



Standard Test Methods of Chemical Analysis of Industrial Metal Cleaning Compositions¹

This standard is issued under the fixed designation D800; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 These test methods describe the procedures for the chemical analysis of industrial metal cleaning compositions in solid, paste, or liquid form. These cleaning compositions may contain caustic alkalies, silicates, phosphates, chromates, carbonates, bicarbonates, borates, sulfates, sulfites, nitrates, chlorides, soaps, rosin, sulfonated wetting agents, anti-foaming agents, organic bases, organic solvents, organic coupling agents, and sometimes inorganic acid salts or organic acids. Occasionally, such cleaning compositions may contain sulfonated oils; in such cases, reference should be made to Method **D500**. The examination under a low power microscope or magnifying glass, supplemented by a few qualitative tests, will often indicate the number of components and their identity.

1.2 The analytical methods appear in the following order:

	Section
Preparation of Sample	4
Total Alkalinity as Na ₂ O	5 – 8
Total Fatty Acids (and Rosin)	9 and 10
Na ₂ O Combined with Fatty Acids (and Rosin)	11 and 12
Anhydrous Soap	13
—Rosin (McNicol Test Method):	
Qualitative	14 and 15
Quantitative	16 – 19
Total Silica Calculated as SiO ₂	20 – 23
Phosphates:	
Qualitative	24 and 25
Quantitative	26 – 18
Combined Sodium and Potassium Oxides	34 – 37
Chlorides	38 – 40
Sulfates	41 – 43
Water, Distillation Test Method	44 – 47
Carbon Dioxide by Evolution-Absorption Test Method	48 – 52
Loss at 105°C	53 and 54
Total Matter Insoluble in Alcohol	55 – 57
Free Alkali	58 – 60
Synthetic Detergent or Wetting Agent	61 and 62

Volatile Hydrocarbons
Loss on Ignition
Report

63 – 67
68 and 69
70 and 71

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 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.* Material Safety Data Sheets are available for reagents and materials. Review them for hazards prior to usage. See 6.1 for a specific hazards statement.

2. Referenced Documents

2.1 ASTM Standards:²

D500 Test Methods of Chemical Analysis of Sulfonated and Sulfated Oils
D841 Specification for Nitration Grade Toluene
D843 Specification for Nitration Grade Xylene
D1193 Specification for Reagent Water

3. Purity of Reagents and Materials

3.1 *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.³ 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.

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 *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. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.

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.

Current edition approved Jan. 1, 2014. Published February 2014. Originally approved in 1944. Last previous edition approved in 2005 as D800 – 05. DOI: 10.1520/D0800-05R14.