International Standard 171

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Plastics — Determination of bulk factor of moulding materials

Plastiques — Détermination du facteur de contraction des matières à mouler

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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 171 was developed by Technical Committee ISO/TC 61, *Plastics*.

It was submitted directly to the ISO Council, in accordance with sub-clause 5.10.1 of part 1 of the Directives for the technical work of ISO. It cancels and replaces ISO Recommendation R 171-1961, which had been approved by the member bodies of the following countries :

Australia	India	Spain
Austria	Israel	Sweden
Belgium	Italy	Switzerland
Bulgaria	Japan	Turkey
Czechoslovakia	Netherlands	United Kingdom
France	Poland	USA
Germany, F. R.	Portugal	USSR
Hungary	Romania	

No member body had expressed disapproval of the document.

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Plastics — Determination of bulk factor of moulding materials

1 Scope and field of application

This International Standard specifies a method of determining the bulk factor of a moulding material from its apparent density in the unmoulded form and its density in the moulded form.

Knowledge of the bulk factor of a moulding material is of value as a basis for the calculation of minimum cavity volume in the design of moulds.

2 References

ISO 60, *Plastics — Determination of apparent density of material that can be poured from a specified funnel.*

ISO 61, *Plastics — Determination of apparent density of moulding material that cannot be poured from a specified funnel.*

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications.*

ISO/R 1183, *Plastics — Methods for determining the density and relative density (specific gravity) of plastics excluding cellular plastics.*

3 Definition

bulk factor of a moulding material : The ratio of the volume of a given mass of moulding material to its volume in the moulded form.

NOTE — It follows that it is also the ratio of the density of the material in its moulded form to its apparent density in the unmoulded form.

4 Test temperature

The determinations of density and apparent density for calculation of the bulk factor shall be made at one of the test temperatures specified in ISO 554.

5 Procedure

5.1 Determine the apparent density of the material in its unmoulded form in accordance with ISO 60 or ISO 61.

5.2 Determine the density of the material in its moulded form in accordance with ISO/R 1183.

6 Expression of results

The bulk factor is given by the equation

$$\gamma = \frac{\varrho_m}{\varrho_u}$$

where

γ is the bulk factor;

ϱ_m is the density of the material in the moulded form, in grams per millilitre;

ϱ_u is the apparent density of the material in the unmoulded form, in grams per millilitre.

NOTE — In the calculation of bulk factor, the density of moulded material, in grams per millilitre, may be taken to be numerically equal to its specific gravity (relative density with water as the reference substance).

7 Test report

The test report shall include the following particulars :

a) reference to this International Standard;

b) complete identification of the material tested;

c) the test temperature;

d) the apparent density of the moulding material;

e) the density of the material in its moulded form;

f) the bulk factor.