



Designation: D 1466 – 86 (Reapproved 1995)^{ε1}

Standard Test Method for Sampling Liquid Oils and Fatty Acids Commonly Used in Paints, Varnishes, and Related Materials¹

This standard is issued under the fixed designation D 1466; 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.

ε¹ NOTE—Unit of measurement statement and Keywords were added editorially in May 1995.

1. Scope

1.1 This test method covers procedures for obtaining representative samples of oils, fatty acids, and polymerized fatty acids that are commonly used in paints, varnishes, and related materials, and that are in a liquid state when sampled.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Summary of Test Method

2.1 Samples of drying oils, fatty acids, and polymerized fatty acids are subjected to various test methods for determining physical and chemical characteristics. It is necessary to obtain a sample or a composite of several samples in such manner and from such locations in the container, that the sample or composite will be truly representative of the product. The precautions required to assure such a representative sample are numerous, depending on the type of product, the container, the cleanliness of the sample container, and the sampling procedure that is to be used.

3. Significance and Use

3.1 Because precipitated saturated acids or oils containing a high proportion of saturated acids, foots, or other insoluble matter may not be homogeneous, the sampling procedure must be designed so that the sample obtained is representative of the overall composition of the material. Different sampling procedures are presented such that a representative sample may be obtained from material stored in different types of containers.

4. Apparatus

4.1 Oil Thief:

4.1.1 *Liquid Oils and Fatty Acids*—A glass tube, 9.5 to 12.7 mm ($\frac{3}{8}$ to $\frac{1}{2}$ in.) in internal diameter and approximately 1 m (40 in.) in length. One end shall be constricted by a short taper to approximately 6 mm ($\frac{1}{4}$ in.), and the other end shall be constricted sufficiently so that it can be used as a finger valve. This thief is used for sampling casks, drums, etc.

4.1.2 *Polymerized Fatty Acids*—A glass tube, 20 to 25 mm ($\frac{3}{4}$ to 1 in.) in internal diameter, and approximately 1 m (40 in.) in length. One end shall be constricted so it can be used as a finger valve. This thief shall be used for sampling casks, drums, etc.

4.2 *Zone Sampler*, 305-mm (12-in.) oil thief,² consisting of a graduated glass tube with either aluminum or cadmium-plated brass fittings.

4.3 *Compositing Pail*, noncorrosive compositing pail, made of stainless steel, aluminum, enamelware, polyethylene, or comparable material.

4.4 Graduated Cylinders:

4.5 *Sample Containers*, clear glass or brown glass bottles, or cans (for other than fatty acids and polymerized fatty acids). The clear glass bottles are advantageous because they may be examined visually for cleanliness, sediment, etc. The brown glass bottles afford some protection from light. Only cans that do not have any solder flux on the interior are permissible for storing oils. Cans shall not be used for fatty acids or polymerized fatty acids.

4.5.1 The closure for the glass bottles may be good quality corks, with or without tin or aluminum foil. Screw caps may be used for both bottles and cans.

4.5.2 All sample containers shall be clean and free of water, lint, dirt, washing compounds, solvents, flux or acids, rust, oil, etc.

¹ This test method is under the jurisdiction of ASTM Committee D-1 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of D01.32 on Drying Oils.

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² Samples manufactured by the W. H. Curtin Co., Houston, TX, has been found suitable for this purpose.



5. Samples

5.1 The size of the sample should be kept to a minimum. In most instances, 0.9 L (1 qt) of material should suffice. However, in many tests, a minimum of 11 L (3 gal) is required—3.8 L (1 gal) for the purchaser, 3.8 L (1 gal) for the seller, and 3.8 L (1 gal) in reserve for a possible arbitration umpire test. If refining or bleaching tests are required, the minimum quantity is approximately 3.8 L (1 gal).

5.2 The oil shall be completely liquid for proper sampling. The temperature during melting should not exceed the melting point by more than 15°C. If the oil is completely liquid, it should have a minimum temperature of 10°C. Polymerized fatty acids should be heated to a temperature only sufficiently warm to facilitate flow.

5.3 Oil drums shall be placed in a warm place for several hours or longer prior to sampling, so that their contents will completely liquefy.

5.4 Tank cars, if equipped with heater coils in proper condition, may be slowly heated to 15°C above the melting point of the oil, keeping in mind that prolonged heating might discolor the product, particularly fatty acids and polymerized fatty acids.

5.5 Labels shall be so affixed to the containers that the adhesion is of a permanent nature and the labeling does not smear.

5.6 The labels shall identify the sample as to material, date received, date sampled, shipper, car number, container size, number of containers, temperature and volume in containers, receiving slip number, and batch number.

5.7 On agreement between the purchaser and the seller, samples shall be stored in a cupboard or storeroom out of the direct rays of the sun and for no longer than 6 months.

6. Procedure

6.1 *Sampling Drums or Casks*—Mix the contents of the drum or cask by rolling it through a few complete revolutions; up-end the drum or cask, introduce the oil thief through the bung opening, and slowly lower it to the bottom. Close the end opening of the thief with a finger and remove quickly. Place the contents of the thief in a container and repeat the sampling until

sufficient material has been obtained. When sampling of each drum or cask is not feasible, sample a minimum of 10 % of the containers to form the composite sample.

6.2 *Sampling Tank Cars When No Solids Are Present*—With the zone sampler (see 4.2), sample the top, middle, and bottom portions of the tank car in that order. If no water or solids are noted, make a composite by blending one part of the top, two parts of the middle, and one part of the bottom sample.

6.3 *Sampling Tank Cars When Suspended Solids Are Present*—With the zone sampler (see 4.2), sample the top, middle, and bottom portions of the tank car in that order. If the bottom zone sample shows the presence of water or suspended solids, note the depth of the foots layer to the nearest ½ in. (12.5 mm). Transfer the entire contents of the 12-in. (305-mm) zone sampler to a clean, dry container marked “bottom sample,” and report the depth of foots in the sampler. Also report the capacity of the car in gallons. Composite the footy oil with the upper oil in the laboratory or under the direct supervision of the laboratory as follows:

6.3.1 Blend one part of the top sample with two parts of the middle sample.

6.3.2 Using the depth of suspended solids and the capacity of the car reported, determine from Table 1 the number of parts of well-mixed bottom sample to be blended with the one part top and two parts middle sample blended in accordance with 6.3.1.

6.3.3 Measure in a graduated cylinder the correct amount of well-mixed bottom sample determined from Table 1. Pour it into the one part top and two parts middle sample blended in accordance with 6.3.1. Rinse the remaining suspended solids adhering to the walls of the graduated cylinder with some of the composite just prepared, and then return the rinsings to the composite sample.

6.3.4 Stir vigorously until the foots have been uniformly distributed; then subdivide into several identical portions (usually three, of about 3 L (¾ gal) each) in appropriate containers and mark clearly so as to define the contents, or as may be designated by trading rules or regulations governing the transaction represented.

TABLE 1 Parts of Bottom Sample to Be Blended with Top and Middle Sample (see 6.3)

Depth of Stratified Matter in Oil Thief, in. (mm)	4000-gal (15 100-L) Car, approximately 60-in. (1.5-m) dia	6000-gal (22 700-L) Car, approximately 72-in. (1.8-m) dia	8000-gal (30 000-L) Car, approximately 78-in. (2-m) dia	10 000-gal (37 800-L) Car, approximately 87-in. (2.2-m) dia	12 000-gal (45 400-L) Car, approximately 92-in. (2.3-m) dia
1 (25)	0.35	0.24	0.23	0.20	0.19
2 (50)	0.34	0.24	0.22	0.19	0.18
3 (75)	0.36	0.26	0.24	0.20	0.19
4 (100)	0.38	0.27	0.26	0.21	0.20
5 (125)	0.40	0.29	0.27	0.22	0.21
6 (150)	0.43	0.31	0.28	0.24	0.22
7 (180)	0.45	0.32	0.30	0.25	0.23
8 (200)	0.47	0.34	0.31	0.26	0.24
9 (230)	0.49	0.36	0.32	0.27	0.25
10 (250)	0.51	0.37	0.34	0.28	0.26
11 (280)	0.53	0.38	0.35	0.29	0.27
12 (300)	0.55	0.40	0.36	0.30	0.28