



Designation: **D4705—12 D4705 – 13**

## Standard Test Method for Stitch Tear Strength of Leather, Double Hole<sup>1</sup>

This standard is issued under the fixed designation D4705; 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 reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

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

### 1. Scope

1.1 This test method is intended for use in determining the stitch tearing resistance of leather using a double hole tear. It is particularly applicable to lightweight leathers. This test method does not apply to wet blue.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

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:*<sup>2</sup>

[D1610 Practice for Conditioning Leather and Leather Products for Testing](#)

[D1813 Test Method for Measuring Thickness of Leather Test Specimens](#)

[D2209 Test Method for Tensile Strength of Leather](#)

[D2813 Practice for Sampling Leather for Physical and Chemical Tests](#)

### 3. Significance and Use

3.1 This test method is designed to measure the load required to tear leather through two holes in the test specimen. Tanners and leather buyers have found that this test gives an indication of the resistance of leather to tearing. It is of particular value in estimating the durability of leather to withstand tearing stresses encountered in the manufacture of shoes, garments, and upholstered products. The thickness of the specimen and direction of tear relative to the backbone will affect the uniformity of the test results. This test method may not apply when the conditions of the test employed differ widely from those specified in the test method.

### 4. Apparatus

4.1 *Testing Machine*, as described in Test Method [D2209](#).

4.2 *Thickness Gage*, a dead weight type of thickness gage as described in Method [D1813](#).

4.3 *Steel Die*, to cut test specimens (as described in [5.1](#)).

4.4 *Paper Clip*, #1/Premium, with wire diameter  $0.041 \pm 0.001$  in. ( $1.04 \pm 0.0254$  mm).

### 5. Sampling Test Specimen

5.1 Unless otherwise specified, sample the leather according to Practice [D2813](#).

5.2 The specimen shall be a rectangle of leather 2 in. (50.8 mm) in length and 1 in. (25.4 mm) in width with two holes ( $\frac{5}{64}$  in. (1.98 mm)) in diameter on one end of the specimen. The centers of the holes shall be  $\frac{1}{4}$  in. (6.35 mm) from the end,  $\frac{1}{4}$  in. (6.35 mm) apart, and located equidistant from the center line (length wise) of the specimen. See [Fig. 1](#).

<sup>1</sup> 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. Current edition approved ~~Sept. 1, 2012~~ May 1, 2013. Published ~~October 2012~~ May 2013. Originally approved in 1987. Last previous edition approved in ~~2005~~ 2012 as D4705-00 (2010)-12. DOI: ~~10.1520/D4705-12~~ 10.1520/D4705-13.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.