



Standard Test Methods for Chemical Analysis of Soaps Containing Synthetic Detergents¹

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1. Scope

1.1 These test methods cover procedures for the chemical analysis of soaps containing synthetic detergents.

1.2 The analytical procedures appear in the following order:

	Sections
Moisture and Other Matter Volatile at 105°C (Oven Method)	5 and 6
Free Alkali or Free Acid	7 and 8
Anhydrous, Salt-Free, Soda Soap	9-12
Alcohol-Soluble Matter	13 and 14
Matter Insoluble in Water	15
Total Alkalinity of Matter Insoluble in Alcohol (Alkaline Salts)	16 and 17
Sodium Silicate	18-20
Phosphates	21-28
Phosphate (Colorimetric Method Using Molybdenum Blue)	29-34
Unsaponified and Unsaponifiable Matter	35-39
Free Fatty Matter	40
Chlorides in Alcohol-Soluble Matter	41-43
Rosin (McNicol Method)	44-47
Synthetic Detergent (by Difference)	48
Neutral, Inorganic Salts	49

1.3 *This standard does not purport to address all of the safety problems, 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 216 Method for Distillation of Natural Gasoline²
- D 459 Terminology Relating to Soaps and Other Detergents³
- D 875 Method for Calculation of Olefins and Aromatics in Petroleum Distillates from Bromine Number and Acid Absorption⁴
- D 1193 Specification for Reagent Water⁵
- D 1768 Test Method for Sodium Alkylbenzene Sulfonate in

¹ These test methods are under the jurisdiction of ASTM Committee D12 on Soaps and Other Detergents and are the direct responsibility of Subcommittee D12.12 on Analysis of Soaps and Synthetic Detergents.

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² Discontinued, see 1987 *Annual Book of ASTM Standards*, Vol 05.01.

³ *Annual Book of ASTM Standards*, Vol 15.04.

⁴ Discontinued, see 1984 *Annual Book of ASTM Standards*, Vol 05.01.

⁵ *Annual Book of ASTM Standards*, Vol 11.01.

Synthetic Detergents by Ultraviolet Absorption³

D 2357 Qualitative Classification of Surfactants by Infrared Absorption³

D 2358 Test Method for Separation of Active Ingredient from Surfactant and Syndet Compositions³

D 3049 Test Method for Synthetic Anionic Ingredient by Cationic Titration³

3. Terminology

3.1 Definitions:

3.2 The term *synthetic detergent* in these test methods is defined in accordance with Terminology D 459, as follows:

3.3 *synthetic detergent*—a detergent produced by chemical synthesis and comprising an organic composition other than soap.

3.4 For definitions of other terms used in these test methods, refer to Terminology D 459.

4. Purity of Reagents and Materials

4.1 *Purity of Reagents*—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.⁶ 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.

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

MOISTURE AND OTHER MATTER VOLATILE AT 105°C (OVEN METHOD)

5. Apparatus

5.1 *Dish*—A porcelain or glass dish about 6 to 8 cm in diameter and about 2 to 4 cm in depth will be required.

⁶ *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 *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmaceutical Convention, Inc. (USPC), Rockville, MD.