



Designation: D 2589 – 88 (Reapproved 2002)^{ε1}

Standard Test Method for McNett Wet Classification of Dual Asbestos Fiber¹

This standard is issued under the fixed designation D 2589; 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.

ε¹ NOTE—Asbestos warning editorially moved from 6.1 to 1.3 in February 2005.

1. Scope

1.1 This test method covers the determination of the length distribution and fines content of milled asbestos fiber by wet classification employing the McNett fiber classifier.

1.2 The values stated in SI units are the standard. The inch-pound units shown in parentheses are provided for information only.

1.3 **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: A Manual on Preventive and Control Measures.”²

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.*

2. Referenced Documents

2.1 ASTM Standards:³

- D 2590 Test Method for Sampling Chrysotile Asbestos
- D 2946 Terminology for Asbestos and Asbestos-Cement Products
- D 3639 Test Method for Classification of Asbestos Fibers by Quebec Standard Test
- D 3879 Test Method for Sampling Amphibole Asbestos
- E 11 Specification for Wire-Cloth Sieves for Testing Purposes
- E 177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

¹ This test 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 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.

3. Terminology

3.1 **Definitions**—Terms relating to asbestos are defined in Terminology D 2946.

4. Significance and Use

4.1 Normally, results obtained by this test method are reproducible under comparable laboratory conditions. However, it must not be expected that results obtained by different operators at various laboratories and times will be in exact agreement due to some seemingly minor procedural change. Moreover, results for longer fiber grades are influenced to a greater extent by differences in fiber length distribution and characteristics than those of shorter grades.

5. Apparatus

5.1 **McNett Fiber Classifier** (such as 203-A or 203-CA),⁴ preferably equipped with vacuum suction cups for drainage, similar in design to that shown in Fig. 1, or on page 7 of the Service Manual 203-CA (see service manuals for identification of classifiers' parts).

NOTE 1—Drainage through muslin filter cloths or 200-mesh sieve (325-mesh for float products) is acceptable.

5.2 Accessories:

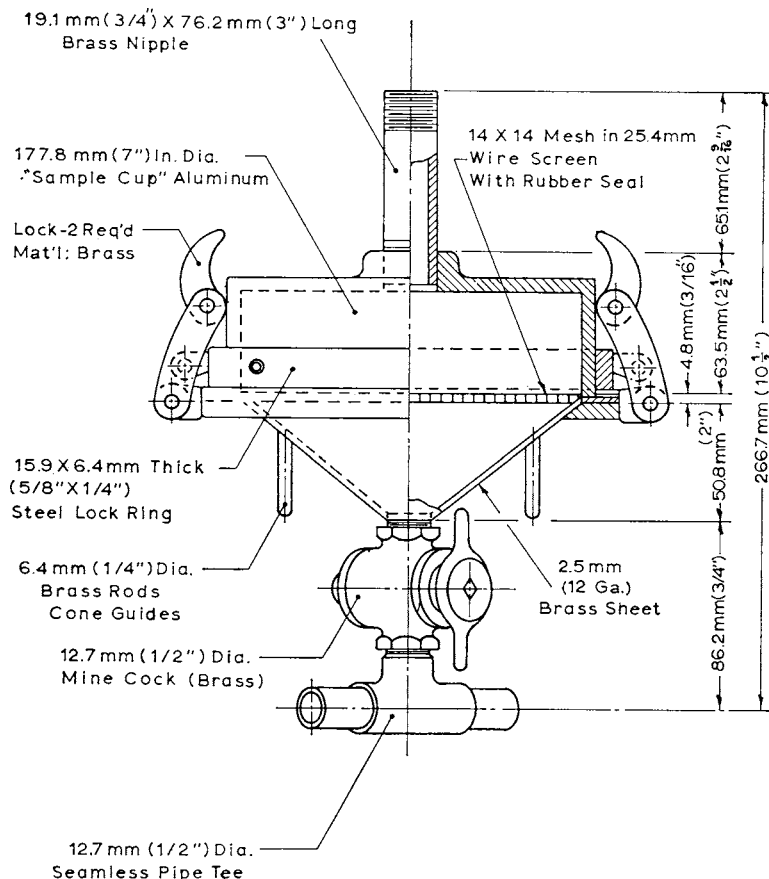
5.2.1 **Filter paper**, to fit suction cups on classifier. This shall be thin, rapid filtering, ashless paper hardened to provide adequate wet strength and resistance to washing. Alternatively, 325-mesh screen cloths mounted in suitable metal rings may replace filter papers (see Note 5 in 11.5.4).

5.2.2 **T-Shaped Soft Rubber Scraper**, for cleaning screens, made from a 10-cm (4-in.) length of automobile windshield wiper, or equivalent, held in a suitable handle, similar to a hoe.

5.2.3 **Rubber Hose**, 6-mm (¼-in.) bore with control valve nozzle for rinsing classifier screens and tanks with filtered water.

5.2.4 **Drying Oven**, (convection type, or mechanical draft), or infrared drying unit.

⁴ Currently supplied classifier Model 203-CA and service manuals for the installation, operation and maintenance of Models 203-A and 203-CA are available from the Bauer Bros. Co. Ltd., Brantford, ON, Canada, or Springfield, OH.

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**FIG. 1 Suction Cup**

5.2.5 *Automatic Overflow Alarm*, as shown in **Appendix X1**.

5.2.6 *Optional Accessory*, Automatic clearing device on the fourth tank, as shown in **Appendix X1** (see **Note 3** in 11.5.4).

5.3 *Water Supply*—Provide a suitable filtering device on the water supply to ensure a constant flow of clean water to the classifier and rinsing hose.

6. Sampling

6.1 Select samples in accordance with Test Method **D 2590** for chrysotile or Test Method **D 3879** for amphibole fibers as defined in Terminology **D 2946**. Duplicate specimens shall be tested. (**Warning**—See 1.3.)

7. Test Specimen, Screen Sizes, and Test Duration

7.1 Relationships between the type of specimen, screen sizes, masses, and duration of test may be found in **Table 1**.

7.2 For reference, Tyler, U.S. Standard and British Standard equivalent sieves are listed in **Table 2**.

7.3 Screen cloth must be double-lock, double-crimp style, with the warp in the horizontal direction, and it must conform to Specification **E 11**.

8. Procedure

8.1 Select screens specified for the fiber grade being tested and set in place, making certain that the baffle plates are in their slots behind the screens. If the fiber grade is unknown, refer to Test Method **D 3639**.

8.2 Insert the rubber stoppers, and fill the tanks with water.

8.3 Start the agitators to rotate at 540 ± 40 r/min and adjust the water valve to give a flow slightly in excess of 0.19 L/s (3.0 U.S. gal/min). This rate of flow is achieved when the overflow from the constant head tank is pencil-size.

8.4 Add the test specimen to 800 cm³ of water in a 1000-mL beaker and stir until the asbestos is thoroughly dispersed.

8.5 Pour the slurry into the first tank (tank with coarsest screen mesh) and wash out any fiber residue in the beaker with

TABLE 1 Screen Size, Test Specimen and Duration Relationships

Test Specimen, QAMA ^A Fiber Group	Screen Sizes, SI openings (Tyler mesh/in.)	Specimen Mass, g	Duration of Test, min
3, 4, 5, 6 and 7D	476, 119, 420 μ m, 74 μ m (4, 14, 35, 200)	10 $\pm$ 0.05	20
Other Group 7 fibers	119, 420 μ m, 199 μ m, 74 μ m (14, 35, 100, 200)	20 $\pm$ 0.05	20
"Floats"	177 μ m, 44 μ m (80, 325)	20 $\pm$ 0.05	30

^A Quebec Asbestos Mining Association (QAMA) standard designation of chrysotile asbestos grades.