

# INTERNATIONAL STANDARD

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## **Leather — Test for adhesion of finish**

*Cuir — Essai de l'adhésion du finissage*



Reference number  
ISO 11644:1993 (E)  
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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 11644 was prepared by the Fastness Tests Commission of the International Union of Leather Technologists and Chemists Societies (IUF Commission, IULTCS). It is based on IUF 470 published in *J. Soc. Leather Tech. Chem.*, **74**, pp. 155-160 (1990), and declared an official method of the IULTCS in September 1991.

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## Introduction

A test method similar to that specified in this International Standard, using an epoxy adhesive and metal adherend-plates has been in use in the leather trade for many years, but has never been declared an official method by IULTCS or ISO. The adhesive frequently penetrates thin finish films, thus increasing the adhesion value unrealistically, and it is usually not possible to measure wet adhesion, as there is insufficient adhesion to the metal when water is present. Finishes with insufficient adhesion to the adhesive also occur quite frequently. In spite of these drawbacks, this old method has been used regularly and is referred to in many specifications. The new method specified in this International Standard eliminates most of these drawbacks.

The polyurethane adhesive used in the new method contains no solvent at the time of application to the finish and thus has a very high viscosity. It also stays viscous for only a few seconds, and there is no time for it to penetrate even very thin finishes, unless the finish has open cracks in it. While adhesion to most finishes is sufficient, a few cases exist in which adhesion is insufficient, and a different adhesive has to be used in such cases. As the adhesive does not penetrate, it is quite possible to test different layers of a multi-layer finish separately. Such a finish can be tested several times until all the layers have been removed from the leather. It would be advisable for specifications to make allowance for this fact.

A strip of hard PVC is used as the adherend-plate, this giving good adhesion under wet conditions. Wet adhesion can therefore be measured easily. Experience has shown that this "real" wet-adhesion value is often lower, a fact that should also be considered when drawing up specifications based on the new method.

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# Leather — Test for adhesion of finish

## 1 Scope

**1.1** Depending on the way the leather has been finished, the adhesion of the finish to the leather can be so low over the whole area, or part of it, that the finish separates from the leather during use. With finishes consisting of several layers, the separation may occur between the layers, for example between the pigmented layer and the base coat. This International Standard specifies a method for measuring the adhesion of the finish to the leather or the adhesion between two adjacent layers of the finish.

**1.2** The method is valid for all finished leathers with a smooth surface which can be bonded to an adherend-plate without the adhesive penetrating into the finish. Preliminary experiments may be necessary to determine whether these conditions obtain.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 105-A02:1993, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*.

ISO 2418:1972, *Leather — Laboratory samples — Location and identification*.

ISO 2419:1972, *Leather — Conditioning of test pieces for physical tests*.

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*.

## 3 Definition

For the purposes of this International Standard, the following definition applies.

**3.1 adhesion:** The force required to pull the leather away from its surface finish layer, the force being applied steadily, at an angle of about 90° to a rigid adherend-plate to which the finished side of the leather has been bonded.

## 4 Principle

The finished side of part of a strip of leather is bonded to an adherend-plate by means of heat-reactivated adhesive film. Force is applied to the free end of the strip to peel the leather from the finish over a given distance, the finish layer remaining on the adherend-plate together with the film of adhesive. The force required is measured and reported as the adhesion of the finish to the leather.

The test is usually carried out on specimens conditioned in a standard atmosphere before testing. If required, the test may additionally be carried out on wetted specimens or on specimens which have previously been subjected to other agencies or preparations.

## 5 Apparatus and materials

**5.1 Tensile-testing machine**, operating vertically, incorporating the features specified in 5.1.1 to 5.1.4.

**5.1.1** An appropriate range of measurable loads.

**5.1.2** A speed of separation of the clamps of 100 mm/min  $\pm$  5 mm/min.