



Designation: D 6410 – 99

Standard Test Method for Determining Acidity of Vegetable Tanning Liquors¹

This standard is issued under the fixed designation D 6410; 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 approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers determining the acidity of tannery liquors made up from vegetable tanning materials.

1.2 The values stated in SI units are to be regarded as the 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:

D 6404 Practice for Sampling Vegetable Materials Containing Tannin²

2.2 ALCA Methods:

A25 Analysis of Tannery Liquors³

3. Terminology

3.1 Definitions:

3.1.1 *tannery liquor*—water solutions containing vegetable tannin that are made up and used in a vegetable tannery.

4. Summary of Test Method

4.1 An analytical solution is prepared from the sample of tannery liquor (Practice D 6404). Specimen aliquots from this analytical solution are then analyzed for total acidity by one of two titrametric methods.

5. Significance and Use

5.1 This test method is used to determine one of the chemical properties of tannery liquors which are relevant for the vegetable tanning process and influence the astringency of vegetable tanning liquors. The astringency of liquors is dependent upon the solids and tannin content and the acidity. This

test method provides a standard procedure for determining the total acidity for any sample of vegetable tanning liquor.

5.2 The specimens are aliquots from the analytical solution prepared from the sample of tannery liquor collected for this purpose.

5.3 The total acidity of the liquor sample is determined by one of two titrametric procedures described in this test method.

6. Apparatus and Reagents

6.1 Analytical Solution:

6.1.1 *Flask*, 1 L volumetric. Class A flasks with a bulb in the neck (M.C.A. type) are especially suitable for this work.

6.1.2 *Hydrometer*, preferably with a Barkometer scale (that is, a scale calibrated in °Bk). The three digits to the right of the decimal point on a standard specific gravity reading are equal to the Barkometer scale reading. That is, a sp.gr. of 1.200 equals 200°Bk and a sp.gr. of 1.020 equals 20°Bk.

6.2 Acidity Determination—Method I:

6.2.1 *Graduated Cylinder*, glass-stoppered, graduated to contain 250 mL.

6.2.2 *Gelatin Solution*, 1 %, neutral to bromocresol purple. The addition of 25 mL of 95 % ethyl alcohol per litre is recommended to prevent frothing. The solution shall be adjusted to neutrality to bromocresol purple with 0.1 N acetic acid or 0.1 N sodium hydroxide.

6.2.3 *Kaolin*⁴, acid-washed kaolin clay which conforms to the following specifications:

6.2.3.1 Suspend 1.0 g kaolin in 100 mL distilled water. The pH value should be between 4.5 and 6.0 after 5 min.

6.2.3.2 A mixture of 2.0 g kaolin and 200 mL distilled water are shaken for 10 min and the mixture filtered through the standard filter paper (see 6.5). A 100 mL aliquot of the clear filtrate should have less than 0.001 g of residue after evaporation and oven-drying in a platinum dish.

6.2.4 *Alkaline Titrant*, 0.1 N sodium hydroxide solution.

6.3 Acidity Determination—Method II:

6.3.1 *Pipet*, transfer pipette with 6 mL capacity.

6.3.2 *pH Meter*, with glass/calomel electrodes.

6.3.3 *Alkaline Titrant*, 0.1 N sodium hydroxide solution.

¹ This test method is under the jurisdiction of ASTM Committee D-31 on Leather and is the direct responsibility of Subcommittee D31.01 on Vegetable Leather. This test method has been adapted from and is a replacement for the acidity determination portion of Method A25 of the Official Methods of the American Leather Chemists Association.

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

³ Official Methods of the American Leather Chemists Association. Available from the American Leather Chemists Association, University of Cincinnati, P.O. Box 210014, Cincinnati, OH 45221-0014.

⁴ The sole source of supply of Kaolin known to the committee at this time is L. H. Lincoln & Son, Inc., 203 Cherry Street, Coudersport, PA 16915. If you are aware of alternative suppliers, please provide this information to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend.