



Standard Practice for Sampling Industrial Chemicals¹

This standard is issued under the fixed designation E 300; 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 This practice covers procedures for sampling several classes of industrial chemicals. It also includes recommendations for determining the number and location of such samples, to ensure their being representative of the lot in accordance with accepted probability sampling principles.

1.2 Although this practice describes specific procedures for sampling various liquids, solids, and slurries, in bulk or in packages, these recommendations only outline the principles to be observed. They should not take precedence over specific sampling instructions contained in other ASTM product or method standards.

1.3 These procedures are covered as follows:

	Sections
Statistical Considerations	7-11
Simple Liquids	12-27
Solids	28-35
Slurries	36-41

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.* Specific precautionary statements are given in Sections 6, 19, 20, 30, 34 and 37.

2. Referenced Documents

2.1 ASTM Standards:

D 270 Method of Sampling Petroleum and Petroleum Products²

D 2234 Test Methods for Collection of a Gross Sample of Coal³

E 180 Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial Chemicals⁴

¹ This practice is under the jurisdiction of ASTM Committee E15 on Industrial and Specialty Chemicals and is the direct responsibility of Subcommittee E15.01 on General Standards.

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² Discontinued, see 1983 Annual Book of ASTM Standards, Vol 05.01.

³ Annual Book of ASTM Standards, Vol 05.05.

⁴ Annual Book of ASTM Standards, Vol 15.05.

3. Terminology

3.1 Definitions:

3.1.1 *simple liquid*—a single-phase liquid having a Reid vapor pressure of less than 110 kPa at 37.8°C (16 psi at 100°F) and a Saybolt viscosity of less than 10 000 s (2160 cSt) at 25°C.

3.1.2 *lot*—a discreet quantity of material. It may contain a single batch or several batches, or be the product of continuous process broken into units on the basis of time or shipment. It is very desirable that individual batches in a lot be specifically identified so that they may become individual or stratified units for inspection.

3.1.3 *average sample*—one that consists of proportionate parts from all sections of the container.

3.1.4 *spot sample*—a sample taken at a specific location in a tank or from a flowing stream in a pipe at a specific time.

3.1.5 *composite sample*—a blend of spot samples mixed in proportion to the volumes of material from which the spot samples were obtained.

3.1.6 *all-levels sample*—one obtained by submerging a closed sampler to a point as near as possible to the draw-off level, then opening the sampler and raising it at a rate such that it is about three fourths full as it emerges from the liquid. An all-levels sample is not necessarily an average sample because the tank volume may not be proportional to the depth and because the operator may not be able to raise the sampler at the variable rate required for proportionate filling. The rate of filling is proportional to the square root of the depth of immersion.

NOTE 1—The tube sampling procedure, 26.3, may be used to obtain an all-levels sample from a drum.

3.1.7 *upper sample*—a spot sample obtained from the middle of the upper third of the tank contents (Fig. 1).

NOTE 2—The taking of samples from various levels of the tank permits the detection of variation in composition of the contents caused by stratification. If it is known that the contents are not subject to this variation, the taking of samples at multiple levels may be eliminated.

3.1.8 *middle sample*—a spot sample obtained from the middle of the tank contents (Fig. 1) (Note 2).