



Standard Test Methods for Chemical Analysis of Alpha Olefin Sulfonates¹

This standard is issued under the fixed designation D 3673; 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 These test methods cover the chemical analysis of alpha olefin sulfonates. The analytical procedures appear in the following order:

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1.2 *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 specific precaution statement see 36.1. Material safety data sheets are available for reagents and materials. Review them for hazards prior to usage.

2. Referenced Documents

2.1 ASTM Standards:

- D 1172 Test Method for pH of Aqueous Solutions of Soaps and Detergents²
- D 1193 Specification for Reagent Water³
- D 1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)⁴
- D 3049 Test Method for Synthetic Anionic Ingredient by Cationic Titration²

3. Purity of Reagents

3.1 Reagent-grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical

Reagents of the American Chemical Society, where such specifications are available.⁵ Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

3.2 Unless otherwise indicated, references to water shall be understood to mean Type III reagent water conforming to Specification D 1193.

MOISTURE BY THE DISTILLATION METHOD

4. Apparatus

4.1 The apparatus required shall consist of a glass flask heated by suitable means and provided with a reflux condenser discharging into a trap and connected to the flask. The connections between the trap and the condenser and flask shall be interchangeable ground joints. The trap serves to collect and measure the condensed water and to return the solvent to the flask. A suitable assembly of the apparatus is illustrated in Fig. 1.

4.1.1 *Flask*, 1-L capacity, either the short-neck, round-bottom type, or the Erlenmeyer type.

4.1.2 *Heat Source*—Either an oil bath (for example, stearic acid or paraffin wax) or an electric heater provided with a sliding rheostat or other means of heat control.

4.1.3 *Condenser*—A water-cooled glass reflux condenser (Fig. 1), having a jacket approximately 15¾ in. (400 mm) in length, with an inner tube ⅜ to ½ in. (9.5 to 12.7 mm) in outside diameter, and not less than ¼ in. (6.35 mm) in inside diameter. The end of the condenser to be inserted in the trap may be ground off at an angle of 30° from the vertical axis of the condenser. When inserted into the trap, the tip of the condenser shall be about ¼ in. (7 mm) above the surface of the liquid in the trap after the distillation conditions have been established. Fig. 1 shows a conventional sealed-in type of

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

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

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

⁵ *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Anal. Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.