



Standard Test Method for Penetration Index of Asbestos¹

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ε¹ NOTE—Keywords were added editorially in September 1999.

1. Scope

1.1 To determine the efficiency with which asbestos fibers increase the consistency when mixed into a liquid asphaltic vehicle, relative to fibers chosen as standard.

1.2 This test method is applicable to Quebec Standard Group 7 asbestos fibers as determined by Test Method D 3639.

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

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.* See Section 7.

2. Referenced Documents

2.1 ASTM Standards:

D 217 Test Method for Cone Penetration of Lubricating Grease²

D 396 Specification for Fuel Oils²

D 2026 Specification for Cutback Asphalt (Slow Curing Type)³

D 2027 Specification for Cutback Asphalt (Medium Curing Type)³

D 2590 Test Method for Sampling Chrysotile Asbestos⁴

D 2946 Terminology Relating to Asbestos⁴

D 3639 Test Method for Classification of Asbestos Fibers by Québec Standard Test⁴

D 3879 Test Method for Sampling Amphibole Asbestos⁴

E 177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods⁵

2.2 Other Standard:

Québec Standard Designation of Chrysotile Asbestos Fiber Grades⁶

3. Terminology

3.1

3.1.1 *Definitions*—Refer to Terminology D 2946.

4. Significance and Use

4.1 The objective of the test is to determine what quantity of the fiber under evaluation must be mixed with 100 g of cutback asphalt to give the same penetration as a target penetration.

4.2 The target penetration is determined with the same cutback asphalt as used for the test using standard calibrated asbestos fiber.

4.3 This test method determines the efficiency with which the asbestos tested will increase the consistency when mixed with a liquid asphalt.

5. Apparatus

5.1 *Penetrometer*—Calibrated in 0.1 mm divisions and fitted with a 102.5 ± 0.05 g grease penetration cone conforming to requirements⁷ stated in Test Method D 217.

5.2 *Asphalt Sample Cups*—55 mm in diameter and 35 mm in height, made of seamless tin plate as described in Test Method D 217.

6. Reagents and Materials

6.1 *Cutback Asphalt*—Containing non-volatile solvent.

NOTE 1—Cutback asphalt SC-70 specified in Specification D 2026, or MC-0 cutback asphalt specified in Specification D 2027, have been found satisfactory.

NOTE 2—The workability of the above cutback asphalts can be improved by dilution with No. 2 fuel oil as specified in Specification D 396, up to a proportion of 1/3 with SC-70 or 1/5 with MC-0, by weight.

6.2 *Standardized Asbestos Fiber*—Of known penetration index.⁸

7. Hazards

7.1 When handling asbestos, use reasonable precautions to avoid creating dust. Prolonged or frequent exposure to significant concentrations of airborne asbestos dust may cause serious bodily harm.

¹ This test method is under the jurisdiction of ASTM Committee C-17 on Fiber-Reinforced Cement Products and is the direct responsibility of Subcommittee C17.03 on Asbestos-Cement Sheet Products and Accessories.

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² *Annual Book of ASTM Standards*, Vol 05.01.

³ *Annual Book of ASTM Standards*, Vol 04.03.

⁴ *Annual Book of ASTM Standards*, Vol 04.05.

⁵ *Annual Book of ASTM Standards*, Vol 14.02.

⁶ Available from the Asbestos Institute, 1130 Sherbrooke St. West, Suite 410, Montreal, QC Canada H3A 2M8.

⁷ An automatic clutch is a permissible optional accessory.

⁸ Available at a nominal cost from Centre Spécialisé en Technologie Minérale, CEGEP 671 Smith Blvd. South, Thetford Mines, QC Canada G6G 1N1.