



Designation: D8042 – 18 (Reapproved 2023)

Test Method for Shrinkage Temperature of Wet Blue and Wet White¹

This standard is issued under the fixed designation D8042; 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 test method covers the determination of the shrinkage temperature of all types of Wet Blue and Wet White. The heating medium is water when the shrinkage temperature is at or below 98 °C. The heating medium is a glycerine-water solution when the shrinkage temperature is above 98 °C.

1.2 The values stated in SI units are to be regarded as the standard. The values in parentheses are for information only.

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:*²

D1517 Terminology Relating to Leather

D6076 Test Method for Shrinkage Temperature of Leather

3. Terminology

3.1 *Definitions*—For definitions of general leather terms used in this test method, refer to Terminology D1517.

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 Sept. 1, 2023. Published September 2023. Originally approved in 2016. Last previous edition approved in 2018 as D8042 – 18. DOI: 10.1520/D8042-18R23.

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.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *shrink*, *v*—to contract or become smaller.

3.2.2 *shrinkage*, *n*—the temperature at which noticeable shrinkage occurs when a Wet Blue or Wet White specimen is gradually heated in an aqueous medium.

4. Summary of Test Method

4.1 A Wet Blue or Wet White specimen is thoroughly soaked in the aqueous medium that will be used to heat the specimen for this test method. This specimen is then fastened between two clamps (one fixed and one movable) and immersed in the aqueous medium (see Fig. 1). The aqueous medium is gradually heated until the specified temperature is reached without shrinkage or until shrinkage is indicated by a deflection of the dial needle which is attached to the movable clamp.

5. Significance and Use

5.1 This test method is designed to determine the temperature at which the Wet Blue or Wet White specimen experiences shrinkage. In this test method, shrinkage occurs as a result of hydrothermal denaturation of the collagen protein molecules which make up the fiber structure of the Wet Blue or Wet White. The shrinkage temperature of Wet Blue or Wet White is influenced by many different factors, most of which appear to affect the number and nature of crosslinking interactions between adjacent polypeptide chains of the collagen protein molecules. The value of the shrinkage temperature of Wet Blue or Wet White is commonly used as an indicator of the type of tannage or the degree of tannage, or both, of that particular Wet Blue or Wet White (especially for the more hydrothermally stable tannages such as chrome tannage).

6. Apparatus

6.1 *Stand*, for supporting the testing equipment.

6.2 *Indicating Device*, either of the two devices listed as follows: