

INTERNATIONAL STANDARD



1855

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Flexible cellular materials — Determination of apparent density

Matériaux alvéolaires souples — Détermination de la masse volumique apparente

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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.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 45 has reviewed ISO Recommendation R 1855 and found it technically suitable for transformation. International Standard ISO 1855 therefore replaces ISO Recommendation R 1855-1971 to which it is technically identical.

ISO Recommendation R 1855 was approved by the Member Bodies of the following countries :

Australia	Greece	Romania
Austria	Hungary	South Africa, Rep. of
Belgium	India	Spain
Brazil	Iran	Sweden
Canada	Israel	Switzerland
Chile	Italy	Thailand
Czechoslovakia	Japan	Turkey
Egypt, Arab Rep. of	Netherlands	United Kingdom
France	New Zealand	U.S.A.
Germany	Poland	U.S.S.R.

No Member Body expressed disapproval of the Recommendation.

No Member Body disapproved the transformation of ISO/R 1855 into an International Standard.

Flexible cellular materials – Determination of apparent density

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for determining the apparent density of cellular materials. It is primarily intended for flexible cellular materials.

2 REFERENCE

ISO/R 1794, *Flexible cellular materials – Measurement of dimensions of test pieces*.

3 DEFINITION

For the purpose of this International Standard, the following definition shall apply :

apparent density : The mass per unit volume of the cellular material in air, at a stated temperature and relative humidity.

4 APPARATUS

4.1 Balance, capable of weighing to an accuracy of 0,5 % or 0,01 g.

4.2 Means of measuring the dimensions of the test piece, in accordance with ISO/R 1794.

5 TEST PIECES

5.1 Requirements

The test piece shall be of a shape such that its volume can be easily calculated. It shall be cut without permanently deforming the original cell structure of the material.

The test piece shall have a volume of at least 100 cm³, but preferably should be as large as possible commensurate with the apparatus available and with the shape of the original material. The place from which the test piece is taken and the presence or absence of surface skins shall be recorded. For slab-stock materials, test pieces without skin shall be used.

5.2 Number

A minimum of three test pieces shall be tested.

5.3 Conditioning

Materials shall not be tested for at least 72 h after manufacture. Prior to the test, the material from which the test pieces are to be cut shall be conditioned for at least 16 h at :

23 ± 2 °C, 50 ± 5 % relative humidity;

or 27 ± 2 °C, 65 ± 5 % relative humidity.

6 PROCEDURE

After the test piece has been conditioned as specified in 5.3, measure its dimensions, in millimetres, in accordance with ISO 1794. Use the mean value of a minimum of three separate measurements of each dimension to calculate the volume of the test piece.

Then weigh the test piece to an accuracy of 0,5 %, and express its mass in grams.

7 EXPRESSION OF RESULTS

The apparent density, D , of the test piece, in kilograms per cubic metre, is given by the formula :

$$D = 10^6 \times \frac{m}{V}$$

where

m is the mass of the test piece, in grams;

V is the volume of the test piece, in cubic millimetres.

8 TEST REPORT

The test report shall include the following particulars :

- a description of the material;
- the temperature and relative humidity at which the test piece was conditioned;
- the individual test results, stating details of test pieces (shape, dimensions and from where taken);
- whether the test pieces had skin or not;
- the mean value of the apparent density, in kilograms per cubic metre.