



Designation: D6926 – 20

Standard Practice for Preparation of Asphalt Mixture Specimens Using Marshall Apparatus¹

This standard is issued under the fixed designation D6926; 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 preparation and compaction of 4 in. (101.6 mm) diameter by nominal 2.5 in. (63.5 mm) high cylindrical asphalt paving mixture specimens. This practice is intended for use with laboratory and plant-produced asphalt mixtures with aggregate up to 1 in. (25.4 mm) maximum size and for recompaction of asphalt paving mixture samples.

NOTE 1—Historically, 35, 50, and 75 blows per face has been practiced for this test.

NOTE 2—Manufacturers do not recommend applying an excessive number of blows per face of a sample. This practice has been known to cause fatigue and damage to machine components.

1.2 There are three types of Marshall compaction apparatus in use. The following types of hammer arrangements are included in this practice:

1.2.1 Manually held hammer handle (Type 1) is attached to a flat compaction foot through a spring-loaded swivel and is hand operated (see 5.3.1) (original standard developed by the United States Army Corps of Engineers).

1.2.2 Hammer handle restrained laterally (fixed) but not vertically (Type 2), attached to a flat compaction foot through a spring-loaded swivel and is either mechanically or hand operated (see 5.3.2). There may or may not be a constant surcharge on top of the hammer handle. Mechanical hammers (Type 2) are available that operate at a range of 55 to 68 blows per minute.

1.2.3 Hammer handle restrained laterally (fixed) with or without constant surcharge on top of hammer, is attached to a slanted compaction foot on a rotating mold base (Type 3), and is mechanically operated (see 5.3.3). This method must be used as a referee method.

1.3 Although the mass and height of mass drop for each apparatus are the same, density achieved in compacted specimens with the same number of blows will be different. It is up

to the owner or specifier to establish the specific required number of blows to be used for compaction of the specimen in relation to the field.

1.4 *Units*—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.

1.5 The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

1.6 *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

D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

D4402/D4402M Test Method for Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer

D6927 Test Method for Marshall Stability and Flow of Asphalt Mixtures

E1 Specification for ASTM Liquid-in-Glass Thermometers

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

E77 Test Method for Inspection and Verification of Thermometers

E2251 Specification for Liquid-in-Glass ASTM Thermometers with Low-Hazard Precision Liquids

¹ This practice is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.20 on Mechanical Tests of Asphalt Mixtures.

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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.