



Designation: D 6716 – 01

Standard Test Method for Total Ash in Wet Blue¹

This standard is issued under the fixed designation D 6716; 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 total ash in wet blue.

1.2 Total ash in wet blue may be reported upon a number of different bases (for example, fat-free, moisture-free, as received, excluding chromium, and so forth). Before proceeding with any tests, it is very important to determine upon which basis that the total ash is to be reported and to identify all other test methods that will be required to be executed in order to achieve the determined reporting method.

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:

- D 3495 Test Method for Hexane Extraction of Leather²
- D 6658 Test Method for Volatile Matter (Moisture) in Wet Blue by Oven Drying²
- D 6659 Practice for Sampling and Preparation of Wet Blue for Physical and Chemical Tests²
- D 6714 Test Method for Chromic Oxide in Ashed Wet Blue (Perchloric Acid Oxidation)²

3. Terminology

3.1 Definitions:

3.1.1 The terms and definitions employed within this test method are commonly used in normal laboratory practice and require no special comment.

4. Summary of Test Method

4.1 The weighed sample is ignited in air at $600 \pm 25^\circ\text{C}$ until constant mass is attained. The weighed residual matter is termed “ash” and is calculated as a percentage of the original sample.

¹ This test method is under the jurisdiction of ASTM Committee D31 on Leather and is the direct responsibility of Subcommittee D31.02 on Blue Stock. Current edition approved Oct. 10, 2001. Published December 2001.

² *Annual Book of ASTM Standards*, Vol 15.04.

5. Significance and Use

5.1 This test method is useful in determining the approximate amount of nonvolatile inorganic material in wet blue. This may be in the form of salts or oxides of the elements. In a mixed-chrome tannage, the approximate percentage of other elements in the wet blue may be determined by subtracting the chromic oxide that may be conveniently determined on the ash. (See Test Method D 6714.)

5.2 The specified temperature of 600°C is high enough to produce a reproducible result but it does not completely dehydrate such oxides as aluminum oxide (Al_2O_3) and chromic oxide (Cr_2O_3). Likewise, such salts as sulfates and phosphates may be incompletely dehydrated, and if alkalis and chromium are present simultaneously, oxidation to chromate may occur. Therefore, caution is advised in drawing conclusions based on quantitative relations of the elements.

6. Apparatus

- 6.1 *Crucible*, 30- to 50-mL, high-form, platinum or porcelain.
- 6.2 *Electric Muffle Furnace*, with controller or rheostat and pyrometer, capable of maintaining a temperature of $600 \pm 25^\circ\text{C}$.
- 6.3 *Dessicator*, of appropriate size and charged with fresh desiccant.
- 6.4 *Analytical Balance*, capable of accurate weighings to within 0.001 g.

7. Test Specimen

7.1 The specimen shall consist of 2 to 10 g of wet blue from the composite sample, prepared in accordance with Practice D 6659.

NOTE 1—Typically, wet blue is a combination of organic hide substance in conjunction with inorganic chromium tanning salts. However, under some circumstances, silicones or other solvent-soluble organo-metallic complexes (including electrolyte-stable fat liquors) are added during manufacture and may be present within the sample. It may be desirable to calculate ash upon an extracted (fat free) basis, and if so, this should be indicated within the final report. To report ash upon an extracted basis, it will be necessary to execute Test Method D 3495 on a portion of the same sample and weighed out at the same time as the specimen for total ash determination.