



Standard Test Method for Evaluating the Resistance of the Surface of Wet Blue and Wet White to the Growth of Fungi in an Environmental Chamber¹

This standard is issued under the fixed designation D7584; 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.

1. Scope

1.1 This environmental chamber method measures the resistance of the treated Wet Blue and Wet White to the germination of spores and subsequent vegetative growth over a period of four weeks. The test method is useful in estimating the performance of fungicides and should assist in the prediction of storage time of Wet Blue and Wet White before fungal growth begins. The apparatus is designed so it can be easily built or obtained by any interested party and duplicate the natural environment in which Wet Blue and Wet White is inoculated with fungal spores. Spores that germinate on untreated or treated Wet Blue and Wet White can produce fungal growth, resulting in disfigurement or discoloration, or both, of the Wet Blue and Wet White.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this 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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

D3273 Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E691 Practice for Conducting an Interlaboratory Study to

Determine the Precision of a Test Method

3. Terminology

3.1 Definitions:

3.1.1 *fungi*—chemoorganotrophic eukaryotic organisms living mainly under aerobic conditions and generating energy by the oxidation of organic materials.

3.1.2 *mold*—a macroscopic discoloration of the surface of wet blue. Mold also a sign of the presence of microscopic fungal growth in the form of usually clear to white fungal hyphae, spores of various colors, and other structures. Colored spots, probably due to the presence of a colored pigment produced by the fungus, have been observed on the surface of wet blue in places where fungal growth has occurred and then stopped. Fungal structures such as hyphae and spores may be viewed by simply using a 10× hand lens.

3.1.3 *Wet Blue*—hide or skin, or split of a hide or skin, tanned with basic chromium sulfate, containing approximately 50 % moisture and an acidic pH.

3.1.4 *Wet White*—hide or skin that has been processed with tanning as the terminal step by using organic or non-organic tanning agents. Chromium or iron containing agents and vegetable extracts will be excluded from use in Wet White.

3.1.5 Fungi of Importance in the Tannery:

3.1.5.1 Filamentous Fungi:

(1) A wide variety of fungi have been identified in the tannery, but commonly encountered species include *Aspergillus* spp., *Paecilomyces* spp., and *Penicillium* spp.

(2) *Aspergillus niger* produces black spores and *Penicillium luteum* produces yellow-green colored spores.

(3) *Trichoderma viride* produces green spores.

3.1.5.2 *Yeast*—Many yeasts are cream colored, but pigmented ones may also be encountered including *Rhodotorula* spp. which is pigmented red.

3.1.5.3 Factors Favoring the Growth of Fungi in the Tannery:

(1) Wet Blue and Wet White contain nutrients beneficial to fungal growth.

(2) Favorable environmental factors include a slightly acidic pH, a high moisture content, and warm temperatures.

¹ This test method is under the jurisdiction of ASTM Committee D31 on Leather and is the direct responsibility of Subcommittee D31.02 on Wet Blue.

Current edition approved June 1, 2016. Published June 2016. Originally approved in 2010. Last previous edition approved in 2015 as D7584 – 10(2015). DOI: 10.1520/D7584-16.

² 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.