



Designation: D2947/D2947M – 88 (Reapproved 2019)

Standard Test Method for Screen Analysis of Asbestos Fibers¹

This standard is issued under the fixed designation D2947/D2947M; 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 test method covers a dry screen analysis for asbestos fiber by means of a mechanical sieve shaker.

1.2 This test method is limited in its application to Group 4 and shorter chrysotile asbestos fiber samples² as defined in Test Method D3639. However, some short amphibole asbestos fibers may be suitable for evaluation by this method.

1.3 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 non-conformance with the standard.

1.4 **Warning**—Breathing of asbestos dust is hazardous. Asbestos and asbestos products present demonstrated health risks for users and for those with whom they come into contact. In addition to other precautions, when working with asbestos-cement products, minimize the dust that results. For information on the safe use of chrysotile asbestos, refer to “Safe Use of Chrysotile Asbestos: A Manual on Preventive and Control Measures.”³

1.5 *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. For specific safety hazard, see 1.4.*

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.*

¹ This method is under the jurisdiction of ASTM Committee C17 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 Quebec Asbestos Mining Assn. (QAMA) standard designation of chrysotile asbestos grades.

³ Available from The Asbestos Institute, http://www.chrysotile.com/en/sr_use/manual.htm.

2. Referenced Documents

2.1 ASTM Standards:⁴

D2590 Test Method for Sampling Chrysotile Asbestos

D2946 Terminology for Asbestos and Asbestos-Cement Products

D3639 Test Method for Classification of Asbestos by Quebec Standard Test

D3879 Test Method for Sampling Amphibole Asbestos (Withdrawn 2009)⁵

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

3. Summary of Method

3.1 The procedure consists of screening a test specimen through a specified nest of sieves by means of a mechanical sieve shaker that reproduces the circular and tapping motion given testing sieves in hand-sieving, but with a uniform, mechanical action, assuring more accurate and dependable tests.

4. Significance and Use

4.1 Test results give some indication of the apparent fiber length distribution in the sample tested.

4.2 Sieves are ideally suited to measure particle size and particle size distribution when all three axes of the particle are equidimensional or the particle is of spherical shape. Asbestos fibers differ considerably from these ideal conditions and, therefore, results depart from a true measure of fiber length and length distribution.

4.3 Characteristics that influence screening efficiency influence test results. Among these are moisture content, degree of fiberization, harshness, and the tendency for fibers to cling together, and of short fibers and fines to cling to longer fibers.

⁴ 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.

⁵ The last approved version of this historical standard is referenced on www.astm.org.