



Designation: D979/D979M – 22

Standard Practice for Sampling Asphalt Mixtures¹

This standard is issued under the fixed designation D979/D979M; 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 This practice covers sampling of asphalt mixtures at points of manufacture, storage, delivery, or in place.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

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.*

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. Referenced Documents

2.1 ASTM Standards:²

- D8 Terminology Relating to Materials for Roads and Pavements
- D2041/D2041M Test Method for Theoretical Maximum Specific Gravity and Density of Asphalt Mixtures
- D2234/D2234M Practice for Collection of a Gross Sample of Coal
- D2726/D2726M Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Asphalt Mixtures
- D3665 Practice for Random Sampling of Construction Materials

¹ This practice is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.30 on Methods of Sampling.

Current edition approved Nov. 1, 2022. Published November 2022. Originally approved in 1948. Last previous edition approved in 2015 as D979/D979M – 15. DOI: 10.1520/D0979_D0979M-22.

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.

- D5361/D5361M Practice for Sampling Compacted Asphalt Mixtures for Laboratory Testing
- D5444 Test Method for Mechanical Size Analysis of Extracted Aggregate
- D6307 Test Method for Asphalt Content of Asphalt Mixture by Ignition Method
- D6925 Test Method for Preparation and Determination of the Relative Density of Asphalt Mix Specimens by Means of the Superpave Gyratory Compactor
- D6926 Practice for Preparation of Asphalt Mixture Specimens Using Marshall Apparatus
- D6927 Test Method for Marshall Stability and Flow of Asphalt Mixtures
- E105 Guide for Probability Sampling of Materials
- E122 Practice for Calculating Sample Size to Estimate, With Specified Precision, the Average for a Characteristic of a Lot or Process
- E141 Practice for Acceptance of Evidence Based on the Results of Probability Sampling
- 2.2 AASHTO Standard:³
- AASHTO R 47 Standard Practice for Reducing Samples of Hot Mix Asphalt (HMA) to Testing Size

3. Terminology

3.1 This standard uses terms as defined by Terminology D8.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *field sample, n*—a quantity of the material to be tested of sufficient size to provide an acceptable estimate of the average quality of a unit.

3.2.2 *increment, n*—part of a sample.

3.2.3 *lot, n*—a sizable isolated quantity of bulk material from a single source, assumed to have been produced by the same process (for example, a day's production or a specific mass or volume).

3.2.4 *test portion, n*—a quantity of the material of sufficient size extracted from the larger field sample by a procedure designed to ensure accurate representation of the field sample, and thus of the unit sampled.

³ Available from American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Suite 249, Washington, DC 20001, <http://www.transportation.org>.

3.2.5 *unit, n*—a batch or finite subdivision of a lot of bulk material (for example, a truck load or a specific area covered).

4. Significance and Use

4.1 General:

4.1.1 Sampling is equally as important as the testing, and the sampler shall take every precaution to obtain samples that will yield an acceptable estimate of the nature and conditions of the materials which they represent.

4.1.2 Samples for the development of preliminary data are obtained by the party responsible for the development of the data. Samples for control of the product at the source of manufacture or storage, or at the site of use, are obtained by the manufacturer, contractor, or other parties responsible for accomplishing the work. Samples for tests to be used in acceptance or rejection decisions by the purchaser are obtained by the purchaser or his authorized representative.

4.1.3 This standard shall not be used for the sampling of compacted asphalt mixtures. Practice **D5361/D5361M** shall be used.

5. Apparatus

5.1 *Container*—A bucket, pan, box, or other vessel of a sufficient size to contain the sample.

5.2 *Release Agent*—A nonstick product that promotes an easy separation of the asphalt mixture from the sampling tools without degrading the material being sampled.

5.3 *Sampling Tool*—A shovel, scoop, or other device used to obtain samples.

5.4 *Truck Sampling Device (optional)*—A mechanical apparatus that enables the user to retrieve material from the bed of a truck without standing in the bed of the truck. An example of one type of truck sampling device is shown in **Fig. 1**.

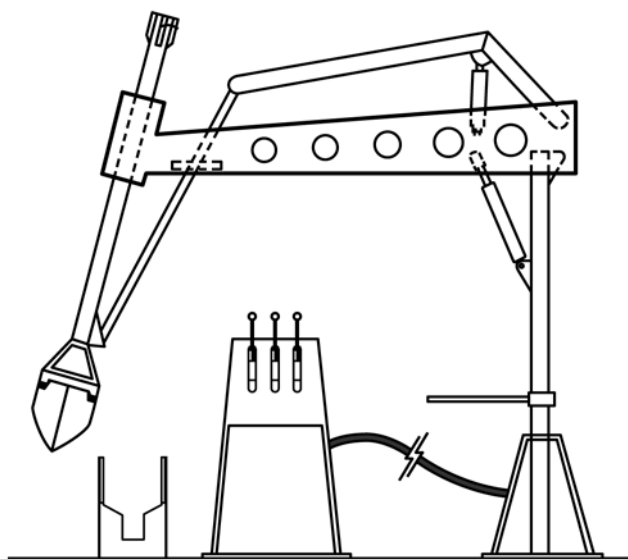


FIG. 1 Example of One Type of Truck Sampling Device

6. Procedure

6.1 *Inspection*—The material shall be inspected to determine discernible variations. The seller shall provide equipment needed for safe and appropriate inspection and sampling.

6.2 *Release Agents*—The user and producer of the asphalt mixtures must mutually agree upon the use of a release agent. If used, the approved release agent shall be lightly applied to the sampling tools and truck sampling device. Diesel fuel shall not be used.

6.3 *Sampling*—The procedures for selecting locations or times for sampling are described in Practice **D3665**.

6.3.1 *Sampling from a Conveyor Belt*—Stop the conveyor belt. Randomly select at least three areas of approximately equal size on the belt for sampling. In each of the locations to be sampled, insert templates, the shapes of which conform to the shape of the belt. From the selected areas obtain approximately equal increments of material which will form a sample whose quantity equals or exceeds the minimum recommended in **6.4.2**. Carefully scoop all material between templates into a suitable container.

6.3.2 *Sampling from Truck Transports*—By a random method, select the units to be sampled from the production of materials delivered. Obtain at least three approximately equal increments. Avoid sampling the extreme top surface. Select at random from the unit being sampled and combine to form a field sample whose quantity equals or exceeds the minimum recommended in **6.4.2**. The sample may be obtained by collecting the increments with a truck sampling device, scoop, or shovel.

NOTE 1—Users should refer to the manufacturer's instructions to learn how to properly operate and maintain a truck sampling device, if used.

6.3.3 *Sampling from the Roadway Prior to Compaction*—When only one sample is to be taken, obtain at least three approximately equal increments, selected at random from the unit being sampled, and combine to form a field sample whose quantity equals or exceeds the minimum recommended in **6.4.2**.

6.3.3.1 When three or more samples are to be taken in order to evaluate a lot of material, utilize a random method to determine the locations to be sampled. Select a sample, consisting of approximately three equal increments, from each location, ensuring the quantity of each sample exceeds the minimum recommended in **6.4.2**.

6.3.3.2 Take all increments or samples from the roadway for the full depth of the material, taking care to exclude any underlying material. When necessary, place templates on the existing roadway to exclude any underlying material. Clearly mark the specified area from which each increment or sample is to be removed. Templates which are placed before the mixture is spread will be a definite aid securing increments of approximately equal mass.

6.3.4 *Sampling from a Skip Conveyor Delivering Mixture to Bin Storage*—Select the units to be sampled from the skip conveyor by a random method based on the bin's storage capacity. Stop the skip conveyor immediately following pug mill discharge. Dig a furrow 150 mm [6 in.] in depth extending