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400 Commonwealth Dr., Warrendale, PA 15096-0001

# AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 3165D

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Superseding AMS 3165C

## SOLVENT, PETROLEUM Aromatic

### 1. SCOPE:

- 1.1 Form: This specification covers a petroleum-base liquid solvent.
- 1.2 Application: Primarily for use as a paint thinner and as a solvent cleaner to remove oil and oil-bonded contaminants from metal surfaces.
- 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 documents shall be as specified in AMS 2350.

- 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

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2.2 ASTM Publications: Available from ASTM, 1916 Race Street, Philadelphia, PA 19103.

- ASTM D56 - Flash Point by Tag Closed Tester
- ASTM D86 - Distillation of Petroleum Products
- ASTM D130 - Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test
- ASTM D156 - Saybolt Color of Petroleum Products (Saybolt Chromometer Method)
- ASTM D611 - Aniline Point and Mixed Aniline Point of Petroleum Products and Hydrocarbon Solvents
- ASTM D891 - Specific Gravity of Liquid Industrial Chemicals
- ASTM D974 - Neutralization Number by Color-Indicator Titration
- ASTM D4057 - Manual Sampling of Petroleum and Petroleum Products

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

2.3.1 Federal Standards:

FED-STD-141 - Paint, Varnish, Lacquer, and Related Materials, Methods of Inspection, Sampling and Testing

2.3.2 Military Standards:

MIL-STD-290 - Packaging of Petroleum and Related Products

3. TECHNICAL REQUIREMENTS:

3.1 Material: Shall consist of a blend of petroleum hydrocarbons from a straight-run distillate from crude petroleum.

3.2 Properties: Solvent shall conform to the following requirements:

3.2.1 Color: Water white, not darker than No. 21 Saybolt Chromometer, determined in accordance with ASTM D156.

3.2.2 Specific Gravity at 20°/20°C (68°/68°F): Shall be 0.825 - 0.875, determined in accordance with ASTM D891.

3.2.3 Flash Point: Not lower than 27°C (81°F), determined in accordance with ASTM D56.

3.2.4 Distillation: Upon distillation, solvent shall show an even chain of boiling points and shall conform to the following values, determined in accordance with ASTM D86:

	Temperature	
	minimum	maximum
Initial Boiling Point	130°C (266°F)	--
50% Recovered	143°C (289°F)	170°C (338°F)
Dry End Point	--	190°C (374°F)
Acidity of Residue	Not acid	

3.2.5 Mixed Aniline Point: Not greater than 28°C (82°F), determined in accordance with ASTM D611.

3.2.6 Corrosion: Not greater than Class 1, determined in accordance with ASTM D130 at 100°C (212°F).

3.2.7 Acidity: Not more than 0.03 mg of potassium hydroxide shall be required to neutralize the acidity of 1 gram of solvent, tested in accordance with ASTM D974.

3.2.8 Nonvolatile Content: Shall be not more than 0.2 grams/100 mL determined in accordance with FED-STD-141, Method 4041.1.

3.3 Quality: Solvent, as received by purchaser, shall be clear and free from suspended solids, undissolved water, and sediment when examined by transmitted light. The odor of the solvent shall be typical of a "sweet" or slightly aromatic odor after 24 hours of air drying at room temperature on filter paper.

#### 4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the solvent shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.5. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the solvent conforms to the requirements of this specification.

#### 4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to requirements for specific gravity (3.2.2), flash point (3.2.3), distillation (3.2.4), and corrosion (3.2.6) are classified as acceptance tests and shall be performed on each lot.

- 4.2.2 Preproduction Tests: Tests to determine conformance to all technical requirements of this specification are classified as preproduction tests and shall be performed prior to or on the initial shipment of solvent to a purchaser, when a change in material and/or processing requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.
- 4.2.3 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, contracting officer, or request for procurement.
- 4.3 Sampling: Shall be in accordance with ASTM D4057; a lot shall be all solvent from one batch or tank offered for delivery at one time. If solvent cannot be identified by batch or tank, a lot shall consist of not more than 10,000 gallons (37854 L) presented for delivery at one time.
- 4.4 Approval:
- 4.4.1 Solvent shall be approved by purchaser before solvent for production use is supplied, unless such approval be waived by purchaser. Results of tests on production solvent shall be essentially equivalent to those on the approved sample.
- 4.4.2 Vendor shall use ingredients, manufacturing procedures, and methods of inspection on production solvent which are essentially the same as those used on the approved sample solvent. If necessary to make any change in ingredients or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in ingredients and/or processing and, when requested, sample solvent. Production solvent made by the revised procedure shall not be shipped prior to receipt of reapproval.
- 4.5 Reports: The vendor of solvent shall furnish with each shipment a report showing the results of tests on each lot to determine conformance to the acceptance test requirements and stating that the solvent conforms to the other technical requirements of this specification. This report shall include the purchase order number, AMS 3165D, lot number, and quantity.
- 4.5.1 A material safety data sheet conforming to AMS 2825, or equivalent, shall be supplied to each purchaser prior to, or concurrent with, the report of preproduction test results or, if preproduction testing be waived by purchaser, concurrent with the first shipment of solvent for production use. Each request for modification of solvent formulation shall be accompanied by a revised data sheet for the proposed formulation.
- 4.6 Resampling and Retesting: If any sample used in the above tests fails to meet the specified requirements, disposition of the solvent may be based on the results of testing three additional samples for each original nonconforming sample. Failure of any retest sample to meet the specified requirements shall be cause for rejection of the solvent represented and no additional testing shall be permitted. Results of all tests shall be reported.