Designation: D4899 – 99 (Reapproved 2016)

Standard Practice for Analysis of Vegetable Tanning Materials—General[1]

This standard is issued under the fixed designation D4899; 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 practice is intended for use in the chemical analysis of all vegetable tanning materials.

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:*[2]

D4900 Test Method for Lignosulfonates (Sulfite Cellulose) in Tanning Extracts
D4901 Practice for Preparation of Solution of Liquid Vegetable Tannin Extracts
D4902 Test Method for Evaporation and Drying of Analytical Solutions
D4903 Test Method for Total Solids and Water in Vegetable Tanning Material Extracts
D4904 Practice for Cooling of Analytical Solutions
D4905 Practice for Preparation of Solution of Solid, Pasty and Powdered Vegetable Tannin Extracts
D6401 Test Method for Determining Non-Tannins and Tannin in Extracts of Vegetable Tanning Materials
D6402 Test Method for Determining Soluble Solids and Insolubles in Extracts of Vegetable Tanning Materials
D6403 Test Method for Determining Moisture in Raw and Spent Materials
D6404 Practice for Sampling Vegetable Materials Containing Tannin
D6405 Practice for Extraction of Tannins from Raw and Spent Materials
D6406 Test Method for Analysis of Sugar in Vegetable Tanning Materials
D6407 Test Method for Analysis of Iron and Copper in Vegetable Tanning Materials
D6408 Test Method for Analysis of Tannery Liquors
D6409 Practice for Color Tests with Sheepskin Skiver
D6410 Test Method for Determining Acidity of Vegetable Tanning Liquors

2.2 *ALCA Methods:*

A1 Analysis of Vegetable Tanning Materials—General[3]
A5 Extraction of Raw and Spent Materials[3]
A6 Moisture in Raw and Spent Materials[3]
A10 Preparation of Solution of Liquid Extracts[3]
A11 Preparation of Solution of Solid, Pasty, and Powdered Extracts[3]
A12 Cooling of Analytical Solutions[3]
A13 Evaporation and Drying of Analytical Solutions[3]
A20 Total Solids and Water[3]
A21 Soluble Solids and Insolubles[3]
A22 Non-Tannins and Tannin[3]
A25 Analysis of Tannery Liquors[3]
A30 Sugar in Tanning Materials[3]
A31 Copper and Iron in Tanning Materials[3]
A40 Color Tests with Sheepskin Skiver[3]
A50 Lignosulfates (Sulfite Cellulose)[3]
A60 Official Certification[3]
J10 Sampling of Vegetable Materials Containing Tannin[3]

2.3 *Federal Specification*

DD-V-582 Volumetric Apparatus, Glass[4]

3. Significance and Use

3.1 Vegetable tanning materials are natural products containing various substances of varying composition, concentration and quality.

[1] This practice is under the jurisdiction of ASTM Committee D31 on Leather and is the direct responsibility of Subcommittee D31.01 on Vegetable Leather. This practice has been adapted from and is a replacement for Method A1 of the Official Methods of the American Leather Chemists Association.

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[2] 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.

[3] Official Methods of the American Leather Chemists Association. Available from the American Leather Chemists Association (ALCA), University of Cincinnati, P.O. Box 210014, Cincinnati, OH 45221–0014.

[4] Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

3.2 The methods referenced are useful for analyzing and testing vegetable tanning materials for moisture, water-extractable substances, cold-soluble fractions, tannins, non-tannins, acidity, tanning properties, the color of tanned leather, and the presence or absence of certain admixtures.

4. Samples and Specimens

4.1 The preparation of the composite sample of a vegetable tanning material for analysis purposes shall be as described in ALCA Method J10.

5. Apparatus and Reagents

5.1 All volumetric glassware shall comply with Federal Specification DD-V-582.

5.2 Unless otherwise specified, all reagents used in the chemical analyses shall be of certified ACS purity grade and comply with the specifications recommended by the Committee on Analytical Reagents of the American Chemical Society.[5]

5.3 The distilled water used in the chemical analysis shall have a pH of not less than 5.5, nor more than 7.0, and shall give a residue of not more than 0.0005 g when 100 mL is evaporated and dried in a platinum dish.

5.4 General laboratory apparatus and reagents shall be available. (Special apparatus and reagents are described in the individual methods.)

6. Procedure

6.1 Cover all funnels, collecting dishes, and other apparatus used during the analysis so as to prevent, or reduce to a minimum, any change in the concentration of solutions by evaporation of water.

6.2 Measure all aliquots of analytical solutions, pipetted for the determination of total solids, soluble solids, non-tannins, or other, at the same temperature within the range 23° to 25°C as specified in ALCA Methods A21 and A22.

7. General Analytical Procedure for the Analysis of Vegetable Tanning Materials

7.1 The following ASTM standards are applicable: Test Methods D4900, D4902, D4903, D6401, D6402, D6403, D6406, D6407, D6408, and D6410, and Practices D4901, D4904, D4905, D6404, D6405, and D6409.

7.2 The following ALCA Methods are applicable: A5, A6, A10, A11, A12, A13, A20, A21, A22, A25, A30, A31, A40, A50, A60, J10.

8. Keywords

8.1 tannin; tannin analysis; vegetable tannin analysis; vegetable tannins

[5] American Chemical Society, 1155 16th St. NW, Washington, DC 20036.