



Standard Test Method for Microscopical Measurement of Dry Film Thickness of Coatings on Wood Products¹

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1. Scope

1.1 This test method covers the measurement of dry film thickness of coatings applied to a smooth, textured or curved rigid substrate of wood or a wood-based product.

1.2 This test method covers the preparation of wood or wood-based specimens for the purpose of microscopical measurement of dry film thickness.

1.3 This test method suggests an interpretation of dry film thickness of coatings on wood or wood-based products when porous substrates are coated.

1.4 This test method suggests an interpretation of dry film thickness of coatings on wood or wood-based products when substrate attached or non-attached fibers occur in the dry film.

1.5 The values stated in inch-pound 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.* Specific hazard statements are given in Section 7.

2. Terminology

2.1 Definitions of Terms Specific to This Standard:

2.1.1 *dry film thickness*—that layer of thickness of dried coating above the microscopically visible board surface that also comprises attached fibers but excludes free fibers that are encapsulated in the layer itself.

2.1.2 *edge face*—That part of the specimen that is a plane perpendicular to the surface showing a cross section of the coating and substrate.

2.1.3 *soak in*—refers to a coating on a porous substrate where the coating does not lie essentially on the surface of the wood or wood-based product, but has penetrated into the fiber structure of the wood or wood-based material.

2.1.3.1 *Discussion*—Wood or wood-based products are generally of a porous nature; sometimes exhibiting uniform absorption of coatings. Frequently absorption of coatings is of

a nonuniform nature and influenced by localized surface density differences or wood pore size. These conditions of coating absorption are commonly referred to as soak in.

3. Summary of Test Method

3.1 A specimen of coated wood or wood-based product is cut to convenient size and edge polished with sandpaper.

3.2 The polished edge of the specimen is viewed through a calibrated microscope in order to measure dry film thickness.

3.3 Suggestions regarding interpretation of dry film thickness on porous wood or wood-based material are offered.

3.4 Suggestions regarding interpretation of dry film thickness on wood or wood-based material that have attached or encapsulated fibers in the coating are offered.

4. Significance and Use

4.1 The dry film thickness of coatings on wood or wood-based products is specified in written product warranties for proper decorative and protective performance of coatings on wood or wood-based products.

4.2 The minimum and maximum dry film thickness of coatings is recommended by coating companies for satisfactory decorative and protective performance on wood or wood-based products.

4.3 The average dry film thickness of coatings on wood or wood-based material may be used by manufacturing companies to calculate theoretical cost of applied coatings. By comparison with actual cost, utilization efficiency may be calculated.

4.4 The ratio of peak to valley dry film thickness on textured products is used as an indication of coating uniformity.

4.5 Specific coated product requirements may dictate certain film thickness determinations to be made. Discussions between buyer and seller may be advisable to accommodate product needs relative to dry film thickness.

5. Apparatus

5.1 *Calibrated² Monocular Microscope*, equipped with an optical system³ providing sufficient resolution of 0.1-mil (2.54-μm) dry film thickness. One system consisting of a 16-mm

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² Consult the microscope manufacturer's operational manual for the correct calibration procedure.

³ Video microscope instruments are available that are also capable of the required resolution and measurement accuracy.