



Designation: D6657 – 16

## Standard Test Method for pH of Wet Blue and Wet White<sup>1</sup>

This standard is issued under the fixed designation D6657; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This test method covers the determination of the pH of all types of 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:*<sup>2</sup>

D6659 Practice for Sampling and Preparation of Wet Blue for Physical and Chemical Tests

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 of Term Specific to this Standard:*

3.1.1 The pH of a solution has been defined as the negative logarithm of the hydrogen ion activity. A solution of pH 7 is neutral at 24 °C. Lower numbers indicate increasing acidity; higher numbers, increasing alkalinity.

### 4. Significance and Use

4.1 This test method is designed to measure the pH of a distilled-water extract of Wet Blue and Wet White. This is considered to be a measure of the acidity or alkalinity of the Wet Blue or Wet White. Excessive acidity or alkalinity may

have a deleterious effect on the aging characteristics of Wet Blue and Wet White and the leather made from it.

4.2 This test method is suitable for development, control, and service evaluation of wet blue.

### 5. Apparatus

5.1 *Electronic pH Meter*, with a suitable electrode. The meter shall have an accuracy of at least 0.01 pH unit and reproducibility of 0.05 pH unit.

5.2 *Analytical Balance*, sensitive to 0.01 g or greater.

### 6. Reagents

6.1 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean distilled water or water of equal purity. Distilled water shall have a pH value of not less than 5.5 nor more than 7.0 and shall give a residue of not more than 0.5 mg, when 100 mL is evaporated and dried in a platinum dish.

6.2 *Commercially Standardized pH Solutions*<sup>3</sup>:

6.2.1 *Alkaline Phosphate Buffer Solution (0.01 M trisodium phosphate, pH = 11.72 at 25 °C)*—Dissolve 1.42 g of anhydrous disodium hydrogen phosphate ( $\text{Na}_2\text{HPO}_4$ ) in 100 mL of a 0.1 N carbonate-free solution of sodium hydroxide (NaOH) and dilute to 1 L with water.

6.2.2 *Borax Buffer Solution (0.01 M, pH = 9.18 at 25 °C)*—Dissolve 3.81 g of sodium tetraborate decahydrate ( $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ ) in water and dilute to 1 L.

6.2.3 *Hydrochloric Acid (pH = 1.10 at 25 °C)*—Add 2 g of concentrated hydrochloric acid (HCl, sp gr 1.19) to 450 g of water. Standardize and dilute to 0.1 N.

6.2.4 *Phosphate Buffer Solution (0.025 M with respect to each phosphate, salt pH = 6.86 at 2.5 °C)*—Dissolve 3.40 g of monobasic potassium phosphate ( $\text{KH}_2\text{PO}_4$ ) and 3.55 g of anhydrous dibasic sodium phosphate ( $\text{Na}_2\text{HPO}_4$ ) in water and dilute to 1 L.

6.2.5 *Potassium Hydrogen Phthalate Buffer Solution (0.05 M, pH = 4.01 at 25 °C)*—Dissolve 10.21 g of potassium hydrogen phthalate ( $\text{KHC}_8\text{H}_4\text{O}_4$ ) in water and dilute to 1 L.

<sup>1</sup> 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 2001. Last previous edition approved in 2014 as D6657 - 14a<sup>ε1</sup>. DOI: 10.1520/D6657-16.

<sup>2</sup> 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.

<sup>3</sup> Commercial buffer salts and solutions prepared in accordance with National Bureau of Standards recommendations are sold by reputable laboratory supply houses and may be used.