
**Cellular plastics and rubbers —
Determination of apparent density**

Caoutchoucs et plastiques alvéolaires — Détermination de la masse volumique apparente

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

[ISO 845:2006](https://standards.itih.ai/catalog/standards/iso/fadd326f-2f2f-4c55-8169-abf05ccdb050/iso-845-2006)

<https://standards.itih.ai/catalog/standards/iso/fadd326f-2f2f-4c55-8169-abf05ccdb050/iso-845-2006>



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO 845:2006](#)

<https://standards.iteh.ai/catalog/standards/iso/fadd326f-2f2f-4c55-8169-abf05ccdb050/iso-845-2006>

© ISO 2006

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Apparatus	1
5 Test specimens	2
5.1 Dimensions	2
5.2 Number of test specimens	2
5.3 Conditioning	2
6 Procedure	2
7 Expression of results	3
8 Accuracy	3
9 Test report	4

iTeH Standards
 (<https://standards.iteh.ai>)
 Document Preview

[ISO 845:2006](https://standards.iteh.ai)

<https://standards.iteh.ai/catalog/standards/iso/fadd326f-2f2f-4c55-8169-abf05ccdb050/iso-845-2006>

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 845 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 10, *Cellular plastics*.

This third edition cancels and replaces the second edition (ISO 845:1988), which has been technically revised.

ITeH Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO 845:2006](#)

<https://standards.iteh.ai/catalog/standards/iso/fadd326f-2f2f-4c55-8169-abf05ccdb050/iso-845-2006>

Cellular plastics and rubbers — Determination of apparent density

1 Scope

This International Standard specifies a method for determining the apparent overall density and the apparent core density of cellular plastics and rubbers.

If the material to be tested includes skins formed during a moulding/extrusion, the apparent overall density or the apparent core density, or both, can be determined. If the material does not have skins formed during moulding, the term "overall density" is not applicable.

For shaped materials, a different method such as buoyancy method may be used.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 291, *Plastics — Standard atmospheres for conditioning and testing*

ISO 1923, *Cellular plastics and rubbers — Determination of linear dimensions*

<https://standards.iteh.ai/catalog/standards/iso/fadd326f-2f2f-4c55-8169-abf05ccdb050/iso-845-2006>

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

apparent overall density

⟨cellular material⟩ mass per unit volume of a sample, including all skins formed during moulding

3.2

apparent core density

⟨cellular material⟩ mass per unit sample after all skins formed during moulding have been removed

4 Apparatus

Ordinary laboratory apparatus and the following.

4.1 Balance, capable of determining the mass of a test specimen to an accuracy of 0,1 %.

4.2 Measuring instruments, in accordance with ISO 1923.

5 Test specimens

5.1 Dimensions

Each specimen shall be of a shape such that its volume can be easily calculated. It shall be cut without deforming the original cell structure of the material.

The size of a specimen should preferably be as large as possible, commensurate with the apparatus available and with the shape of the original material. The total volume of a specimen shall be at least 100 cm³.

For rigid materials, when the apparent overall density is being determined using a specimen cut from a larger sample, the ratio of the area of skin formed during moulding to the total volume shall be the same for the specimen as for the sample.

5.2 Number of test specimens

A minimum of five specimens shall be tested.

The sample may be a manufactured object whose mass and volume can be measured accurately. Its total mass and total volume may be used to determine the sample density.

5.3 Conditioning

5.3.1 For measurement purposes, wait at least 72 h after manufacture before cutting the specimens from product samples.

If required, this period may be reduced to 48 h or 16 h if experience shows that, 48 h or 16 h after manufacture, the difference in density compared with the density 72 h after manufacture is less than 10 %.

5.3.2 The specimen shall be kept for at least 16 h at standard atmospheres or in a desiccator (dry conditions) as defined below. This conditioning period may be part of the 72 h period following manufacture.

Standard atmospheres in accordance with ISO 291 are

- a) (23 ± 2) °C, (50 ± 10) % relative humidity,
- b) (23 ± 5) °C, $(50 \begin{smallmatrix} +20 \\ -10 \end{smallmatrix})$ % relative humidity, or
- c) (27 ± 5) °C, $(65 \begin{smallmatrix} +20 \\ -10 \end{smallmatrix})$ % relative humidity.

Dry conditions are

- (23 ± 2) °C, or
- (27 ± 2) °C.

6 Procedure

6.1 Measure the dimensions, in millimetres, of the specimen in accordance with ISO 1923. Make a minimum of three separate measurements of each dimension. For rigid materials in board form, make at least five measurements of the central area. Calculate the mean values for each dimension and from these measurements calculate the volume of the specimen.

6.2 Weigh each specimen to an accuracy of 0,5 % and record its mass in grams.