



Designation: D6656 – 24

Standard Test Method for Determination of Chromic Oxide in Wet Blue (Perchloric Acid Oxidation)¹

This standard is issued under the fixed designation D6656; 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 chromic oxide in Wet Blue that has been partly or completely tanned with chromium compounds. In general, the samples will contain chromium content between 1 % and 5 % when calculated as chromic oxide expressed upon a dry basis otherwise referred to as moisture-free basis (mfb).

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 test method does not apply to Wet White.

1.4 *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.* See Section 8 for specific safety hazards.

1.5 *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

D6658 Test Method for Volatile Matter (Moisture) of Wet Blue by Oven Drying

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

D7674 Test Method for Hexane/Petroleum Ether Extract in Wet Blue and Wet White

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.

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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.

E180 Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial and Specialty Chemicals (Withdrawn 2009)³

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

4. Summary of Test Method

4.1 The perchloric acid method may be applied to Wet Blue. Accurately weighed Wet Blue samples are digested in a blend of concentrated nitric acid and a prepared “oxidation mixture” consisting of sulfuric and perchloric acids. Once completed, oxidation of all tri-valent to hexavalent chrome is executed by controlled heating. Upon dilution, the chromium is indirectly (back) titrated volumetrically with standardized thiosulfate using released iodine as the titrate. Care must be taken because of potential hazards in the use of perchloric acid.

5. Significance and Use

5.1 The procedure described is specific for chromium in Wet Blue. Vanadium is the only common interfering element and is rarely present in quantity. Iron, when present from either water contamination or process chemicals, may also interfere by imparting a yellow color which could affect the endpoint of the titration. Phosphoric acid is added to complex any iron that may be present. For most commercially available wet blue, the iron content is not sufficient to cause an interference (see Table 1). Therefore, for most commercially available wet blue, the user may opt to exclude use of the phosphoric acid. Procedure Option B offers a method that uses a reduced sample size and less chemicals to obtain equivalent results (see Table 1). The precision and accuracy of the methods are usually, at least, as good as the sampling of Wet Blue itself.

³ The last approved version of this historical standard is referenced on www.astm.org.