



Standard Test Method for Determination of the Acidity as Free Fatty Acids/Acid Number in the Presence of Ammonium or Triethanolamine Soaps¹

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1. Scope

1.1 This test method covers determination of the acidity as free fatty acids in the presence of ammonium or triethanolamine soaps, or both, existing in a sample of sulfonated or sulfated oil, or both, by calculation from the total alkalinity and free-and-alkali combined fatty acids.

1.2 The values in SI units are to be regarded as the standard.

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 the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 5350 Test Method for Determination of Organically Combined Sulfuric Anhydride by Titration, Test Method A²

3. Significance and Use

3.1 This test method is intended for use in the determination of the acid number of sulfonated and sulfated oils for the purpose of quality assurance.

4. Apparatus

4.1 The apparatus required consists of a glass flask provided with a glass stopper and an air condenser. The connection between the flask and the condenser shall be a ground joint. Perforated glass beads shall be used to prevent bumping.

4.1.1 *Flask*—An Erlenmeyer flask (Fig. 1) made of a borosilicate glass, having a capacity of approximately 300 mL and provided with a glass stopper.

4.1.2 *Condenser*, consisting of a glass tube, 915 mm (36 in.) in length and 8 mm ($\frac{5}{16}$ in.) in outside diameter. The lower end of the tube shall be flared and ground to fit the mouth of the Erlenmeyer flask.

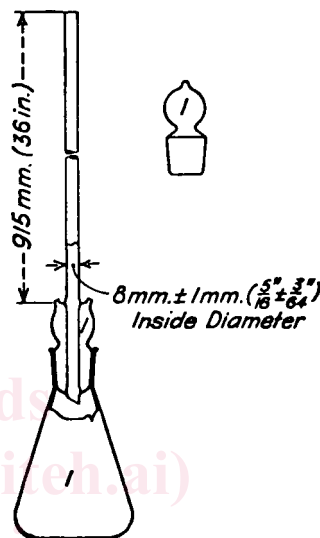


FIG. 1 Apparatus for Determination of Organically Combined Sulfuric Anhydride, Method A

4.1.3 *Glass Beads*—Perforated glass beads, made of chemically resistant glass, approximately 4 mm ($\frac{5}{32}$ in.) in diameter. Before using, the glass beads shall be boiled thoroughly in several portions of water or until the wash water reacts neutral to a methyl orange indicator.

5. Reagents

5.1 *Ethyl Ether*.

5.2 *Methyl Orange Indicator Solution* (1 g/L)—Dissolve 0.1 g of methyl orange in 100 mL of water.

5.3 *Sodium Chloride* (NaCl), solid.

5.4 *Sodium Hydroxide, Standard Solution* (1 N)—Accurately prepare and standardize a 1 N sodium hydroxide (NaOH) solution. Express the strength or concentration of the solution as mg of KOH per mL; 1 mL of 1 N NaOH solution is equivalent to 56.1 mg of KOH.

5.5 *Sodium Hydroxide, Standard Solution* (0.5 N)—Accurately prepare and standardize a 0.5 N NaOH solution. Express the strength of the solution as mg of KOH per mL; 1 mL of 0.5 N NaOH solution is equivalent to 28.05 mg of KOH.

5.6 *Sulfuric Acid, Standard* (0.5 N)—Accurately prepare and standardize a 0.5 N sulfuric acid (H_2SO_4) solution. Express the strength of the solution as mg of KOH per mL; 1 mL of 0.5

¹ This test method is under the jurisdiction of ASTM Committee D-31 on Leather and is the direct responsibility of Subcommittee D31.08 on Fats and Oils. This test method was developed in cooperation with the American Leather Chemists Assn. (Method H 52-1956).

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² *Annual Book of ASTM Standards*, Vol 15.04.