



Designation: D 1814 – 70 (Reapproved 2000)

Standard Test Method for Measuring Thickness of Leather Units¹

This standard is issued under the fixed designation D 1814; 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 approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the measurement of the thickness of units of all types of leather. It is not suitable for measuring the thickness of test specimens.

1.2 The thickness of leather units may be reported in millimetres, ounces, or irons. Ounces are generally used when referring to the thickness of shoe upper leather. Irons are generally used when referring to the thickness of sole leather. (One ounce equals $\frac{1}{64}$ in. or 0.0156 in. or 0.396 mm. One iron equals $\frac{1}{48}$ in. or 0.0208 in. or 0.53 mm.)

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 1813 Test Method for Measuring Thickness of Leather Test Specimens²

3. Terminology

3.1 *Definition:*

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

4. Significance and Use

4.1 This test method is designed for the routine measurement of the thickness of leather units as a means of production control and determining conformance to specifications. It utilizes a secondary type of gage that is capable of rapid measurement.

5. Specimen

5.1 The specimen for measurement shall be the full unit.

¹ This test method is under the jurisdiction of ASTM Committee D31 on Leather and is the direct responsibility of Subcommittee D31.07 on Physical Properties—General. This test method was developed in cooperation with the American Leather Chemists Assn. (Standard Method E 3–1963).

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² *Annual Book of ASTM Standards*, Vol 15.04.

6. Apparatus

6.1 *Gage, Spring-Type*, graduated in 0.1 mm or 0.5 oz, having a flat presser foot 0.4 ± 0.025 in. (10.2 ± 0.6 mm) in diameter and a flat anvil 0.4 ± 0.025 in. (10.2 ± 0.6 mm) in diameter. The spring shall exert a force of 1 lbf (4.45 N) on the foot when the gage reads 2 oz, and 2 lbf (8.9 N) when the gage reads 12 oz.

6.2 *Gage, Standard Wedge-Type*, having the two legs graduated alternatively from 1 to 14 and from $1\frac{1}{2}$ to $13\frac{1}{2}$ iron, enclosing an angle of about 4° and 0.425 ± 0.005 mm thick, preferably made from stainless steel.

7. Procedure

7.1 *Leather Other than Sole Leather*—Place the portion of the specimen to be measured between the anvil and presser foot of the spring-type gage (6.1) in such a manner that the specimen is in contact with the whole area of the anvil. With the specimen held in this position, compress the thumb lever of the gage so that the gage reads approximately 15 oz. Allow the thumb to slide off the lever so that the gage presser foot snaps onto the leather. Read the thickness to the nearest 0.1 mm or estimate it to the nearest $\frac{1}{4}$ oz. Measure the thickness at not less than five approximately equally spaced places along and approximately 6 in. (150 mm) from the backbone. Space the measurements from an initial point of measurement approximately 5 in. (130 mm) in from the root of the tail and the final place of measurement, which shall extend no farther than 130 mm into the neck area.

NOTE 1—If the dimensions of the specimens are such that the gage will not reach from the edge to the point at which the thickness is desired, the specimen may be folded upon itself with the flesh inside. Measure the thickness of the folded specimen, and take one half of this value as the thickness.

7.2 *Sole Leathers*—Insert the cut edge of the specimen between the legs of a standard wedge-type gage (6.2) so that the plane of the leather is perpendicular to the plane of the gage and bisects the angle formed by the legs. Push the gage over the edge of the leather to make firm contact with the leather so that the gage will stay in position when inverted but not cause any visible deformation of the specimen. Read the thickness to the nearest 0.5 iron at the point where the specimen contacts the legs of the gage. Measure the thickness as follows: