



AEROSPACE MATERIAL SPECIFICATION

AMS3166**REV. C**

Issued 1964-02
Revised 1999-01
Cancelled 2014-01

Superseded by AMS3167

Solvents, Cleaning
Cleaning Prior to Application of Sealing Compounds

RATIONALE

AMS3166 is hereby cancelled; all technical content has been incorporated into AMS3167.

CANCELLATION NOTICE

This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of January 2014 and has been superseded by AMS3167. The requirements of the latest issue of AMS3167 shall be fulfilled whenever reference is made to the cancelled AMS3166. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications, noting that it has been superseded by AMS3167.

Cancelled specifications are available from SAE.

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Documents

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1. SCOPE:

1.1 Form:

This specification covers liquid cleaning solvents.

1.2 Application:

These solvents are used typically to cleaning aircraft primary and secondary structural surfaces prior to application of adhesion promoters and/or sealing materials, but usage is not limited to such applications.

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 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 2473	Chemical Treatment for Aluminum Alloys, General Purpose Coating
AMS 2629	Fluid, Jet Reference
AMS 3276	Sealing Compound, Integral Fuel Tanks and General Purpose, Intermittent Use to 360 °F (182 °C)
AMS 3100	Adhesion Promoter for Polysulfide Sealing Compounds
AMS 3375	Adhesive/Sealant, Fluorosilicone, Aromatic Fuel Resistant, One-Part, Room Temperature Vulcanizing
AMS 3819	Cloths, Cleaning, for Aircraft Primary and Secondary Structural Surfaces
AMS 4101	Aluminum Alloy Plate, 4.4Cu - 1.5Mg - 0.60Mn (2124-T851) Solution Heat Treated, Stretched, and Precipitation Heat Treated
AMS 4202	Aluminum Alloy Plate, 5.7Zn - 2.2Mg - 1.6Cu - 0.22Cr, (7475-T7351) Solution Heat Treated, Stress Relieved by Stretching, and Precipitation Heat Treated
AMS 6419	Steel Bars, Forgings, and Tubing, 1.6Si - 0.82Cr - 1.8Ni - 0.40Mo - 0.08V (0.40-0.45C), Consumable Electrode Vacuum Remelted
AMS-QQ-A-250/4	Aluminum Alloy, 2024, Plate and Sheet

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 740	Methyl Ethyl Ketone
ASTM D 1193	Reagent Water
ASTM D 1218	Refractive Index and Refractive Dispersion of Hydrocarbon Liquids
ASTM D 1296	Odor of Volatile Solvents and Diluents
ASTM D 1364	Water in Volatile Solvents (Fischer Reagent Titration Method)
ASTM D 1475	Density of Paint, Varnish, Lacquer, and Related Products
ASTM D 1613	Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products
ASTM D 3278	Flash Point of Liquids by Setaflash-Closed-Cup Apparatus
ASTM D 3545	Alcohol Content and Purity of Acetate Esters by Gas Chromatography
ASTM D 3960	Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings
ASTM D 4420	Aromatics in Light Naphthas, and Aviation Gasolines by Gas Chromatography
ASTM G 38	Making and Using C-Ring Stress-Corrosion Cracking Test Specimens

2.3 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

CCC-C-419	Cloth, Duck, Unbleached, Plied Yarns, Army and Numbered
A-A-58054	Abrasive Mats, Non-Woven, Non-Metallic
MIL-PRF-23377	Primer Coatings: Epoxy, High Solids
MIL-C-27725	Coating, Corrosion Preventive, for Aircraft Integral Fuel Tanks
MIL-PRF-85582	Primer Coatings, Epoxy, Water Borne
MIL-STD-290	Packaging of Petroleum and Related Products
TT-E-751	Ethyl Acetate, Technical
TT-I-735	Isopropyl Alcohol
TT-N-97	Naptha, Aromatic
FED-STD-1313	Material Safety Data Sheets, Preparation of

3. TECHNICAL REQUIREMENTS:

3.1 Material:

The cleaning solvent shall be a liquid formulated to meet the requirements of 3.2 and 3.3. Purchaser shall specify requirements for vapor pressure and volatile organic compound (VOC) content as required to meet local air quality requirements.

3.2 Properties:

The cleaning solvent shall conform to the requirements shown in Table 1.

TABLE 1 – PROPERTIES

Paragraph	Property	Requirement	Test Method
3.2.1	Composition	Same as data determined on preproduction test sample	4.5.6
3.2.2	Odor	Characteristic of solvents, used, not offensive to users, no residual odor	ASTM D 1296
3.2.3	Refractive Index	Preproduction value $\pm 2\%$	ASTM D 1218
3.2.4	Density	Preproduction value $\pm 2\%$	ASTM D 1475
3.2.5	Acidity	0.05% maximum, expressed as acetic acid	ASTM D 1613
3.2.6	Vapor Pressure, mm Hg	To be specified by purchaser	4.5.7
3.2.7	VOC, grams/L	To be specified by purchaser	4.5.8
3.2.8	Flash Point	100 °F (38 °C) minimum	ASTM D 3278
3.2.9	Visible Dry Residue	No more residual contamination and/or streaking than the control solvent	4.5.9
3.2.10	Stress Corrosion	No corrosion	4.5.10
3.2.11	Cleaning Prior to Sealing	20 pounds force per inch (3502 N/m) width, 100% cohesive failure for AMS 3276 sealant	4.5.11.1
		8 pounds force per inch (1401 N/m) width, 100% cohesive failure for AMS 3375 sealant	
3.2.12	Removal of Uncured Sealant	Sealant removal same as control solvent	4.5.11.2
3.2.13	Removal of A MS 3100 Adhesion Promoter	Promoter removal same as control solvent	4.5.11.3
3.2.14	Appearance	All components shall be miscible	4.5.12