



Designation: F 302 – 78 (Reapproved 1996)

Standard Practice for Field Sampling of Aerospace Fluids in Containers¹

This standard is issued under the fixed designation F 302; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers field sampling of fluids from hermetically sealed containers and other fluid containers of 55-gal (208-L) volume maximum. It may be utilized at manufacturing, storage, or use levels for obtaining representative fluid samples for chemical, physical, or particulate matter determinations.

1.2 Use of this practice depends upon variables such as fluid toxicity, restrictive fluid odors, fluid flammability, etc. It is suitable for most hydraulic fluids; however, care should be exercised in determining compatibility before use.²

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For hazard statement, see 6.5.1.

2. Referenced Documents

2.1 ASTM Standards:

D 1193 Specification for Reagent Water³

D 1836 Specification for Commercial Hexanes⁴

D 2021 Specification for Neutral Detergent, 40 Percent Alkylbenzene Sulfonate Type⁵

F 311 Practice for Processing Aerospace Liquid Samples for Particulate Contamination Analysis Using Membrane Filters⁶

F 313 Test Method for Insoluble Contamination of Hydraulic Fluids by Gravimetric Analysis⁷

¹ This practice is under the jurisdiction of ASTM Committee E-21 on Space Simulation and Applications of Space Technology and is the direct responsibility of Subcommittee E21.05 on Contamination.

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² Where a special environment is required, a Proposed Laboratory Method for Sampling Aerospace Fluids in Containers is under development in the committee. For further information write to B. R. Hall, American Petroleum Institute, 2101 L St., N.W., Washington, D. C. 20037.

³ *Annual Book of ASTM Standards*, Vol 11.01.

⁴ *Annual Book of ASTM Standards*, Vol 06.04.

⁵ *Annual Book of ASTM Standards*, Vol 15.04.

⁶ *Annual Book of ASTM Standards*, Vol 14.02.

⁷ *Annual Book of ASTM Standards*, Vol 15.03.

F 314 Test Method for Identification of Metallic and Fibrous Contaminants in Aerospace Fluids⁶

2.2 *Military Standard*:⁸

MIL-C-81302 C Cleaning Compound Solvent Trichlorotrifluoroethane

3. Summary of Practice

3.1 The minimum requirements for container agitation, sample withdrawal, and sample transfer are given in this practice. Precautions to assure sampling reliability are included in the procedure to the extent required by normal processing conditions. The procedure involves agitating the container, withdrawing with a suitable instrument capable of creating a vacuum, a predetermined quantity of fluid, and immediately transferring it to a vessel, properly identified, to hold for analysis by a stipulated method.

4. Significance and Use

4.1 Samples obtained by use of this practice are intended for processing in accordance with Practice F 311, Test Method F 313, and Test Method F 314, and other chemical or physical methods of analysis.

5. Apparatus

5.1 *Pipet*, volumetric transfer or equivalent rubber-bulb type. A taper-jointed type, as shown in Fig. 1, 22 in. (560 mm) long, calibrated to deliver 100 mL at 20°C, is also acceptable. This type provides for ease of maintenance by being separable at the midpoint of the bulb.

NOTE 1—The volume capacities selected for the pipet and sample bottles shall be as required for the sample volume desired. Normally a 100 \pm 5-mL sample is standard, which would require a capacity of approximately 125 mL. Unless otherwise indicated, it is intended that a sample volume of 100 \pm 5 mL be used for accomplishing the methods defined herein.

5.2 *Bottles*, sample, wide-mouth type (Note 1).

5.3 *Solvent Filtering Dispenser*—An apparatus to dispense a stream of 2.0 μ m or finer membrane-filtered fluid.

5.4 *Vinylidene Chloride, Polyethylene Terephthalate, or Polyamide Sheet*, 4-mil (0.1 mm) min.

5.5 *Beverage Can Opener (Unplated)*, sharpened, deburred.

⁸ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.