



Standard Test Method for Determination of Wood Fiber in Asbestos Cement¹

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1. Scope

1.1 This test method covers the determination of the cellulose content of asbestos-cement products. Refer to Note 1 and Note 2.

1.2 Before this test method can be used for the determination of other organic substances in asbestos-cement, it must be ascertained that accurate results can be obtained by correlation trials with known concentrations of the organic substances in question present in samples of asbestos-cement.

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 7.1 for specific safety hazard.*

2. Referenced Documents

2.1 ASTM Standards:

C 114 Test Methods for Chemical Analysis of Hydraulic Cement²

D 1193 Specification for Reagent Water³

E 11 Specification for Wire Cloth Sieves for Testing Purposes⁴

E 50 Practices for Apparatus, Reagents, and Safety Precautions for Chemical Analysis of Metals⁵

2.2 ACS Standard:

Reagent Chemicals, American Chemical Society Specifications⁶

3. Significance and Use

3.1 The determination of wood fiber in asbestos-cement products is necessary because such fibers may be added when

multi-wall paper bags containing the asbestos are included in the batch formulations, or cellulose may be added as a processing aid during the manufacture of the products.

3.2 Although moderate concentrations of wood fiber usually have a negligible effect on product durability and performance, higher concentrations can have deleterious effects on products exposed to moisture and thermal shocks.

4. Interferences

4.1 The presence of organic compounds such as surface-active processing aids and water-repellent substances that would produce CO₂ during the digestion steps of the procedure would probably affect results. Refer to Note 1.

4.2 The presence of organic pigments and organic polymeric fibers other than cellulose could also interfere and impair accuracy (Note 2).

5. Apparatus

5.1 Sieve, a 149 μm (No. 100), sieve conforming to Specification E 11.

5.2 Drying oven, ventilated, capable of maintaining 100 to 105°C (212 to 220°F).

5.3 Apparatus for determination of total carbon by direct combustion. Apparatus No. 1 of Practices E 50.

6. Reagents

6.1 Type III Reagent water conforming to Specification D 1193.

6.2 *Hydrochloric Acid*—Dilute one part of concentrated hydrochloric acid (HCl, sp gr 1.19 conforming to the ACS specifications) with 17 parts of reagent water.

6.3 *Chromic Acid*—For each digestion dissolve 30 g of chromium trioxide crystals conforming to the ACS specifications (see 2.2) with 60 cm³ of reagent water.

7. Hazards

7.1 **Warning**—When grinding asbestos-cement products minimize the dust that results. Prolonged breathing of significant airborne concentrations of silica or asbestos dust is hazardous. When such dust is created, effective measures should be taken to prevent inhalation.

8. Sampling, Test Specimens, and Test Units

8.1 For each replicate analysis desired take sufficient sample to yield two specimens each with a mass of 0.15 g per unit

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 04.01.

³ Annual Book of ASTM Standards, Vol 11.01.

⁴ Annual Book of ASTM Standards, Vol 14.02.

⁵ Annual Book of ASTM Standards, Vol 03.05.

⁶ Available from American Chemical Society, 1155 16th St., NW, Washington, DC.