



Designation: D 5796 – 9903

Standard Test Method for Measurement of Dry Film Thickness of Thin-Film Coil-Coated Systems by Destructive Means Using a Boring Device¹

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1. Scope

1.1 This test method covers the measurement of dry film thickness (DFT) of coating films by microscopic observation of a precision-cut, shallow-angle crater bored into the coating film. This crater reveals cross sectional layers appearing as rings, whose width is proportional to the depth of the coating layer(s) and allows for direct calculation of dry film thickness.

1.1.1 The Apparatus, Procedure, and Precision and Bias discussions include Method A and Method B. Method A involves the use of an optical measurement apparatus which is no longer commercially available, but remains a valid method of dry film measurement. Method B is a software driven measurement procedure that supersedes Method A.

1.2 The substrate may be any rigid, metallic material, ~~for example,~~ such as cold-rolled steel, hot-dipped galvanized steel, aluminum, etc. The substrate ~~should~~ must be planar with the exception of substrates exhibiting “coil set,” which may be held level by the use of the clamping tool on the drilling device.

NOTE 1—Variations in the surface profile of the substrate may result in ~~non~~ misrepresentative organic coating thickness readings. This condition may exist over substrates such as hot-dipped, coated steel sheet. This is true of all “precision cut” methods that are used to determine dry film thickness of organic coatings. This is why several measurements across the strip may be useful if substrate surface profile is suspect.

1.3 The range of thickness measurement is 0 to 3.5 mils (0 to 89 μm).

NOTE 2—For DFT measurements of films greater than 3.5 mils (89 μm), but less than 63 mils (1600 μm), a 45° borer may be used in accordance with this test method, with the exception of 6.8, where the micrometer reading would provide a direct read-out, and division by ten would be unnecessary per 4.3.1 Method A.

1.4 Measurements may be made on coil-coated sheet, certain formed products, or on test panels.

1.5 The values stated in ~~inch-pound~~ SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.6 *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:

¹ This test method is under the jurisdiction of ASTM Committee ~~D-1~~ D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.53 on Coil Coated Metal.

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