



Designation: D820 – 93 (Reapproved 2023)

Standard Test Methods for Chemical Analysis of Soaps Containing Synthetic Detergents¹

This standard is issued under the fixed designation D820; 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 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 and 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 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

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 and Specifications of Soaps, Synthetics, Detergents and their Components.

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2. Referenced Documents

2.1 *ASTM Standards:*²

D216 Method of Test for Distillation of Natural Gasoline (Withdrawn 1988)³

D459 Terminology Relating to Soaps and Other Detergents

D875 Method for Calculating of Olefins and Aromatics in Petroleum Distillates from Bromine Number and Acid Absorption (Withdrawn 1984)³

D1193 Specification for Reagent Water

D1768 Test Method for Sodium Alkylbenzene Sulfonate in Synthetic Detergents by Ultraviolet Absorption

D2357 for Qualitative Classification of Surfactants by Infrared Absorption

D2358 Test Method for Separation of Active Ingredient from Surfactant and Syndet Compositions

D3049 Test Method for Synthetic Anionic Ingredient by Cationic Titration

3. Terminology

3.1 *Definitions:*

3.2 The term *synthetic detergent* in these test methods is defined in accordance with Terminology D459, 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 D459.

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

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.