



Designation: **D2941 – 00 (Reapproved 2012) D2941 – 13**

Standard Test Method for Measuring Break Pattern of Leather (Break Scale)¹

This standard is issued under the fixed designation D2941; 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 (ϵ) 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 covers the measurement of the break pattern of shoe upper leather using an arbitrary break scale. 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:*²

[D1517 Terminology Relating to Leather](#)

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

2.2 *MIL Standard:*³

[MIL-STD 663 Visual Inspection Guide for Footwear Upper Leather](#)

3. Terminology

3.1 *Definitions:*

3.1.1 *break (of leather)*—the pattern of wrinkles formed on the grain surface of upper leather when it is bent grain in to form a concave surface. This characteristic is observed in the vamp of the shoe in walking. For this reason this test method is primarily intended for evaluation of cut parts.

3.2 For definitions of other terms used in this test method, refer to Terminology [D1517](#).⁷

4. Significance and Use

4.1 Break depends on the fiber structure and on the relation between the grain and other strata of the leather. A fine break, or a grain pattern which shows many fine wrinkles when it is bent to form a concave surface, as it is in the vamp of a shoe, reflects favorably upon appearance and serviceability. A coarse break, on the other hand, where a few coarse wrinkles are formed on bending the grain to form a concave surface may indicate that the grain layer is separating from the corium or main stratum as in pipey leather. Shoes made from fine-break leather are more attractive and tend to wear longer than shoes made from coarse-break leather. (See MIL-STD 663 and the ALCA Journal).⁴

¹ This test method is under the jurisdiction of ASTM Committee [D31](#) on Leather and is the direct responsibility of Subcommittee [D31.03](#) on Footwear. This test method was developed in cooperation with the American Leather Chemists Assn. (Standard Method E64 – 1972).

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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 Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098

⁴ Bailey, M., *Journal of the American Leather Chemists Association*, JALCA, Vol 53, 1958, p. 568.