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Standard Test Method for Total Ash in Leather[1]

This standard is issued under the fixed designation D2617; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This test method covers the determination of total ash in leather.

1.2 *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]

D2807 Test Method for Chromic Oxide in Leather (Perchloric Acid Oxidation)

D2813 Practice for Sampling Leather for Physical and Chemical Tests

3. Summary of Test Method

3.1 The sample is ignited in air at 600 ± 25°C until constant mass is attained. The weighed residual matter is termed "ash" and is calculated as a percentage of the original sample.

4. Significance and Use

4.1 This test method is useful in determining the approximate amount of nonvolatile inorganic material in leather. This may be in the form of salts or oxides of the elements. In a mixed chrome tannage, the approximate percentage of other elements in the leather may be determined by subtracting the chromic oxide that may be conveniently determined on the ash. (See Test Method D2807.)

4.2 The temperature of 600°C specified is high enough to produce a reproducible result but it does not completely dehydrate such oxides as aluminum oxide, (Al_2O_3) and chromic oxide (Cr_2O_3). Likewise, such salts as sulfates and phosphates may be incompletely dehydrated, and if alkalies and chromium are present simultaneously, oxidation to chromate may occur. Therefore, caution is advised in drawing conclusions based on quantitative relations of the elements.

5. Apparatus

5.1 *Crucible*, 30 to 50-mL, high-form, platinum or porcelain.

5.2 *Electric Muffle Furnace*, with controller or rheostat and pyrometer, capable of maintaining a temperature of 600 ± 25°C.

6. Test Specimen

6.1 The specimen shall consist of 1 to 5 g of leather from the composite sample prepared in accordance with an accepted procedure.[3]

NOTE 1—In some leathers, silicones or other organometallic complexes that are solvent, soluble, and ash producing are used. It may be desirable to obtain ash on an extracted sample, and if so, it should be indicated on the report.

7. Procedure

7.1 Weigh accurately (to 1 mg) into a tared crucible 1 to 5 g of leather, prepared as described in 6.1, and preferably at sufficiently close equilibrium with the laboratory humidity that it does not gain or lose mass at a significant rate. Place the crucible and sample

[1] This test method is under the jurisdiction of ASTM Committee D31 on Leather and is the direct responsibility of Subcommittee D31.06 on Chemical Analysis. This test method was developed in cooperation with the American Leather Chemists Assn. (Standard Method B15 – 1969).

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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] Acceptable procedures are published in the *Journal of the American Leather Chemists Association*, Vol 51, 1956, p. 497; see Practice D2813.