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**INTERNATIONAL STANDARD**



**2419**

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## **Leather — Conditioning of test pieces for physical tests**

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## FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2419 was drawn up by Technical Committee ISO/TC 120, *Leather*.

It was approved in November 1971 by the Member Bodies of the following countries :

<u>ISO 2419:1972</u>		
Brazil	India	Portugal
Chile	Iran	Romania
Czechoslovakia	Israel	South Africa, Rep. of
Egypt, Arab Rep. of	Italy	Spain
France	Netherlands	Turkey
Germany	New Zealand	United Kingdom
Hungary	Poland	U.S.S.R

No Member Body expressed disapproval of the document.

This International Standard is based on method IUP/3 of the International Union of Leather Chemists' Societies.

# Leather — Conditioning of test pieces for physical tests

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies, in terms of temperature, relative humidity, and time to reach equilibrium, a method for conditioning of leather test pieces intended for subsequent physical tests.

The procedure is applicable to all types of dry leather.

NOTE — Standardized conditioning is necessary since the mass and other physical properties of leather are affected by the ambient atmosphere.

## 2 PROCEDURE

During the 48 h immediately preceding its use in a test, keep each test piece for physical testing in a standard atmosphere of temperature  $20 \pm 2$  °C and relative humidity  $65 \pm 2$  %. Support the test piece so that air has free access to its surfaces and keep the air in continuous rapid motion by a suitably placed fan. Perform all physical tests in the same standard atmosphere unless otherwise specified.

### NOTES

1 In some countries where it is difficult to obtain the above conditions, the test piece may be conditioned in one of the alternative atmospheres defined in ISO/R 554, *Standard atmospheres for conditioning and/or testing — Standard reference atmosphere — Specifications*, i.e. :  $27 \pm 2$  °C and  $65 \pm 2$  % relative humidity, or  $23 \pm 2$  °C and  $50 \pm 2$  % relative humidity.

However, it should be noted that the numerical values of test results will not necessarily be the same if atmospheres other than the standard reference atmosphere of  $20$  °C and  $65$  % relative humidity are used.

Any deviation from these conditions shall be mentioned in the test reports on subsequent physical tests.

2 Results not very different from those obtained by testing in the standard atmosphere can usually be obtained by conditioning the test pieces in the standard atmosphere and removing them one at a time for testing. However, this procedure is known to be unsatisfactory for abrasion tests, and may be unsuitable for some other tests as well.

3 The required relative humidity of  $65 \pm 2$  % at  $20 \pm 2$  °C can be maintained in a closed space either by the use of saturated solutions of certain salts in water (in which the solid phase is also present in excess) or by the use of a solution, of given concentration, of sulphuric acid in water. The selected solution shall be placed in a large shallow dish inside the enclosure. Saturated solutions of either analytical grade ammonium nitrate or analytical grade sodium nitrite are satisfactory. Creeping of the solid phase is made negligible by the use of dishes made of polyethylene or polypropylene. A solution of sulphuric acid, 36 % (m/m),  $d_{20} = 1,270$ , is satisfactory.

It is necessary to check the relative density from time to time and to restore it to the value 1,270 at  $20$  °C as required, by appropriate additions of either water or more concentrated sulphuric acid. Continuous circulation of air and movement of the solution are essential.

4 If an accurate value of the conditioned mass is required (for example, accuracy better than about 3 %), the test piece shall first be brought to the ascending branch of the hysteresis cycle. In cold or temperate climates, this is done accurately enough by pre-drying the test piece for 3 h at a maximum of  $70$  °C in an air oven with a circulating fan, before the test piece is conditioned at  $20$  °C and  $65$  % relative humidity. The drying shall be carried out in an atmosphere of relative humidity less than 7 %, and heating may only be used if it is known to leave the leather undamaged. If the pre-drying is done at ambient temperature, it is necessary to use a vacuum conditioning over an efficient desiccant (for example, phosphorus pentoxide) and to extend the period to 24 h at an air pressure not exceeding  $67 \mu\text{bar}$  (approximately  $6,5 \text{ N/m}^2$ ).

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