



Designation: D4296 – 18

Standard Practice for Sampling Pitch¹

This standard is issued under the fixed designation D4296; 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 pitch at points of manufacture, storage, and delivery.

1.2 The values stated in SI units are to be regarded as standard. The values in parentheses are for information only.

1.3 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use. Specific warning statements are given in Section 11.*

1.4 *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.*

2. Terminology

2.1 Definitions of Terms Specific to This Standard:

2.1.1 *bulk sample, n*—a large sample, either from one place or made up of several incremental samples of the same material.

2.1.2 *composite sample, n*—a thoroughly mixed gross sample.

2.1.3 *gross sample, n*—a large sample made up of several portions (increments) of a mass of material.

2.1.4 *increment, n*—a portion of a material to be combined with other portions of the same material to provide a larger sample which will represent the whole material.

2.1.5 *representative sample, n*—a part of a homogeneous material, or a part of the composited and mixed portions of a material, which carries all the true properties and physical characteristics of the whole material.

2.1.6 *sample, n*—a part taken as representative of a whole material.

¹ This practice is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.05 on Properties of Fuels, Petroleum Coke and Carbon Material.

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3. Summary of Practice

3.1 Samples of liquid pitches are taken from process lines, storage, and shipment containers in increments required to prepare a representative sample for testing.

3.2 Samples of solid pitches are taken from loading systems, storage, and shipment containers in increments required to prepare a representative sample for testing.

4. Significance and Use

4.1 Sampling is as important as testing. If the sampling is improperly done, the sample of the material will be in error, and the analysis will not represent the true properties of the material, and it may be impossible or impracticable to take another sample; whereas, if the sample is properly taken and the analysis is in error, another analysis can readily be made of the original sample.

4.2 Samples may be taken for either of the following two purposes:

4.2.1 To represent as nearly as possible an average of the bulk of the materials sampled, or

4.2.2 To ascertain the maximum variation in characteristics which the material possesses.

4.3 A good sampling plan has the following characteristics:

4.3.1 It protects the consumer against the acceptance of a bad batch of material.

4.3.2 It protects the producer against the rejection of a good batch of material.

4.3.3 It gives long-range protection to the consumer.

4.3.4 It encourages the producer to keep his process in control.

4.3.5 It minimizes the cost of sampling, inspection of testing, and administration.

4.3.6 It provides information concerning the quality of the product.

4.4 *Sampling Integrity*—When one takes a sample, one is attempting to represent a batch or lot of material with that sample. Different forms of pitch, and pitch in different types of containers, need to have different sampling plans and appropriate sampling equipment. Each sampling plan should be designed so that it accomplishes its objective, which is to ascertain the characteristics or quality of a batch or lot of material.

*A Summary of Changes section appears at the end of this standard

5. Selection of Samples

5.1 Pitches shall be sampled by the producer at the point of manufacture or storage, and at such time as to allow the tests controlling acceptance or rejection of quality, as specified by the consumer, to be made in advance of a shipment.

5.2 Samples of pitches shall be taken by the consumer from the shipment containers immediately upon delivery and receipt and tests controlling acceptance or rejection of quality, as described by the consumer's specifications, shall be made as soon as possible.

6. Size of Samples

6.1 The sample size of liquid materials shall be as follows:

6.1.1 From process lines, 1 L (1 qt).

6.1.2 From bulk storage, 1 L (1 qt) or 1 L aliquot of composite sample.

6.1.3 From bulk shipment containers, 1 L (1 qt) or 1 L aliquot of composite sample.

6.1.4 From barrels or drums, 0.5 L (1 pt) or 0.5 L aliquot of composite sample.

6.2 The sample size of solid materials shall be as follows:

6.2.1 From storage area, 4 L (1 gal) or 4 L aliquot of composite sample.

6.2.2 From bulk shipment containers, 4 L (1 gal) aliquot of composite sample.

6.2.3 From barrels or drums, 0.5 L (1 pt) or 0.5 L aliquot of composite sample.

7. Collection of Gross Sample

7.1 A collection of gross sample represents a lot or batch of material and is composed of a number of increments.

7.1.1 Collect the increments regularly and systematically, so that the entire quantity of pitch sampled will be represented proportionately in the gross sample, and with such frequency that a gross sample of the required amount will be collected.

8. Size of Increments

8.1 To collect samples, use a shovel or specially designed tool or mechanical means for taking equal portions or increments. When samples are collected from the surface of loaded shipments, the gross sample shall consist of nine increments of approximately equal quantity. When sampling from piles, conveyer belts, and so forth, the gross sample shall consist of not less than 25 nor more than 50 increments of approximately equal quantity.

9. Protection and Preservation of Samples

9.1 Sample containers shall be new or reusable containers which can be thoroughly cleaned with a solvent and wiped dry with a clean dry cloth.

9.2 Care shall be taken to prevent the sample from becoming contaminated. Immediately after filling, hot liquid sample containers shall be positively covered, but not tightly sealed. Containers of solid materials shall be tightly and positively sealed.

9.3 While sampling during inclement weather, attention shall be paid to prevent water from dropping into the hot liquid sample or samples of solid materials.

9.4 Immediately after filling and sealing, the sampling containers shall be properly marked for identification with a suitable pencil on the container itself, not on the lid.

10. Apparatus

10.1 Sampling Equipment for Liquid Materials:

10.1.1 If so equipped, pipe lines and storage tanks may be sampled from valves installed in the lines or up the side of the tanks. A typical tank valve is shown in *Fig. 1*, and suitable line valves are illustrated in *Fig. 2* and *Fig. 3*.

10.1.2 For sampling tank trucks, a pipe connection with attached sample valve similar to the one shown in *Fig. 2* may be inserted between the outlet pipe and unloading line.

10.1.3 A weighted sample bottle similar to those shown in *Fig. 4* and *Fig. 5*, or a "thief sampler" as shown in *Fig. 6*, or a "dip sampler" similar to that shown in *Fig. 7*, may be used to sample production and storage tanks, tank cars, and tank trucks.

10.1.4 A "tube" or "thief" sampler may be used to sample materials in drums or barrels.

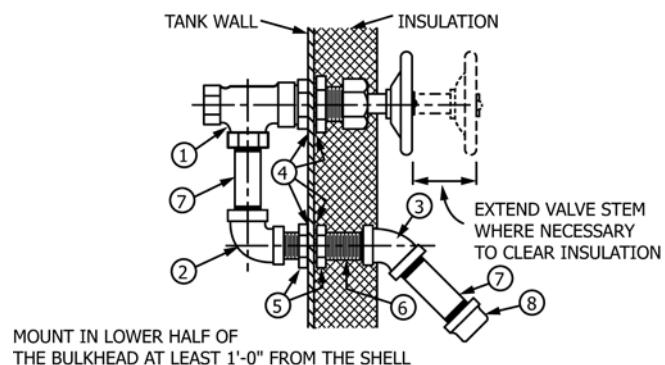
10.2 Sampling Equipment for Solid Materials:

10.2.1 Samples from loading systems may be taken with a shovel, metal or plastic scoop, or metal can.

10.2.2 A shovel may be used to sample storage bins, pitch piles, pitch bays, hopper cars, and dump trucks.

10.2.3 A sampling spear as shown in *Fig. 8* may be used to sample materials in drums, barrels, bags, and silos.

10.3 Sampling Containers:



REF. NO.	DESCRIPTION	NO. REQ.
1	3/4" "VOGT" P-9844 STEEL ANGLE VALVE OR SIMILAR, PANEL MOUNTED	1
2	3/4" STEEL OR MALL. IRON 90° ELBOW	1
3	3/4" STEEL OR MALL. IRON 45° ELBOW	1
4	ASBESTOS GASKETS SNUG ON THREAD OR WOUND WITH YARN	4
5	3/4" 150# SCREWED M. I. LOCKNUT	2
6	3/4" x 3 1/2" ± PARALLEL THREADED STEEL PIPE NIPPLE (CUT FROM 3/4" STD. TANK NIPPLE IF OTHERWISE UNOBTAINABLE)	1
7	3/4" x 3" THREADED STEEL PIPE NIPPLE	2
8	3/4" MALL. IRON PIPE CAP	1

FIG. 1 Typical Submerged Sampling Device



FIG. 2 In-Line Sampling Device

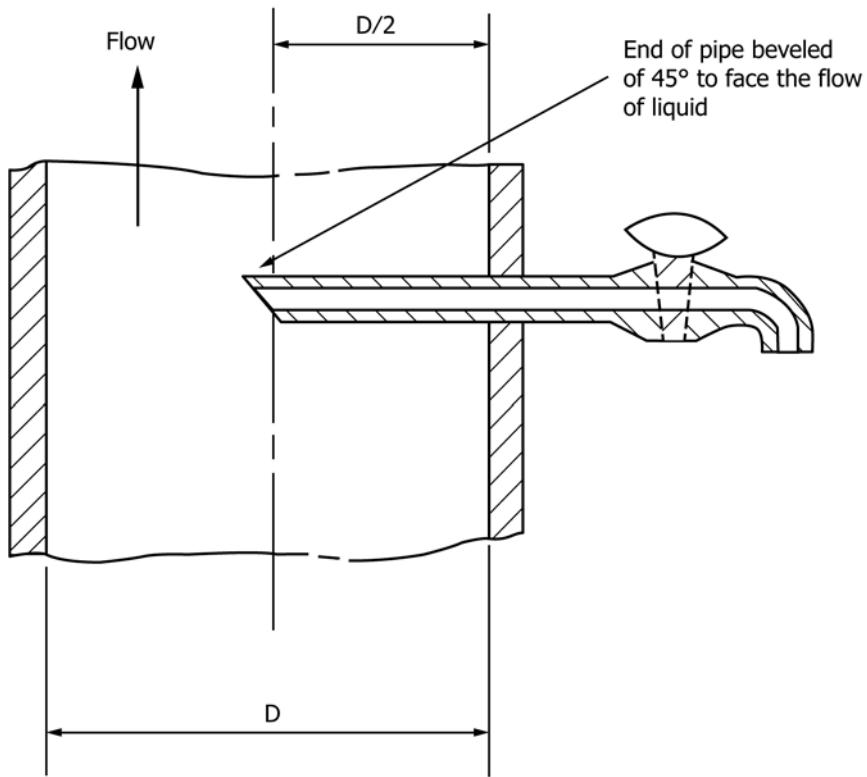


FIG. 3 Pipeline Sampler

10.3.1 Containers for liquid materials shall be wide-mouth cans with line screw caps or triple-seal friction-top cans.

10.3.2 Containers for formed pitches or crushed solid pitch shall be triple-seal friction-top cans, sealable plastic or paper