



Designation: F2217/F2217M – 13 (Reapproved 2018)

## Standard Practice for Coating/Adhesive Weight Determination<sup>1</sup>

This standard is issued under the fixed designation F2217/F2217M; 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 practice covers a procedure for determining the amount of coating applied to a substrate, (for example, film, paper, nonwoven). The amount of coating is expressed as a weight per given area, (for example,  $\text{g}/\text{m}^2$ ,  $\text{lb}/\text{ream}$ ).

1.2 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.

1.3 *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.*

1.4 *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:*<sup>2</sup>

**E171/E171M Practice for Conditioning and Testing Flexible Barrier Packaging**

### 3. Terminology

3.1 *coating*—a material applied to enhance the characteristics of the base substrates. For this practice, the coating must be soluble in the chosen solvent.

3.2 *ream*—500 sheets of 609.6 by 914.4 mm (24 by 36 in.) equal to 278.7  $\text{m}^2$  (3000  $\text{ft}^2$ ).

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee F02 on Primary Barrier Packaging and is the direct responsibility of Subcommittee F02.20 on Physical Properties.

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<sup>2</sup> 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.

NOTE 1—Other ream sizes may be in use. If using a ream size other than 278.7  $\text{m}^2$  (3000  $\text{ft}^2$ ), the conversion factor  $K$  (located in the appendix) must be recalculated if reporting results as  $\text{lb}/\text{ream}$ .

### 4. Summary of Practice

4.1 Representative samples of coated material are weighed, coating is removed using a solvent appropriate for the coating, samples are dried and weighed again. The differential obtained is the coating weight.

4.2 Typical methodology is as follows:

4.2.1 Cut representative samples using a cutting device and a template of known unit area “A”  $\text{mm}^2$  (in. <sup>2</sup>), for example, 203.2 by 50.8 mm (8 by 2 in.) template.

4.2.2 Weigh each sample on the analytical balance to the nearest 0.0001 g and record the value “ $W_1$ .” Samples may be folded and placed on to the analytical balance.

NOTE 2—If sample is conditioned weigh immediately.

4.2.3 Using solvent in which the coating is soluble and the substrate is insoluble, remove coating from substrate. Typical methods are wiping with solvent saturated cloth, immersing samples in solvent to soften, then wiping with cloth or brush, if needed, or immersing sample, agitating to soften, then wiping with cloth or brush. For specific recommendations contact the coated substrate supplier.

NOTE 3—Accumulated coating in solvent, cloth or brush can reduce the ability to clean sample properly and may affect test results.

4.2.4 Thoroughly dry the substrate with a drying appliance. A timer should be used to ensure consistency in immersion, cleaning and drying time. Drying of hygroscopic materials should be consistent with conditioning parameters.

4.2.5 Re-weigh each sample on the analytical balance to the nearest 0.0001 g and record the value “ $W_2$ .”

4.2.6 Calculate and report the adhesive coat weight using the following equation:

$$\text{Adhesive Coat Weight} = \left( \frac{K (W_1 - W_2)}{AP} \right) \quad (1)$$

where:

$W_1$  = weight of coated substrate, g,

$W_2$  = weight of uncoated substrate, g,

$A$  = area of substrate,  $\text{mm}^2$  (in.<sup>2</sup>),

$P$  = fraction of substrate that is coated ( $P = 1$  except for zone coated materials), and