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.

Designation: D3880/D3880M – 90 (Reapproved 2017)

Standard Test Method for Asbestos Strength Units[1]

This standard is issued under the fixed designation D3880/D3880M; 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 gives a procedure for the evaluation of the strength-giving properties of asbestos fibers used to reinforce asbestos-cement products.

1.2 The purpose of this test method is to determine the number of strength units that may be assigned to the sample tested.

1.3 Asbestos fiber possesses the ability to impart strength to an asbestos-cement product. Every fiber grade may be regarded as possessing a certain quantity of strength-giving units. The quantity of fiber required in an asbestos-cement composition varies inversely with the number of strength units it possesses. For example, if an amount, designated by *X*, of a fiber possessing 100 strength units produces a product of a given strength, 2*X* would be required to produce a product of equivalent strength from fiber possessing only 50 strength units.

1.4 The following definition is the basis for the strength unit test: An asbestos fiber that gives the standard strength at the standard density when used as 10 % of the furnish is defined as having 100 strength units. Therefore, by knowing the percent fiber required in the mix to give standard strength at the standard density, it is possible to calculate the strength units of a sample of asbestos.

1.5 This procedure is intended primarily for chrysotile asbestos; it has not been verified whether or not it is applicable to other types.

1.6 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.

1.7 **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 chrysoltile asbestos, refer to "Safe Use of Chrysotile Asbestos: A Manual on Preventive and Control Measures."[2]

1.8 *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.* For specific precautionary statements see 6.7.2, 7.5, 9.2.2, and 1.7.

1.9 *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:*[3]

C150 Specification for Portland Cement
C184 Test Method for Fineness of Hydraulic Cement by the 150-µm (No. 100) and 75-µm (No. 200) Sieves (Withdrawn 2002)[4]
C204 Test Methods for Fineness of Hydraulic Cement by Air-Permeability Apparatus
C430 Test Method for Fineness of Hydraulic Cement by the 45-µm (No. 325) Sieve
C1120 Test Method for Wash Test of Asbestos
C1121 Test Method for Turner and Newall (T and N) Wet-Length Classification of Asbestos
C1162 Test Method for Loose Density of Asbestos
D1193 Specification for Reagent Water
D1655 Specification for Aviation Turbine Fuels
D2590 Test Method for Sampling Chrysotile Asbestos

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

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

[3] 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.

[4] The last approved version of this historical standard is referenced on www.astm.org.

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