

Methods of

Sampling and physical testing of leather —

Addendum 1: Determination of
resistance to bending and abrasion of
heavy leather

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- British Leather Federation
- British Leather Manufacturers' Research Association*
- Department of Industry (Chemicals and Textiles)
- Hides and Allied Trades Improvement Society
- Ministry of Defence*
- Overseas Development Administration: Tropical Products Institute*
- Shoe and Allied Trades Research Association*
- Society of Leather Technologists and Chemists*

The organizations marked with an asterisk in the above list were directly represented on the Technical Committee entrusted with the preparation of this British Standard.

This British Standard, having been prepared under the direction of the Leather Standards Committee, was published under the authority of the Executive Board and comes into effect on 27 February 1981

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Foreword

This addendum, prepared under the direction of the Leather Standards Committee, gives methods of test for the determination of the resistance to bending and abrasion of heavy leather.

To avoid confusion the clauses are numbered to follow the clause numbers of BS 3144 consecutively, beginning with 25. Any reference to clause numbers less than 25 refers to BS 3144.

These two additional test methods have been approved and adopted by the Society of Leather Technologists and Chemists and the International Union of Leather Technologists and Chemists Societies since the publication of the second edition of BS 3144 in 1968.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 11 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

25 Measurement of the resistance to bending of heavy leather

25.1 Introduction. This method is based on method SLP 29 of the Society of Leather Technologists and Chemists and on method IUP/28 of the International Union of Leather Technologists' and Chemists' Societies. It is intended for use with any heavy leather. It is not suitable for light leathers such as shoe upper and gloving leathers.

25.2 Principle. A specimen of the leather is laid as a horizontal beam across a pair of rollers and the deflections are measured when pressure is applied at its mid-point.

25.3 Apparatus. The following apparatus is required.

25.3.1 Pre-conditioning apparatus, consisting of the following.

a) *A pair of steel pins*, of smooth surfaced steel of circular section and diameter 7 ± 1 mm, mounted on a board so that their axes are normal to the board and 80 mm apart.

b) *A piece of flat plate glass*, against which the flatness of the specimens can be tested.

25.3.2 Deflection measuring equipment (see Figure 36) consisting of the following.

a) *A pair of nylon rollers*, of diameter 7 ± 1 mm and length 20 ± 1 mm, mounted on a steel beam of width approximately 15 mm, thickness 10 ± 0.5 mm and length 130 ± 5 mm, the beam itself being supported horizontally in a rigid frame. The nylon rollers are equidistant from the marked centre part X of the beam, and are mounted with their axes parallel and 60 ± 0.2 mm apart. The rollers rotate freely with little friction on their axles.

b) *A yoke*, which carries a scale pan on which weight pieces can be placed. During measurements, the cross piece at the top of the yoke rests across the middle of the specimen under test. The lower surface of the cross piece is rounded with a radius of curvature of 2.5 ± 0.5 mm. The upper surface of the cross piece carries a flat steel platform, whose top surface is approximately 10 mm × 10 mm. The yoke and scale pan together have a mass of 100 ± 1 g.

c) *A pointer and a vertical metal plate carrying a scale.* The pointer is carried by a horizontal axle in bearings that are rigidly attached to the metal plate and it turns with little friction. The arms are approximately 20 mm and 100 mm in length, and a steel ball bearing of diameter 6.5 ± 0.2 mm is fixed to the lower side of the short arm, at a distance of 18 ± 3 mm from the axis of the pointer scale. When the pointer is near the middle of its scale, the ball bearing has its lowest point approximately on (i.e. within 0.5 mm of) the vertical line through the point X [see 25.3.2 a)]. The relative heights at which the ball bearing and the pointer axle are mounted are such that, if a thin flat strip of metal is laid across the nylon rollers, the yoke is placed on the strip at X and the ball bearing is lowered on to the platform of the yoke, the pointer points approximately to the middle of its scale. The masses of the pointer arms and ball bearing are such that the ball bearing rests on the platform, applying to it a pressure of between 50 Pa and 100 Pa.

d) *A scale*, [see 25.3.2 c)], calibrated to read deflections of the midpoint of a beam laid across the nylon rollers. The calibration can be made by using a thin flat strip of steel as a beam with the yoke across it at X. The positions of the pointer are noted when various weight pieces are added to the pan and the corresponding positions of a marked point on the yoke are measured with a travelling microscope. The zero of the scale is arbitrarily fixed, since the scale is only used to measure deflections and not actual positions. It is convenient to have a scale extending over at least 20 mm.

e) *A set of twenty-five weight pieces*, each having a mass of 100 ± 0.1 g, in the form of flat discs in order that a group having a mass of any integral number of 100 g can be added simultaneously to the scale pan.

NOTE Other mechanical devices may be used for this test provided that the results are identical with those obtained by the apparatus described in 25.3.2

25.4 Preparation of test specimens

25.4.1 Using a sharp press knife, cut the specimens as rectangles 100 mm × 12.5 mm. To avoid cutting specimens whose cross section is a parallelogram rather than a rectangle, care is needed to ensure that the press knife is not tilted as pressure is applied to it.

25.4.2 Resistance to bending frequently depends considerably on the direction in which the specimens are cut, so the direction relative to the backbone of the long sides of the specimens shall be noted during cutting, and reported together with the location in the hide.