

NOT MEASUREMENT SENSITIVE

O-E-751C  
10 January 2003  
SUPERSEDING  
O-E-751B  
11 April 1956

## FEDERAL SPECIFICATION

### ETHER, PETROLEUM; TECHNICAL GRADE

The General Services Administration has authorized the use of this federal specification by all federal agencies.

#### 1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers technical grade petroleum ether to be used as a solvent.

#### 2. APPLICABLE DOCUMENTS

2.1 Government publications. The issues of the following documents, in effect on the date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

##### Code of Federal Regulations (CFR)

49 CFR 172.101 -Purpose and Use of Hazardous Materials Table.

(The CFR is for sale on a subscription basis from the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. When indicated, reprints of certain regulations may be obtained from the federal agency responsible for issuing them. Electronic copies may be obtained from <http://www.access.gpo.gov/>.)

Beneficial comments, recommendations, additions, deletions clarifications, etc. and any data that may improve this document should be sent to: Defense Supply Center Richmond, ATTN: DSCR-VBD, 8000 Jefferson Davis Highway, Richmond, VA 23297-5610.

AMSC N/A

FSC 6810

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2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on the date of invitation for bids or request for proposal shall apply.

## ASTM International

- ASTM D 86 - Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure (DoD adopted).
- ASTM D 130 - Standard Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test (DoD adopted).
- ASTM D 156 - Standard Test Method for Saybolt Color of Petroleum Products (Saybolt Chromometer Method) (DoD adopted).
- ASTM D 287 - Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method) (DoD adopted).
- ASTM D 1093 - Standard Test Method for Acidity of Hydrocarbon Liquids and Their Distillation Residues (DoD adopted).
- ASTM D 1159 - Standard Test Method for Bromine Numbers of Petroleum Distillates and Commercial Aliphatic Olefins by Electrometric Titration (DoD adopted).
- ASTM D 1319 - Standard Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption (DoD adopted).
- ASTM D 1353 - Standard Test Method for Nonvolatile Matter in Volatile Solvents for Use in Paint, Varnish, Lacquer, and Related Products (DoD adopted).

(Private sector and civil agencies may purchase copies of these voluntary standards from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959. Electronic copies may be obtained from <http://www.astm.org/>.)

## 3. REQUIREMENTS

3.1 Material. The material shall be as specified in paragraphs 3.2 through 3.11.

3.2 Appearance. The petroleum ether shall be a clear liquid, free from suspended matter and sediment (see 4.3.1).

3.3 Odor. The odor of the material as received and during evaporation shall not be disagreeable or sulfuretted. There shall be no residual odor after evaporation (see 4.3.2).

3.4 Color. The color shall be not darker than Saybolt color 28 (see 4.3.3).

3.5 Nonvolatile matter. The nonvolatile matter shall be not more than 0.0010 gram (g) per 100 milliliters (ml) of material (see 4.3.4).

3.6 Acidity. The petroleum ether shall be neutral (non-acidic) (see 4.3.5).

3.7 Distillation range. The initial boiling point shall be not less than 35 °C and the dry flask end point shall be not greater than 65 °C (see 4.3.6).

3.8 Specific gravity. Specific gravity shall be not less than 0.6360 (91.0 °API) or more than 0.6476 (87.0 °API) (see 4.3.7).

3.9 Unsaturation. The bromine number shall be not more than 0.35 g per 100 g of material (see 4.3.8).

3.10 Aromatics. Aromatics shall be not greater than 3.0 percent (see 4.3.9).

3.11 Free and corrosive sulfur. There shall be no more than a light orange tarnish (1a) on a copper strip specimen (see 4.3.10).

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified (see 6.2 and 6.5), the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified (see 6.2 and 6.5), the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the government. The government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.2 Quality conformance inspection. Unless otherwise specified (see 6.2), the product shall be tested in accordance with the tests specified in paragraph 4.3.1 through 4.3.10.

#### 4.3 Test methods.

4.3.1 Appearance. Pour some of the thoroughly mixed sample into a test tube, stopper, and allow to stand for at least ten minutes at room temperature (20 °C to 30 °C). Examine by transmitted light for clarity, suspended matter, and sediment.

4.3.2 Odor. Note the odor of the material in the container. Dip uniform strips of double acid washed filter paper in the sample. Allow to dry in a well ventilated room at 20 °C to 30 °C for one hour. Note the odor at the start of the drying period and at 15 minute intervals during the drying period. At the end of the drying period, note whether there is any residual odor.

4.3.3 Color. The test for color shall be in accordance with ASTM D 156.

4.3.4 Nonvolatile matter. The test for nonvolatile matter shall be in accordance with ASTM D 1353.

4.3.5 Acidity. The test for acidity shall be in accordance with ASTM D 1093.

4.3.6 Distillation range. The test for distillation range shall be in accordance with ASTM D 86.

4.3.7 Specific gravity. The test for specific gravity shall be in accordance with ASTM D 287.

4.3.8 Unsaturation. The test for bromine shall be in accordance with ASTM D 1159.

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4.3.9 Aromatics. The test for aromatics shall be in accordance with ASTM D 1319.

4.3.10 Free and corrosive sulfur. The test for copper corrosion shall be in accordance with ASTM D 130 using the test bomb method.

## 5. PACKAGING

5.1 Packaging. Preservation, packing, and marking shall be as specified in the acquisition order (see 6.2).

## 6. NOTES

INFORMATION FOR GUIDANCE ONLY. (This section contains information of a general or explanatory nature that is helpful, but is not mandatory.)

6.1 Intended use. The petroleum ether specified in this document is a grade intended for use as a solvent. This product is not intended for medical purposes. CAUTION: Petroleum ether is highly flammable and when mixed with air may form an explosive mixture.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, revision, and date of this standard.
- b. Responsibility for inspection, if different (see 4.1).
- c. Facilities for inspection, if different (see 4.1).
- d. Quality conformance tests, if different (see 4.2).
- e. Packaging (see 5.1).

6.3 Materials safety data sheet (MSDS). Contracting officers will identify those activities requiring copies of completed MSDS prepared in accordance with FED-STD-313 and meeting the requirements of 29 CFR 1910.1200. The pertinent government mailing addresses for submission of the data are listed in FED-STD-313, and 29 CFR 1910.1200 requires that the MSDS for each hazardous chemical used in an operation must be readily available to personnel using the material. Contracting officers will identify the activities requiring copies of the MSDS.

6.4 Sampling and testing precautions. This specification requires inspection of chemical material that is potentially hazardous to personnel. This specification does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this specification to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

6.5 Submission of alternate inspection provisions. Proposed alternative inspection provisions should be submitted by the contractor to the procuring contracting officer for evaluation and approval by the technical activity responsible for preparation of this specification.

6.6 Standard sample. When practicable, an original unopened container shall be sent to the laboratory for test. When this is not practicable, a representative composite sample shall be

taken from each delivery, placed in a clean glass bottle, sealed and sent to the laboratory for test. The sample shall be not less than two quarts or more than two gallons.

6.7 Part or identification number (PIN). The following PIN procedure is for government purposes and does not constitute a requirement for the contractor.

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    └───┘ Specification number

6.8 Subject term (key word) listing.

solvent

6.9 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

MILITARY INTERESTS:

Custodian:  
Army - EA

CIVIL AGENCY  
COORDINATING ACTIVITY:

GSA - 7FXE

Preparing Activity:  
DLA - GS3

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