Designation: D 6404 – 99

Standard Practice for Sampling Vegetable Materials Containing Tannin[1]

This standard is issued under the fixed designation D 6404; 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 covers obtaining representative samples from shipment lots of botanical materials containing tannin.

1.2 The values stated in SI units are to be regarded as the standard. The inch-pound units given in parentheses are for information only.

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 1517 Definitions of Terms Relating to Leather[2]

2.2 *ALCA Method:*

J10 Sampling Vegetable Materials Containing Tannin[3]

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of general leather and tanning terms used in this practice refer to Definitions D 1517.

3.1.2 *quartering*—the term applied to a method described in this practice of reducing the size of samples without impairing their representative quality.

3.1.3 *tannin*—an astringent substance found in the various parts of plants such as bark, wood, leaves, nuts, fruits, roots, etc.

3.1.4 *vegetable tannins*—mixtures of substances (natural products) obtained from plant tissues by water extraction which have the chemical and physical properties necessary to convert animal hides and skins into leather.

4. Summary of Practice

4.1 This practice describes methods for obtaining representative samples for analysis from shipments of vegetable tanning materials and tannin extracts.

5. Significance and Use

5.1 This practice provides standard procedures for obtaining representative samples of various materials used as a source of tannins for the tanning industry.

5.2 Procedures are described for obtaining representative samples of economical and convenient quantities from a lot, or sections of a lot, of material for examination and analysis so that agreement may be reached with regard to the extent of variation of quality in different portions of a lot and the average quality of the entire lot of material.

5.3 No directions for sampling, however explicit, can take the place of judgment, skill, and previous experience on the part of persons actually engaged in the sampling or the supervision of the sampling. These directions are intended to supplement that experience and, particularly, to serve as a guide in the selection of the method which is to be used, in common, by each of two or more contracting parties.

5.4 Tanning materials contain moisture in varying amounts, depending both on the nature of the material and on the climatic conditions, so that sampling must be carried out as quickly as is consistent with thoroughness in order to avoid changes in moisture content.

6. Apparatus

6.1 *Balance*, analytical balance which will weigh the quantity of material specified in this practice to an accuracy of ±10 g (± 0.35 oz).

6.2 *Canvas*, 11-oz weight and of sufficient size (as determined by the discretion of the sampler or analyst) for use in mixing and quartering samples.

6.3 *Sieve*, with round openings 1.27 cm (0.50 in.) in diameter.

6.4 *Sampling Tool*, this tool shall be made of brass or other corrosion-resistant metal tubing, with solid handle attached, similar to that described below and illustrated in Fig. 1.

[1] This practice 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 Method J10 of the Official Methods of the American Leather Chemists Association.

Current edition approved May 10, 1999. Published August 1999.

[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.

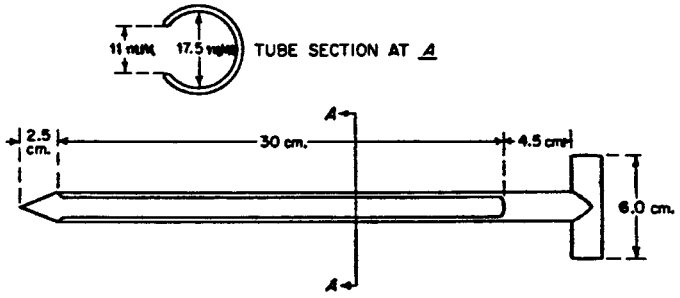

FIG. 1 Sampling Tool

6.4.1 Thin brass or other corrosion-resistant metal tubing, 37 cm long and 17.5 mm diameter, is used. A solid steel handle, 6 cm long, is welded to one end of the tube. A section 11 mm wide and 30 cm long is cut out of the side of the tube and the edges of this opening sharply beveled. The working end is cut to a sharp point for piercing sacks, or other tough materials, like plantation gambier.

7. Quartering Samples

7.1 "Quartering" is a term applied to the following method of reducing the size of samples without impairing their representative quality.

7.1.1 All of the material, taken from the various containers or parts of the shipment of solid material being sampled, shall be immediately and thoroughly mixed on a square piece of 11 oz canvas. In the case of solid extracts, large pieces shall have been broken previously so as to pass a screen having round openings 1.27 cm (0.50 in.) in diameter. The pile shall be divided into four equal portions and quarters A and B shall be discarded as illustrated in diagram X of Fig. 2. The remaining two quarters shall then be re-mixed thoroughly and again divided into four equal portions and quarters C and D shall be discarded as illustrated in diagram Y of Fig. 2. This process shall be repeated until the mixture of any two remaining quarters of the sample be of sufficient size to secure the individual samples as specified below. The individual samples shall be obtained by thoroughly mixing the two remaining quarters and dividing the mixture into as many uniform sections as necessary, such that each section will be large enough to fill one of the required number of containers. All fine, powdery material in each section shall be completely removed with its respective section, whether the section is discarded or placed in a sample container.

8. Filling Containers

8.1 Immediately after the final samples are obtained, they shall be put into clean, dry containers, closed airtight, sealed, and labeled as described in the procedure (11.11).

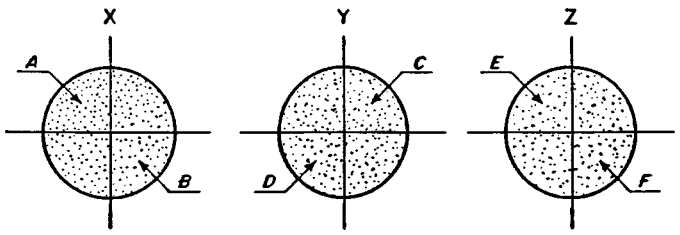

FIG. 2 Quartering Samples

8.2 Liquid and powdered extracts and tannery liquor samples shall be put into stoppered glass bottles of the required size.

8.3 Solid and pasty extracts shall be wrapped in aluminum foil and put into Mason-type jars or tin cans of the required size.

8.4 Cut bark, fruits, roots, galls, nuts, leaves, etc., and spent materials, shall be placed in lacquered, pressed-top tins of the required size, which close airtight. Boxes or bags must not be used as containers.

8.5 Sample containers shall be of no greater capacity than will conveniently be filled by the sample taken.

9. Number of Packages to be Sampled

9.1 The number of packages to be sampled from any given lot of tanning material composed of solid, powdered or pasty extract, crude or manufactured tanning materials, in bales, boxes, bags, barrels, or similar packages, shall be as shown in Table 1. The samples shall be selected from as uniformly distributed parts of the lot as is possible at the time of weighing.

9.1.1 Where the shipment exceeds 10 000 packages, it shall be divided into as few, equal, sections (of not more than 10 000 packages each) as possible and each section shall be sampled and analyzed as if it were an individual shipment. In such case, the mean of the analyses of the sections shall constitute the analysis of the shipment.

10. Number of Samples

10.1 In addition to the representative samples for submission to the contracting parties, at least one extra sample shall be taken and held in reserve by the sampler, in case one of the regular samples is lost or damaged.

11. Procedure

11.1 *Solid Extracts*—Cut a suitable triangular opening in the middle of the exposed side of the package to be sampled. Then cut a V-shaped wedge, 10 to 12.5 cm (4 to 5 in.) in width on the surface of the exposed side of the package, as near to the middle as possible and to the depth shown in the diagram illustrated in Fig. 3.

11.1.1 Remove this piece, including any dry or crumbly exterior portion of it, place on the quartering canvas and covered to prevent loss of moisture. Promptly break the V-shaped samples from all the selected packages to a size which will pass the sieve (6.3). Quarter the mixture and sample as described in Section 7. Each final sample shall weigh approximately 225 g (8 oz) and shall be packaged as described in 8.3.

11.2 *Powdered Extracts*—Draw a portion from each of the specified number of bags, using the sampling tool (6.4). Lay the bags horizontally, with the narrow side exposed, and insert the sampling tool into the middle of the exposed side and to the center of the bag. The portions removed shall be of equal quantity, thoroughly mixed, and the mixture quartered and sampled as described in Section 7. Each sample shall weigh approximately 170 g (6 ounces) and be packaged as described in 8.2.