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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Cellular plastics and rubbers — Determination of apparent (bulk) density

Caoutchoucs et plastiques alvéolaires — Détermination de la masse volumique apparente

Reference number
ISO 845 : 1988 (E)

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 approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 845 was prepared by Technical Committee ISO/TC 61, *Plastics.*

This second edition cancels and replaces the first edition (ISO 845 : 1977), of which it constitutes a technical revision.

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Cellular plastics and rubbers — Determination of apparent (bulk) density

1 Scope

This International Standard specifies a method for determining the apparent overall density and the apparent core density of rigid cellular plastics, and the bulk density of semi-rigid and flexible cellular plastics and rubbers.

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

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 listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 291 : 1977, *Plastics — Standard atmospheres for conditioning and testing.*

ISO 1382 : 1982, *Rubber — Vocabulary.*

ISO 1923 : 1981, *Cellular plastics and rubbers — Determination of linear dimensions.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 apparent overall density (of a cellular material): The mass per unit volume of a sample, including all skins formed during moulding.

3.2 apparent core density (of a cellular material): The mass per unit volume of a sample after all skins formed during moulding have been removed.

3.3 bulk density[1] (of a cellular material): The mass per unit volume of a material measured under specified conditions and including both permeable and impermeable voids present in the material.

4 Apparatus

Ordinary laboratory apparatus and

4.1 Balance, capable of determining the mass of a test piece to an accuracy of 0,5 %.

4.2 Measuring instruments, in accordance with ISO 1923.

5 Test pieces

5.1 Dimensions

Each test piece 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 test piece should preferably be as large as possible, commensurate with the apparatus available and with the shape of the original material. For rigid materials, the total surface area of a test piece shall be at least 100 cm^2. For semi-rigid and flexible materials, the volume of a test piece shall be at least 100 cm^3.

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

5.2 Number of test pieces

A minimum of three test pieces shall be tested for flexible materials and a minimum of five shall be tested for rigid materials.

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 (see 8.3).

1) See ISO 1382.