



AEROSPACE MATERIAL SPECIFICATION

AMS1640™**REV. D**

Issued 1979-01
Reaffirmed 2000-06
Revised 2024-02

Superseding AMS1640C

(R) Corrosion Removing Compound
for Aircraft Surfaces

RATIONALE

This revision will update specification verbiage/requirements and establish a qualified products list.

1. SCOPE

1.1 Form

This specification establishes requirements for a corrosion-removing compound in the form of a liquid concentrate.

1.2 Application

The compounds covered by this specification are typically applied to aircraft exterior aluminum surfaces to remove pitting corrosion and heavy surface oxidation, but usage is not limited to such applications.

1.3 Precautions

The compounds meeting the requirements of this specification may cause hydrogen embrittlement of high-strength steels and will remove cadmium plating.

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.

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.

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Full document details: SAE AMS1640D

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<https://www.sae.org/standards/content/AMS1640D>

Documents

Document Sharing Hub

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.

- | | |
|--------------|--|
| AMS4037 | Aluminum Alloy, Sheet and Plate, 4.4Cu - 1.5Mg - 0.60Mn (2024; -T3 Flat Sheet, -T351 Plate), Solution 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 |
| AMS-QQ-A-200 | Aluminum Alloy, Bar, Rod, Shapes, Structural Shapes, Tube, and Wire, Extruded: General Specification for |

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 D93 | Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester |
| ASTM D329 | Standard Specification for Acetone |
| ASTM D740 | Standard Specification for Methyl Ethyl Ketone |
| ASTM D1193 | Standard Specification for Reagent Water |
| ASTM D1568 | Standard Test Methods for Sampling and Chemical Analysis of Alkylbenzene Sulfonates |
| ASTM D2196 | Standard Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational Viscometer |
| ASTM F483 | Standard Practice for Total Immersion Corrosion Test for Aircraft Maintenance Chemicals |
| ASTM F484 | Standard Test Method for Stress Cracking of Acrylic Plastics in Contact with Liquid or Semi-Liquid Compounds |
| ASTM F502 | Standard Test Method for Effects of Cleaning and Chemical Maintenance Materials on Painted Aircraft Surfaces |
| ASTM F1104 | Standard Test Method for Preparing Aircraft Cleaning Compounds, Liquid Type, Water Base, for Storage Stability Testing |
| ASTM F2111 | Standard Practice for Measuring Intergranular Attack or End Grain Pitting on Metals Caused by Aircraft Chemical Processes |

2.3 U. S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

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|----------------|---|
| MIL-PRF-25690 | Plastic, Sheet and Formed Parts, Modified Acrylic Base, Monolithic, Crack Propagation Resistant |
| MIL-STD-2073-1 | Standard Practice for Military Packaging |

2.4 PRI Publications

Available from Performance Review Institute, 161 Thorn Hill Road, Warrendale, PA 15086-7527, Tel: 724-772-1616, www.pri-network.org.

PD2000 PRI-QPL Program Requirements

PRI-QPL-AMS1640 Products Qualified Under AMS1640

2.5 ISO Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories

2.6 ANSI Accredited Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

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

3. TECHNICAL REQUIREMENTS

3.1 Material

The compound shall be viscous, thixotropic, and concentrated. It will readily mix with water to form a homogeneous solution. The compound, diluted with ASTM D1193 Type IV water to use concentration in accordance with the manufacturer's recommendations, shall retain its thixotropic properties, shall be suitable for application by brushing or spraying, and shall be readily removable by wiping or rinsing procedures.

3.1.1 There shall be no violent or dangerous reactions when the concentrate is diluted for use in accordance with the manufacturer's recommendations.

3.1.2 The compound shall have no adverse effect on the health of personnel when used for its intended purpose in accordance with the manufacturer's instructions and with appropriate handling procedures and precautions per the safety data sheet (see 4.8.2).

3.2 Properties

The 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 recommended by the manufacturer as hereinafter specified.

3.2.1 Concentrated Compound

3.2.1.1 Quality

The compound shall be a homogeneous liquid free from sediment, abrasives, skins, lumps, and other impurities detrimental to usage of the compound.

3.2.1.2 Flash Point

The compound shall have a flash point not lower than 150 °F (65 °C) when tested per 4.7.3.1.

3.2.1.3 Solubility

The compound shall be completely soluble in water to make a uniform solution free from gelatinous lumps, lumps, and sediment.