

3.2.1.4.2 Total Alkalinity or Acidity

Shall be determined as ppm CaCO3 in accordance with APHA Method 2320.

3.2.1.4.3 Chemical Oxygen Demand

Shall be determined in accordance with APHA Method 5220, using the dichromate reflux procedure.

3.2.1.4.4 Biological Oxygen Demand

The five-day biological oxygen demand at 20 °C (68 °F) shall be determined in accordance with APHA Method 5210, using filtered raw sewage seed.

3.2.1.4.5 Total Inorganic Phosphate

Shall be determined in accordance with APHA Method 4500-P, stannous chloride procedure, or Method 3120, using plasma emission spectroscopy.