



Standard Test Methods for Sampling and Chemical Analysis of Soaps and Soap Products¹

This standard is issued under the fixed designation D460; 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.

These methods are identical in substance with the standard methods of the American Oil Chemists' Society which were developed by the Committee on Soap Analysis A-1 of that Society, and with those of the American Chemical Society.

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

1. Scope

1.1 These test methods cover the sampling and chemical analysis of cake, powdered, flake, liquid, and paste soaps, and soap products.

1.2 The test methods appear in the following order:

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1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered 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.* For specific hazard statements, see Section 10. Material Safety Data Sheets are available for reagents and materials. Review them for hazards prior to usage.

2. Referenced Documents

2.1 ASTM Standards:²

D216 Method for Distillation of Natural Gasoline
D459 Terminology Relating to Soaps and Other Detergents
D1193 Specification for Reagent Water

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 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.

E1 Specification for ASTM Liquid-in-Glass Thermometers**3. Significance and Use**

3.1 Soap and soap products are widely used. These test methods are suitable for setting specifications and performing quality control on soap and soap products.

SAMPLING**4. General Requirements**

4.1 The seller shall have the option of being represented at the time of sampling, and when he so requests shall be furnished with a duplicate sample.

5. Cake Soaps, Flake and Powdered Soap Products When Packed in Cans or Cartons

5.1 One cake (can or carton) shall be taken at random from not less than 1 % of the seller's shipping containers, provided each package contains not less than 50 lb (22.7 kg). In the case of smaller containers, a cake (can or carton) shall be taken at random from each lot of containers totaling not more than 5000 lb (2268 kg), or fraction thereof. The gross sample shall in all cases consist of not less than three cakes (cans or cartons) taken at random from separate containers. To illustrate, if a total shipment consists of 70 000 lb, all in 1400 containers weighing 50 lb each, then 14 containers are chosen at random and one cake taken from each for a total sample of 14 cakes. If a total shipment of 70 000 lb includes containers weighing less than 50 lb, then the shipment must be divided into 14 lots of containers weighing approximately 5000 lb each, and one cake taken from each lot, again for a total sample size of 14 cakes. The gross sample shall in all cases consist of not less than three cakes (cans or cartons) taken at random from separate containers. In the case of very large lots where the sample drawn as above will amount to more than 20 lb (9.1 kg), the percentage of packages sampled shall be reduced so that the amount drawn shall not exceed 20 lb. The individual cakes (cans or cartons) shall be sealed at once in moisture-proof containers such as polyethylene bags, or tightly wrapped in paraffined paper and sealed by rubbing the edges with a heated iron. The inspector shall accurately weigh each wrapped cake (can or carton), and record its weight and the date of weighing on the wrapper. The wrapped cakes (cans or cartons) shall be placed in an airtight container, which should be nearly filled, and which shall then be sealed, marked, and sent to the laboratory for test. Samples shall be kept cool until tested.

6. Flake and Powdered Soap Products When in Bulk

6.1 A grab sample of not less than 0.5 lb (227 g) shall be taken at random from not less than 1 % of the seller's shipping containers, provided each package contains not less than 100 lb (45.4 kg). In the case of smaller containers, a grab sample of not less than 0.5 lb shall be taken at random from each lot of containers totaling not more than 10 000 lb (4536 kg) or fraction thereof. The gross sample shall in all cases consist of not less than three grab samples of 0.5 lb each taken at random from separate containers. In the case of very large lots where the sample drawn as above will amount to more than 20 lb (9.1

kg), the percentage of packages sampled shall be reduced so that the amount drawn shall not exceed 20 lb. The inspector shall rapidly mix the gross sample and place it in an airtight container, which shall be filled, sealed, marked, accurately weighed, its weight and the date of weighing recorded on the package, and sent to the laboratory for test. Samples shall be kept cool until tested.

7. Liquid Soap

7.1 A sample of not less than 0.5 pt (236.6 mL) shall be taken at random from not less than 1 % of the seller's shipping containers, provided each package contains not less than 10 gal (37.9 L). In the case of smaller containers, a sample of not less than 0.5 pt shall be taken at random from each lot of containers totaling not more than 1000 gal (3785.4 L) or fraction thereof. The gross sample shall in all cases consist of not less than three samples of 0.5 pt each taken at random from separate containers. Before drawing the sample from the container selected, the contents of the container shall be thoroughly agitated. The inspector shall thoroughly mix the gross sample, place it in clean, dry cans or bottles, which shall be completely filled and securely stoppered with clean corks or caps, then sealed, marked, and sent to the laboratory for test.

8. Paste Soap Products

8.1 *When Packed in Cans or Cartons of 5 lb (2.27 kg) or Less*—One can or carton shall be taken at random from not less than 1 % of the seller's shipping containers, provided each package contains not less than 50 lb (22.7 kg). In the case of smaller containers, a can or carton shall be taken at random from each lot of containers totaling not more than 5000 lb (2268 kg) or fraction thereof. The gross sample shall in all cases consist of not less than three cans or cartons taken at random from separate containers. In the case of very large lots where the sample drawn as above will amount to more than 20 lb (9.1 kg), the percentage of packages sampled shall be reduced so that the amount drawn shall not exceed 20 lb. The samples shall be wrapped, sealed, marked, and sent to the laboratory for test.

8.2 *When Packed in Bulk*—A *trier* sample³ of not less than 0.5 lb (227 g) shall be taken at random from not less than 1 % of the seller's shipping containers, provided each package contains not less than 50 lb. In the case of smaller containers, a *trier* sample³ of not less than 0.5 lb shall be taken at random from each lot of containers totaling not more than 5000 lb or fraction thereof. The gross sample shall in all cases consist of not less than three 0.5-lb samples, each taken at random from separate containers. With very large lots where the sample drawn as above will amount to more than 10 lb (4.5 kg), the percentage of packages sampled shall be reduced so that the amount drawn shall not exceed 10 lb. The inspector shall promptly place the gross sample in a clean, dry, airtight and

³ A trier sample is obtained by inserting a *trier* into the material. A trier is a half-round steel cylinder ½ to ¾ in. (12.7 to 19.1 mm) in diameter, 6 to 36 in. (152 to 914 mm) in length, pointed on one end and having a grip handle on the other end. After insertion, the trier is turned two or three times, and upon removal a core of the material being sampled is obtained.