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# Standard Practice for Sampling Leather for Physical and Chemical Tests[1]

This standard is issued under the fixed designation D2813; 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 U.S. Department of Defense.*

## 1. Scope

1.1 This practice covers the sampling of finished leather and fabricated leather items for physical and chemical tests. The product is grouped into lots that are randomly sampled in such a manner as to produce a representative sample of the lot. This sample may be used to determine compliance of the lot with applicable specification requirements, and on the basis of results, the lot may be accepted or rejected in its entirety.

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]

D1610 Practice for Conditioning Leather and Leather Products for Testing

## 3. Terminology

3.1 *Definitions:*

3.1.1 *lot (or batch)*—units of products from a single type, grade, class, size, and composition, manufactured under essentially the same conditions and time.

3.1.2 Leather in formed lots should be produced from:

*(1)* Units of product of similar size and type.

*(2)* Tanning and finishing material obtained from the same producer (functionally equivalent).

*(3)* A single product method.

*(4)* Sequential production batches.

3.1.3 *unit*—a piece of leather in the form in which it is purchased, such as a single hide, skin, or any part thereof, or a single fabricated-leather article in the form in which it is purchased, such as a counter, pair of shoes, a gasket, etc.

## 4. Significance and Use

4.1 The sampling procedures described in this practice have been designed to ensure random sampling of finished leather and fabricated leather items for physical and chemical tests. Leather is a natural product and as such is subject to extensive variability. The physical and chemical properties vary considerably depending on location on the hide, side or skin from which the test sample is taken. Random sampling of specimens from a predefined location and orientation minimizes test bias and variability. This practice defines these parameters.

## 5. Conditioning

5.1 Physical tests of leather and leather products, unless otherwise specified in the applicable test method, specification, or procurement document, shall be performed under standard atmospheric conditions as described in Practice D1610, which is 50 ± 4 % relative humidity at a temperature of 23 ± 1°C (73.4 ± 2°F).

## 6. Procedure

6.1 Prior to sampling, identify the product properly as a lot or batch.

6.2 Select units from locations scattered throughout the lot, not from the same portion of the lot, such as a single carton, layer, etc. Take without regard to quality.

6.2.1 The number of samples taken depends on the reliability of the test results, the deviation of the properties, and the error of the testing procedure. The number of samples taken may be at the discretion of the user and the related test method and should also be recorded on the test report.

6.3 *Location and Size of Cuttings :*

6.3.1 *Skins*—Cut the test piece to the size and shape required for the tests to be made, with one edge parallel to and 1 in. (25.4 mm) from the backbone line, beginning 3 in. (76 mm) from the root of the tail. Pieces shall be cut from only one side of the backbone of each skin. The test area for skins corresponds to area *a* for cattlehides of Fig. 1.

6.3.2 *Cattlehides*—The location and size of cutting shall be as follows:

[1] This practice is under the jurisdiction of ASTM Committee D31 on Leather and is the direct responsibility of Subcommittee D31.07 on Physical Properties. This practice was developed in cooperation with the American Leather Chemists Assn. (Standard Method J 1 – 1956).

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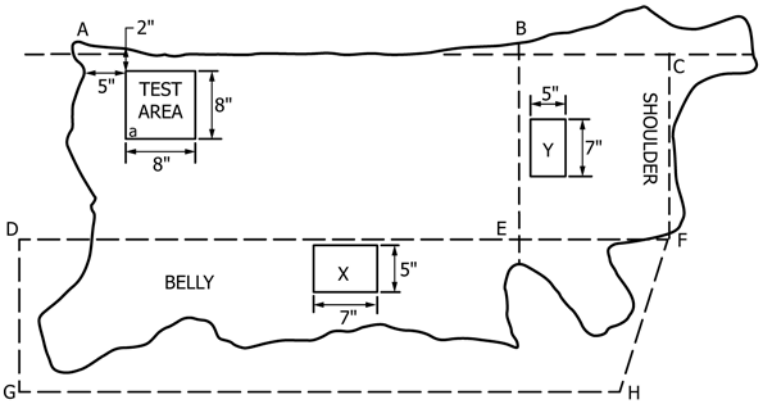
[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.




| in. | mm | in. | mm |
|---|---|---|---|
| 2 | 51 | 7 | 178 |
| 5 | 127 | 8 | 203 |

**FIG. 1 Location of Test Area**

6.3.2.1 *Hides, Sides, Crops, Backs, and Bends*—Cut the test piece to the size and shape required for the test to be made, with one edge parallel to and 2 in. (51 mm) from the backbone line beginning 5 in. (127 mm) from the root of the tail. In most instances, test piece *a* may be cut 8 in. (203 mm) by 8 in. (203 mm). Sample double bends, belting butts, and hides on only one side of the backbone (see Fig. 1, test area *a*).

6.3.2.2 *Bellies*—Cut the test piece, *X,* 5 in. (127 mm) wide and 7 in. (178 mm) long with one long edge parallel to and 1 in. (25.4 mm) from the belly line, *DF,* in Fig. 1. Locate the middle of the piece midway between points *D* and *F.*

6.3.2.3 *Double Shoulders*—Cut the test piece, *Y,* 5 by 7 in. (127 by 178 mm) with a long edge parallel to and 1 in. (25.4 mm) from the shoulder line, *BE.* Locate the middle of the piece between *B* and *E.*

6.3.3 Cut each specimen for test with its long dimension perpendicular to the backbone line unless otherwise specified in the corresponding test method.

6.3.4 When several specimens are required from each piece, cut them in order of their corresponding method, beginning at the edge nearest the tail. For example, the specimen for stitch tear strength would be cut before that for tensile strength.[3]

6.3.5 When cutting specimens for physical tests, areas selected must be free from visual defects such as cuts, scratches, and other obvious flaws.

6.3.6 For chemical tests, use uncontaminated or unaltered remnants or trimmings from physical test pieces for chemical analysis. Samples should be prepared in duplicate.

6.3.7 For chemical analysis, grind leather remnants from physical tests in a cutter mill[4] with a 4-mm diameter mesh sieve. Before grinding, cut leather sample in pieces of adequate size of approximately 10-mm square to facilitate grinding. Mix these pieces well before grinding. Mix ground and sieved leather sample thoroughly and then store at room temperature in a clean, dry, and airtight container until used for chemical analysis. If ground leather finer than 4 mm is required, regrind this leather to whatever fineness is needed.

## 7. Keywords

7.1 chemical tests; leather; lot; physical tests; sampling; unit

[3] Several procedures are suggested by Mann, C. W., Mandel, J., Steel, M. N., and Kanagy, J. R. in "Sampling of Side Upper Leather II," *Journal*, Am. Leather Chemists' Assn., JALCA, Vol 47, 1952, pp. 352–370.

[4] The Wiley Mill Standard Model No. 3 has been found most suitable, and is available from most laboratory supply houses.