

MIL-P-12048D  
 24 December 1984  
 SUPERSEDING  
 MIL-P-12048C  
 1 April 1961  
 (See 6.5)

## MILITARY SPECIFICATION

### PETROLEUM TESTING KIT, GROUND FUELS

This specification is approved for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE

1.1 Scope. This specification covers a petroleum testing kit for ground fuels (MOGAS and Diesel). The equipment is used to perform American Society for Testing and Materials (ASTM) tests for distillation, flash point, API gravity, and free water and particulate contamination.

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified (see 6.2), the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation, form a part of this specification to the extent specified herein.

#### SPECIFICATIONS

##### FEDERAL

PPP-B-601	- Boxes, Wood, Cleated-Plywood.
PPP-B-640	- Box, Fiberboard, Corrugated, Triplewall.
PPP-C-843	- Cushioning Material, Cellulosic.

##### MILITARY

MIL-P-116	- Preservation, Methods of.
MIL-T-704	- Treatment and Painting of Materiel.
MIL-G-20241	- Gasket Material, Wool Felt, Impregnated, Adhesive, Pressure Sensitive.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: USA Belvoir Research and Development Center, ATTN: STRBE-DS, Fort Belvoir, VA 22060-5606 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 6630

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- MIL-T-22085
  - MIL-P-23377
  - MIL-S-51028
  - MIL-S-81733
- Tape, Adhesive, Preservation and Sealing.
  - Primer Coating, Epoxy Polyamide, Chemical and Solvent Resistant.
  - Sampling and Gaging Kit, Petroleum, Portable.
  - Sealing and Coating Compound, Corrosion Inhibitive.

STANDARDS

MILITARY

- MIL-STD-105
  - MIL-STD-129
  - MIL-STD-130
  - MIL-STD-454
  - MIL-STD-889
  - MIL-STD-1186
  - MIL-STD-1472
- Sampling Procedures and Tables for Inspection by Attributes.
  - Marking for Shipment and Storage.
  - Identification Marking of US Military Property.
  - General Standards for Electronic Equipment.
  - Dissimilar Metals.
  - Cushioning, Anchoring, Bracing, Blocking and Waterproofing, with Appropriate Test Methods.
  - Human Engineering Design Criteria for Military System, Equipment and Facilities.

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein.

DRAWINGS

ME

- TA13225E8500 - Petroleum Testing Kit, Ground Fuels.

(Copies of specifications, standards, and drawings required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 Other publications. The following document(s) form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM D 3951 - Standard Practice for Commercial Packaging.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

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(Industry association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

### 3. REQUIREMENTS

3.1 Description. The ground fuel petroleum testing kit, hereinafter called "kit" shall be in accordance with TAL3225E8500 and as specified herein. The kit shall consist of a distillation unit, a flash point tester unit, a slow-speed stirrer, a sampling and gaging kit, and a cabinet to contain all components. The cabinet contains all items required to perform the tests, opens to provide a work area, has folding legs with adjustable feet to level the cabinet, and has retracting carrying handles. The kit contains thermometers, cork borer, flashlight, swab, stopwatch, tube cleaning brushes, double-headed bung wrench, cylinder of propane, propane cylinder valve, and rubber tubing in addition to the basic tester units. The kit requires 115V, 60 Hz, AC power to perform the tests.

3.1.1 Drawings. The drawings forming a part of this specification are end product drawings. No deviation from the prescribed dimensions or tolerances is permissible without the prior approval of the contracting officer. Where tolerances could cumulatively result in incorrect fits, the contractor shall provide tolerances within those prescribed on the drawings to insure correct fit, assembly, and operation of the kit. Any data (e.g., shop drawings, layouts, flowsheets, processing procedures, etc.) prepared by the contractor or obtained from a vendor to support fabrication and manufacture of the production item shall be made available, upon request, for inspection by the contracting officer or his designated representative.

3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 4.3 and 6.3).

3.3 Materials. Materials shall be as specified herein and on the drawings. Materials not specified shall be selected by the contractor and shall be subject to all the provisions of this specification.

3.3.1 Material deterioration and control. The kit shall be fabricated from compatible materials, inherently corrosion and deterioration resistant or treated to provide protection against the various forms of corrosion and deterioration that may be encountered in any of the applicable storage and operating environments to which the kit may be exposed.

3.3.1.1 Dissimilar metals. Dissimilar metals, as defined in MIL-STD-889, shall be electrically insulated from one another to minimize or prevent galvanic corrosion. Insulation may be provided by an insulating barrier such as a

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corrosion inhibiting sealant conforming to MIL-S-81733 or chromate tape conforming to MIL-G-20241 or a coat of epoxy primer conforming to MIL-P-23377. Protection against corrosion could also be obtained by exclusion of the electrolyte if feasible.

3.3.1.2 Identification of materials and finishes. The contractor shall identify the specific material, material finish or treatment for use with components and sub-components, and shall make information available, upon request, to the contracting officer or designated representative.

3.3.2 Recovered materials. For the purpose of this requirement, recovered materials are those materials which have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials. The components, pieces and parts incorporated in the kit may be newly fabricated from recovered materials to the maximum extent practicable, provided the kit produced meets all other requirements of this specification. Used, rebuilt or remanufactured components, pieces and parts shall not be incorporated in the kit.

### 3.4 Construction.

3.4.1 Cabinet. The cabinet shall be fabricated in accordance with the drawings. Adequate adhesive shall be used to assure no pull-away of the cushioning material or to allow water to become trapped between the cushioning material and the metal surface. All parts attached by hinges shall freely open and close without binding. Legs will readily fold-up or unfold; and lock in place. The retracting handles shall be of sufficient strength to support a fully supplied kit.

3.4.2 Components. The components shall be as specified on the drawings or herein, and shall be firmly and securely restrained so as to prevent damage during transporting and set-up.

3.5 Human factors. As applicable, the kit shall conform to the requirements of MIL-STD-1472, with particular attention to, but not limited to, paragraph 4. (General requirements, 5.5 [Labeling], 5.9 [Design for Maintainability], 5.13 [Hazards, and Safety]).

3.6 Safety. All electrical wiring and electrically powered equipment contained in the kit shall meet the criteria set forth in MIL-STD-454, requirement 1.

3.7 Treatment and painting. Unless otherwise specified (see 6.2), the cabinet and components of the kit normally painted shall be cleaned, treated, and painted as specified on the drawings. Those items normally painted, but not covered by the drawings, shall be treated and painted per MIL-T-704.

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3.8 Government-furnished property. When specified (see 6.2) the following item, one per kit, will be furnished by the Government (see 6.4).

Sampling and Gaging Kit, Petroleum: Portable NSN 6680-00-151-5310 (MIL-S-51028).

3.9 Identification markings. The kit shall be identified as specified by the drawings and the components shall be identified in accordance with MIL-STD-130.

3.10 Workmanship. All parts, components, and assemblies of the kit, including stampings and welded parts shall be cleaned and free from dirt, pits, scale, flux, and other harmful extraneous material. Bolted and riveted connections shall be tight. Welding shall be of best commercial practice and in accordance with American Welding Society Standards. External surfaces shall be free from burrs, sharp edges, and corners except when sharp edges and corners are required. Workmanship shall be such that kit elements shall be free from cracks, surfaces, out of alignment, or out of contour (visually apparent) and missing portions of materials. Metal parts shall be free of burrs, blisters, tears, and excessive thinning; or any condition that might present a safety hazard to operating or maintenance personnel.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor shall be responsible for the performance of all inspection requirements specified herein. Except as otherwise specified in the contract, 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 this specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Component and material inspection. The contractor is responsible for insuring that components and materials used are manufactured, examined, and tested in accordance with referenced specifications and standards.

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4)
- c. Inspection of packaging (see 4.6).

#### 4.3 First article inspection.

4.3.1 First article examination. The first article shall be examined as specified in 4.5.1, in the order shown. The presence of one or more defects shall be cause for rejection.

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4.3.2 First article tests. The first article shall be tested as specified in 4.5.2, in the order shown. Failure of any test shall be cause for rejection.

4.4 Quality conformance inspection.

4.4.1 Examination. Each kit shall be examined as specified in 4.5.1, in the order shown. AQL shall be 2.5 percent defective.

4.4.2 Tests. Each kit shall be tested as specified in 4.5.2. AQL shall be 2.5 percent defective.

4.5 Inspection procedure.

4.5.1 Examination. The kits shall be examined as specified herein for the following defects:

101. Materials not as specified.
102. Materials not resistant to corrosion and deterioration or treated to be made resistant to corrosion and deterioration.
103. Dissimilar metal not in accordance with MIL-STD-889.
104. Material and material finish or treatment information not available.
105. Dimensions not as specified.
106. Parts not as specified, missing, malformed, bent, damaged, or not assembled as specified.
107. Cushioning not as specified, missing, not bonded as specified, wrong size or location.
108. Hinges operate freely and not bind.
109. Components missing or not as specified.
110. Components broken, scratched, cracked, bent, chipped, scarred or otherwise damaged affecting serviceability.
111. Components not located as specified.
112. As applicable kit does not comply with MIL-STD-1472.
113. Safety characteristics not as specified.
114. Treatment and painting not as specified.
115. Identification plate not as specified, missing, or not attached as specified.
116. Strap not stitched as specified.
117. Rivets not tight or do not make full contact with surface or member.
118. Welds missing or not as specified.
119. Rivets missing or not as specified.
120. Any sharp edge or burr which could cause injury.

4.5.2 Test.

4.5.2.1 Components. Unless otherwise specified (see 6.2), a certification stating that the components meet the requirements of their individual drawings and are operable as required will be acceptable in lieu of testing.

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4.5.2.2 Cabinet. The cabinet, fully supplied with all its components shall be put in the carry mode, and with the retractable handles, carried by two persons for a distance of 50 meters. The kit will then be set up on its legs and the contents examined for damaged or items not secured. All items will be removed from their secured position and stacked on the working surface. Item components will then be re-packed, cabinet returned to carry mode, and transported as noted above. Upon completion of this test, each kit will be examined for damage to the cabinet and components. Any evidence of permanent deformation, cracks, or broken items shall constitute failure of this test.

4.5.2.3 Human factors. The kit shall be evaluated throughout all testing to determine compliance with 3.5. Non-conformance to 3.5 shall constitute failure of this test.

#### 4.6 Inspection of packaging.

##### 4.6.1 Quality conformance inspection.

4.6.1.1 Unit of product. For the purpose of inspection, a complete pack prepared for shipment shall be the unit of product.

4.6.1.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.6.1.3 Examination. Samples selected in accordance with 4.6.1.2 shall be examined for the following major defects. AQL shall be 2.5 percent defective.

121. Kit components not in designated locations within the cabinet and cushioned to prevent movement.
122. Preservation not applied as specified for level A.
123. Cabinet doors not sealed with tape as specified for level A.
124. Shipping containers not as specified for all degrees of packing.
125. Strapping not as specified for levels A and B.
126. Marking incorrect, illegible, or missing.
127. Special markings not applied to all shipping containers as specified.

#### 5. PACKAGING

5.1 Preservation. Preservation shall be level A, or commercial, as specified (see 6.2).

5.1.1 Level A. All components of the kit shall be placed in their designated locations within the cabinet. If necessary, additional cushioning conforming to PPP-C-843, type II, class A shall be used to completely immobilize the components within the cabinet. Prior to replacement within the cabinet, any components having surfaces subject to corrosion shall be preserved in accordance with the applicable procedures and preservatives contained in MIL-P-116. Cabinet doors shall be closed and latched. All joints created by the cabinet doors shall be sealed with tape conforming to MIL-T-22085, type II.

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5.1.2 Commercial. Kit components shall be placed in their designated locations within the cabinet. Additional cushioning of an appropriate type shall be used to prevent movement of any components. The cabinet doors shall be closed and latched.

5.2 Packing. Packing shall be level A, level B, or commercial, as specified (see 6.2).

5.2.1 Level A. Each kit, preserved as specified in 5.1, shall be packed in a box conforming to PPP-B-601, overseas type, style I. Prior to placing the cabinet in the box, the legs shall be folded and the carrying handles retracted; the legs shall be secured with the incorporated provisions. Movement of the cabinet within the shipping container shall be prevented by the use of blocking in accordance with MIL-STD-1186. The shipping container shall be closed and strapped as specified in the appendix to the box specification. Strapping shall be flat, zinc coated steel.

5.2.2 Level B. Each kit, preserved as specified in 5.1, shall be packed in a box conforming to PPP-B-640, class 2, style optional. Blocking of the cabinet within the box shall be in accordance with MIL-STD-1186. Closure, sealing, and reinforcement of the box shall be in accordance with the appendix to the box specification; strapping shall be flat steel.

5.2.3 Commercial. Each kit shall be packed in a container in accordance with ASTM D 3951.

### 5.3 Marking.

5.3.1 Levels A and B. Marking shall be in accordance with MIL-STD-129.

5.3.2 Commercial. Marking shall be in accordance with ASTM D 3951. In addition, weight and cube data shall be marked on the shipping container.

5.3.3 Special marking. Each shipping container for all degrees of packing shall be marked with the words, "FRAGILE-DO NOT DROP" and "UP" with an arrow towards the top of the container. Location, size, and color of special markings shall be in accordance with MIL-STD-129.

## 6. NOTES

6.1 Intended use. The kit is intended for use in the field to perform certain designated tests on petroleum products of ground use equipment. These tests consist of:

API Gravity of Crude Petroleum Products (Hydrometer Method)	per ASTM D 287
Distillation of Petroleum Products	per ASTM D 86
Flash Point by Pensky-Martens Closed Tester	per ASTM D 93



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Free Water and Particulate Contamination in Distillate Fuels (Clear and Bright Pass/Fail Procedure)	per ASTM D 4176
Fuel Temperature	per ASTM D 1086
Fuel Sampling	per ASTM D 270
Fuel Gaging	per ASTM D 1085
Drum Thief	per ASTM D 270

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number, and date of this specification.
- b. Date of issue of DoDISS applicable and exceptions thereto (see 2.1.1).
- c. When a first article is required for inspection and approval (see 3.2).
- d. When paint finish is to be other than as specified (see 3.7).
- e. When item is to be Government-furnished property (see 3.8).
- f. When certification is not acceptable, and operable components tested (see 4.5.2.1).
- g. Degree of preservation and packing required (see 5.1 and 5.2).

6.3 First article. When a first article inspection is required, kit will be tested and should be a preproduction model. The first article should consist of one complete kit in accordance with TAI3225E8500. The contracting officer should include specific instruction in acquisition documents regarding arrangements for examination, tests and approval of the first article test results and disposition of the document's first articles (see 3.2).

6.4 Government-furnished property. The contracting officer should arrange to furnish the property listed in 3.8 if specified in 6.2.

6.5 The final approval of this specification will be the mode of reinstatement of MIL-P-12048 at revision D. Cancellation and the citing of MIL-T-52849 as a replacement by Notice 1, 7 Jul 77 was in error.

Custodian:  
Army - ME

Preparing activity:  
Army - ME

Review activity:  
DLA - GS

Project 6630-0328

**INSTRUCTIONS:** In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

**NOTE:** This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER

MIL-P-12048D

2. DOCUMENT TITLE

Petroleum Testing Kit, Ground Fuels

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION (Mark one)

 VENDOR USER MANUFACTURER OTHER (Specify): \_\_\_\_\_

b. ADDRESS (Street, City, State, ZIP Code)

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER (Last, First, MI) - Optional

b. WORK TELEPHONE NUMBER (Include Area Code) - Optional

c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional

8. DATE OF SUBMISSION (YYMMDD)

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