Designation: D 4902 – 99

Standard Test Method for Evaporation and Drying of Analytical Solutions[1]

This standard is issued under the fixed designation D 4902; 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 a procedure for the evaporating and drying of the 100 mL portions of analytical solution, obtained in the methods for vegetable tannin analysis, so that consistent results may be obtained for the determination of total solids, soluble solids, and non-tannins in the sample. This test method is also intended for use in determining the moisture in the hide powder samples and the moisture in raw and spent materials in the methods for vegetable tannin analysis.

2. Referenced Documents

2.1 *ASTM Standards:*

D 4903 Test Method for Total Solids and Water in Vegetable Tanning Material Extracts[2]

D 6401 Test Method for Determining Non-Tannins and Tannin in Extracts of Vegetable Tanning Materials[2]

D 6402 Test Method for Determining Soluble Solids and Insolubles in Extracts of Vegetable Tanning Materials[2]

D 6403 Test Method for Determining Moisture in Raw and Spent Materials[2]

2.2 *ALCA Methods:*

A13 Evaporation and Drying of Analytical Solutions[3]

3. Summary of Test Method

3.1 This test method describes a procedure for evaporation and drying of the 100 mL portions of the analytical solution obtained in Test Methods D 4903, D 6401, and D 6402, so that consistent results may be obtained for the determination of total solids, soluble solids, and non-tannins in the sample. This test method is also intended for use in determining the moisture in the air-dry and prepared, wet, hide powders used in Test Method D 6401 and the moisture in raw and spent materials in Test Method D 6403.

4. Significance and Use

4.1 The test method is useful for determining the solid residue in analytical solutions.

4.2 Because of the possibility of unknown errors in this test method, it is essential that the procedure be followed exactly in order to obtain reproducible results both among specimens within a laboratory and for analyses between laboratories.

5. Apparatus

5.1 *Drying Oven*—Forced-air convection oven (or mechanical-convection draft oven) capable of maintaining a temperature of 100° ± 2.0°C.

5.2 *Thermometer*—Accurate to ± 0.2°C, should be used to check and monitor the oven set point.

5.3 *Desiccators and Desiccant*:

5.3.1 The desiccators used can be of any convenient form or size, but be at least 4 in. in diameter for a single tannin dish.

5.3.2 Any normal desiccating agent such as calcium sulfate, calcium chloride, or silica gel may be used.

6. Procedure

6.1 The thermometer having been checked and the oven properly regulated, place the tared evaporating dishes, containing the aliquots of solution, or of hide powder, or of raw or spent tanning materials, to be dried in the oven and allow to remain there for 17 ± 1 h.

6.2 When drying is complete, remove the dishes from the oven, place in desiccators, cool to room temperature, and weigh to the nearest 0.1 mg.

7. Keywords

7.1 drying; evaporation; moisture; tannin analysis; vegetable tannin analysis

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[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 method has been adapted from and is a replacement for Method A13 of the Official Methods of the American Leather Chemists Association.

Current edition approved May 10, 1999. Published August 1999. Originally published as D 4902–89. Last previous edition D 4902–89(1995).

[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.