

AEROSPACE MATERIAL SPECIFICATION

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Submitted for recognition as an American National Standard

FLUID, DEICING/ANTI-ICING, RUNWAYS AND TAXIWAYS Potassium Acetate Base

1. SCOPE:

1.1 Form:

This specification covers a potassium-acetate base deicing/anti-icing fluid in the form of a concentrated liquid.

1.2 Application:

This fluid has been used typically on airport runways and taxiways for the prevention and removal of frozen deposits of frost and ice, but usage is not limited to such usage.

1.3 Precautions:

Airport authorities should ascertain the friction coefficient of the runway after application of the deicing/anti-icing fluid.

1.4 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.

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Documents

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2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

- AMS 2470 Anodic Treatment of Aluminum Alloys, Chromic Acid Process
- AMS 2475 Protective Treatments, Magnesium Alloys
- AMS 2825 Material Safety Data Sheets
- AMS 4037 Aluminum Alloy Sheet and Plate, 4.4Cu - 1.5Mg - 0.60Mn, (2024; -T3 Flat Sheet, -T351 Plate), Solution Heat Treated
- AMS 4041 Aluminum Alloy Sheet and Plate, Alclad, 4.4Cu - 1.5Mg - 0.60Mn, (Alclad 2024 and 1-1/2% Alclad 2024-T3 Flat Sheet; 1-1/2% Alclad 2024-T351 Plate)
- 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 4049 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
- AMS 4376 Magnesium Alloy Plate, 3.0Al - 1.0Zn, (AZ31B-H26), Cold Rolled and Partially Annealed
- AMS 4911 Titanium Alloy Sheet, Strip, and Plate, 6Al - 4V, Annealed
- MAM 4911 Titanium Alloy Sheet, Strip, and Plate, 6Al - 4V, Annealed
- AMS 5045 Steel Sheet and Strip, 0.25 Carbon maximum, Hard Temper

2.2 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

- ASTM C 672 Scaling Resistance of Concrete Surfaces Exposed To Deicing Chemicals
- ASTM D 56 Flash Point by Tag Closed Tester
- ASTM D 891 Specific Gravity of Liquid Industrial Chemicals
- ASTM D 1177 Freezing Point of Aqueous Engine Coolant Solution
- ASTM D 1193 Reagent Water
- ASTM D 1568 Sampling and Chemical Analysis of Alkylbenzene Sulfonates
- ASTM D 4057 Manual Sampling of Petroleum and Petroleum Products
- ASTM D 4177 Automatic Sampling of Petroleum and Petroleum Products
- ASTM E 70 pH of Aqueous Solutions with the Glass Electrode
- 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 485 Effects of Cleaners on Unpainted Aircraft Surfaces
- ASTM F 502 Effects of Cleaning and Chemical Maintenance Materials on Painted Aircraft Surfaces

2.2 ASTM Publications (Continued):

- 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 1105 Preparing Aircraft Cleaning Compounds, Liquid Type, Solvent Based, for Storage Stability Testing
- ASTM F 1110 Sandwich Corrosion Test
- ASTM F 1111 Corrosion of Low-Embrittling Cadmium Plate by Aircraft Maintenance Chemicals

2.3 U.S. Government Publications:

Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

- MIL-P-25690 Plastic, Sheets and Parts, Modified Acrylic Base, Monolithic, Crack Propagation Resistant
- MIL-P-83310 Plastic Sheet, Polycarbonate, Transparent
- MIL-STD-290 Packaging of Petroleum and Related Products

2.4 APHA Publications:

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

Standard Methods for the Examination of Water and Waste Water

3. TECHNICAL REQUIREMENTS:

3.1 Material:

The composition of the fluid shall be a potassium acetate-base and shall otherwise be optional with the manufacturer. The fluid may contain corrosion inhibitors, etc, as required to produce a product meeting the requirements of 3.2.

- 3.1.1 Biodegradability: The fluid shall be not less than 90% biodegradable. Results of biodegradability studies conducted in accordance with "APHA Standard Methods for the Examination of Water and Waste Water," for biodegradability and bioassays shall, when requested by purchaser, be provided by the fluid manufacturer to purchaser and shall contain not less than the following information:

- 3.1.1.1 A statement of ecological behavior of the fluid.

- 3.1.1.2 The total oxygen demand (TOD) of the fluid, expressed in pounds of oxygen per pound of fluid.

- 3.1.1.3 Percent of the fluid degraded in five days.

- 3.1.1.4 Presence, in percent by weight, of nitrate.