

# AEROSPACE MATERIAL SPECIFICATION



AMS 3165E

Issued 1945-10  
Revised 2001-03  
Reaffirmed 2010-05

Superseding AMS 3165D

Solvent, Petroleum  
Aromatic

## 1. SCOPE:

### 1.1 Form:

This specification covers a petroleum-base liquid solvent.

### 1.2 Application:

This solvent has been used typically 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 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 canceled and no superseding document has been specified, the last published issue of that document shall apply.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2010 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

**TO PLACE A DOCUMENT ORDER:** Tel: 877-606-7323 (inside USA and Canada)  
Tel: +1 724-776-4970 (outside USA)  
Fax: 724-776-0790  
Email: CustomerService@sae.org  
http://www.sae.org

SAE WEB ADDRESS:

**SAE values your input. To provide feedback  
on this Technical Report, please visit  
<http://www.sae.org/technical/standards/AMS3165E>**

## 2.1 ASTM Publications:

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

ASTM D 56	Flash Point by Tag Closed Tester
ASTM D 86	Distillation of Petroleum Products
ASTM D 130	Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test
ASTM D 156	Saybolt Color of Petroleum Products (Saybolt Chromometer Method)
ASTM D 611	Aniline Point and Mixed Aniline Point of Petroleum Products and Hydrocarbon Solvents
ASTM D 891	Specific Gravity of Liquid Industrial Chemicals
ASTM D 974	Acid and Base Number by Color-Indicator Titration
ASTM D 4057	Manual Sampling of Petroleum and Petroleum Products

## 2.2 U.S. Government Publications:

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

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

## 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 D 156.
- 3.2.2 Specific Gravity at 20°/20 °C (68°/68 °F): Shall be 0.825 to 0.875, determined in accordance with ASTM D 891.
- 3.2.3 Flash Point: Not lower than 27 °C (81 °F), determined in accordance with ASTM D 56.
- 3.2.4 Distillation: Upon distillation, solvent shall show an even chain of boiling points and shall conform to the values shown in Table 1, determined in accordance with ASTM D 86:

TABLE 1 - Boiling Point Determination

Value	Temperature minimum	Temperature 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 D 611.
- 3.2.6 Corrosion: Not greater than Class 1, determined in accordance with ASTM D 130 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 one gram of solvent, tested in accordance with ASTM D 974.
- 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 performance of all required tests. 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: Specific gravity (3.2.2), flash point (3.2.3), distillation (3.2.4), and corrosion (3.2.6) are acceptance tests and shall be performed on each lot.
- 4.2.2 Preproduction Tests: 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.

#### 4.3 Sampling:

Shall be in accordance with ASTM D 4057; 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 3165E, lot number, and quantity.

#### 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. Results of all tests shall be reported.

### 5. PREPARATION FOR DELIVERY:

#### 5.1 Identification:

Each container of solvent shall be legibly marked with not less than AMS 3165E, purchase order number, manufacturer's identification lot number, and quantity.

#### 5.2 Packaging:

5.2.1 Containers of solvent shall be prepared for shipment in accordance with commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the solvent to ensure carrier acceptance and safe delivery.