



Designation: D5356 – 24

Standard Test Method for pH of Chrome Tanning Solutions¹

This standard is issued under the fixed designation D5356; 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 pH of chrome tanning solutions.

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, 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

D3898 Test Method for Chromic Oxide in Basic Chromium Tanning Liquors

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *pH, of a solution*—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. Summary of Test Method

4.1 The chrome tanning liquor is diluted to a concentration of 25.0 g $\pm$ 0.5 g chromic oxide equivalent per litre, allowed to come to equilibrium and the pH is then measured with the appropriate meter.

5. Significance and Use

5.1 This test method is designed to measure the pH of a chrome tanning solution which has been diluted to a specific concentration. This is considered to be a measure of the acidity or alkalinity of the solution.

5.2 This test method is suitable for quality control in the manufacture of leather.

6. Apparatus

6.1 *Electronic pH Meter*, with a suitable electrode. The meter shall have an accuracy of at least 0.1 pH unit and reproducibility of 0.05 pH unit.

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

7. Reagents

7.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.³ Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

7.2 *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.

7.3 *Commercially Standardized pH Solutions:*⁴

7.3.1 *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.

¹ This test method is under the jurisdiction of ASTM Committee D31 on Leather and is the direct responsibility of Subcommittee D31.06 on Chemical Analysis

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ *ACS Reagent Chemicals, Specifications and Procedures for Reagents and Standard-Grade Reference Materials*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.

⁴ Commercial buffer salts and solutions in accordance with National Bureau of Standards recommendations are sold by reputable laboratory supply houses and may be used.