

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

SAE AMS 1730A

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Superseding AMS 1730

UREA COMPOUND, SHOTTED

1. SCOPE:

1.1 Form: This specification covers a urea compound in the form of a solid.

1.2 Application: Primarily for use in deicing airport ramps, walkways, and other ground surfaces as required.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications and Aerospace Recommended Practices shall apply. The applicable issue of other documents shall be as specified in AMS 2350 except that the issue of APHA and AOAC publications in effect on date of invitation to bid or request for proposal shall apply.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods

AMS 2825 - Material Safety Data Sheets

AMS 4049 - Aluminum Alloy Sheet and Plate, Alclad, 5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr (Alclad 7075; -T6 Sheet, - T651 Plate)

2.1.2 Aerospace Recommended Practices:

ARP 1511 - Corrosion of Low-Embrittling Cadmium Plate by Aircraft Maintenance Chemicals

ARP 1512 - Corrosion of Aluminum Alloys by Aircraft Maintenance Chemicals, Sandwich Test

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

- ASTM D1119 - Ash Content of Engine Antifreezes, Antirusts, and Coolants
- ASTM D1193 - Reagent Water
- ASTM D1353 - Nonvolatile Matter in Volatile Solvents for Use in Paint, Varnish, Lacquer, and Related Products
- ASTM D1568 - Sampling and Chemical Analysis of Alkylbenzene Sulfonates
- ASTM E324 - Relative Initial and Final Melting Points and the Melting Range of Organic Chemicals
- ASTM F483 - Total Immersion Corrosion Test for Aircraft Maintenance Chemicals
- ASTM F484 - Stress Cracking of Acrylic Plastics in Contact with Liquid or Semi-Liquid Compounds
- ASTM F502 - Effects of Cleaning and Chemical Maintenance Materials on Painted Aircraft Surfaces
- ASTM F503 - Preparing Aircraft Cleaning Compounds, Liquid Type, for Storage Stability Testing
- ASTM F519 - Mechanical Hydrogen Embrittlement Testing of Plating Processes and Aircraft Maintenance Chemicals

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

2.3.1 Military Specifications:

MIL-P-83310 - Plastic Sheet, Polycarbonate, Transparent

2.3.2 Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

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

APHA Standard Methods for Examination of Water and Wastewater

2.5 AOAC Publications: Available from Association of Official Agricultural Chemists, P.O. Box 540, Benjamin Franklin Station, Washington, DC 20004.

Official Methods of Analysis of the Association of Official Agricultural Chemists

3. TECHNICAL REQUIREMENTS:

- 3.1 Composition: Shall be a uniform compound of shotted urea and shall comply with the following chemical requirements, determined in accordance with specified test methods from APHA Standard Methods for Examination of Water and Wastewater:

		Method No.
Free Ammonia (NH ₃), max	300 ppm	132
Chlorides	None	112A
Iron, max	2 ppm	124A, B, or C
Sulfides	None	157
Sulfates (SO ₄)	None	156C
Nitrogen, min	46%	135

- 3.1.1 Moisture: Shall be not more than 0.40%, determined in accordance with ASTM D1568.

- 3.2.1 Biuret: Shall be not more than 2.1%, determined in accordance with Official Methods of the Association of Official Agricultural Chemists, Chapter 2, excluding ion exchange column. Prepare a standard curve using 5 mL, 15 mL, and 25 mL quantities and using a 2-g sample.

- 3.1.3 Ash: Shall be not higher than 0.1% by weight, determined in accordance with ASTM D1119.

- 3.2 Properties: Urea compound shall conform to the following requirements; tests shall be performed in accordance with specified test methods on the product supplied in concentrated form and at use dilution as specified:

- 3.2.1 On Concentrated Urea Compound:

- 3.2.1.1 Temperature Stability: Urea compound shall show no chemical or physical deterioration, including evidence of discoloration or other change denoting loss of stability, after being exposed for 120 hr $\pm$ 1 at 2°C $\pm$ 3 (35°F $\pm$ 5).

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

- 3.2.1.3 Storage Stability: Urea compound shall be stable in storage for not less than 12 months at room temperature and shall not deliquesce or otherwise deteriorate when stored in shipping container or use package, determined in accordance with ASTM F503.

- 3.2.1.4 Nonvolatile Matter: Shall be determined in accordance with ASTM D1353 and the results reported.

- 3.2.1.5 Melting Point: Shall be not lower than 132°C (270°F) and not higher than 133°C (272°F), determined in accordance with ASTM E324.