



## Standard Test Method for Moisture Content of Asbestos Fiber<sup>1</sup>

This standard is issued under the fixed designation D 2987; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This test method covers the determination of the moisture content of asbestos fiber.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

### 2. Referenced Documents

2.1 *ASTM Standards:*

D 2590 Test Method of Sampling Chrysotile Asbestos<sup>2</sup>

D 2946 Terminology for Asbestos and Asbestos-Cement Products<sup>2</sup>

D 3879 Test Method for Sampling Amphibole Asbestos<sup>2</sup>

### 3. Summary of Test Method

3.1 A weighed specimen of fiber is dried in an oven, cooled in a desiccator, and reweighed. The weight loss is used to determine the percent moisture content of the fiber.

### 4. Significance and Use

4.1 This test method will give a value of moisture content obtained under specified conditions. This value should not be considered as an absolute moisture content. Results may not compare with those obtained by the same method under different conditions, or by different methods.

### 5. Apparatus

5.1 *Drying Oven*, capable of maintaining 105 to 110°C (220 to 230°F).

5.2 *Balance*, with sensitivity of 0.01 g and capacity of at least 400 g.

5.3 *Weighing Containers*—Shallow borosilicate glass dishes or corrosion-resistant metal pans approximately 200 mm (8 in.) in diameter. Examples of suitable containers are glass culture dishes or sifting sieve pans.

5.4 *Desiccator*.

5.5 *Timer*, 1 h.

### 6. Sampling and Preparation

6.1 Sampling and preparation shall be in accordance with Test Method D 2590, omitting Section 6 of that test method, for chrysotile asbestos, and with Test Method D 3879 omitting drying step described in the first sentence of Section 6.3 of the latter test method, for amphibole asbestos. When unsure of the type of asbestos to be tested, refer to Terminology D 2946 for detailed descriptions of chrysotile and of the more common types of amphibole asbestos fibers. Samples must be contained in moistureproof containers from time of selection to time of testing. During specimen preparation the sample should be coned and quartered without delay to avoid changing the representative moisture of the sample at the sampling location. (**Warning**—When handling asbestos fibers use reasonable precautions to avoid creating dust. Prolonged or frequent breathing of significant concentrations of airborne asbestos dust may cause serious bodily harm.)

### 7. Procedure

7.1 Weigh out three 50-g test specimens to the nearest 0.01 g simultaneously and spread them evenly into previously tared weighing containers. Record the weight of the containers plus weight of fiber as  $W_1$ .

7.2 Dry the specimens in an oven at 105 to 110°C (220 to 230°F) for 1 h.

7.3 Remove the dried specimen from the oven and cool to room temperature in a desiccator. Weigh the container and dried fiber to the nearest 0.01 g and record as  $W_2$ .

NOTE 1—Weigh the dried specimens without delay to minimize the gain in weight caused by the rapid absorption of atmospheric moisture due to the hygroscopic nature of dried asbestos. Alternatively, weighing may be carried out in an airtight weighing container.

### 8. Calculation

8.1 Calculate the percentage moisture as follows:

$$\text{Moisture, percent} = [(W_1 - W_2)/50.00] \times 100$$

where:

$W_1$  = weight of tared container plus 50.00 g of fiber specimen, and

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 04.05.

$W_2$  = weight of tared container plus dried fiber.

## 9. Report

9.1 Report the average of three determinations as the percent moisture content of the fiber sample tested.

NOTE 2—The atmospheric humidity and temperature at the sampling location may be reported to define the conditions for the test result more clearly.

## 10. Precision and Bias

10.1 *Precision*—The single-sample, multiple operator intralaboratory precision is within 1 % of the average in 95 % of cases.

10.2 *Bias*—The moisture content of asbestos fiber at equi-

librium with the surrounding atmosphere is a function of atmospheric temperature, barometric pressure and relative humidity<sup>3</sup>. Thus, different values will be obtained with different conditions. Generally, this variation will not be significant for normal atmospheric changes.

## 11. Keywords

11.1 asbestos; fiber; moisture; moisture content

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<sup>3</sup> International Critical Tables, Vol 2, p. 323.

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