

# ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

## ISO RECOMMENDATION R 171

PLASTICS

### DETERMINATION OF BULK FACTOR OF MOULDING MATERIALS

1st EDITION  
February 1961

COPYRIGHT RESERVED

The copyright of ISO Recommendations and ISO Standards belongs to ISO Member Bodies. Reproduction of these documents, in any country, may be authorized therefore only by the national standards organization of that country, being a member of ISO.

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

## BRIEF HISTORY

The ISO Recommendation R 171, *Determination of Bulk Factor of Moulding Materials*, was drawn up by Technical Committee ISO/TC 61, *Plastics*, the Secretariat of which is held by the American Standards Association, Incorporated (ASA).

Work on this matter which the Technical Committee had begun since 1954, came to an end in 1956, with the adoption of a proposal as a Draft ISO Recommendation.

On 28 November 1958, the Draft ISO Recommendation (No. 186) was distributed to all the ISO Member Bodies and was approved, subject to some editorial amendments, by the following Member Bodies:

Australia	Hungary	Romania
Austria	India	Spain
Belgium	Israel	Sweden
Bulgaria	Italy	Switzerland
Burma	Japan	Turkey
Czechoslovakia	Netherlands	United Kingdom
France	Poland	U.S.A.
Germany	Portugal	U.S.S.R.

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in February 1961, to accept it as an ISO RECOMMENDATION.

## PLASTICS

## DETERMINATION OF BULK FACTOR OF MOULDING MATERIALS

## 1. DEFINITION

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

## 2. SCOPE

- 2.1 This method gives the procedure for calculating the bulk factor of a moulding material from its apparent density in the unmoulded form and its density in the moulded form.
- 2.2 A knowledge of the bulk factor of a moulding material is of value in the design of moulds as a basis for the calculation of minimum cavity volume.

## 3. CALCULATION AND EXPRESSION OF RESULTS

- 3.1 The bulk factor is determined at one of the three accepted international test temperatures.\*
- 3.2 The bulk factor is calculated from the following expression:

$$\text{Bulk factor} = \frac{\text{density (in grammes per millilitre) of material in } \textit{moulded} \text{ form}}{\text{apparent density (in grammes per millilitre) of material in } \textit{unmoulded} \text{ form}}$$

- 3.3 The apparent density of the material in its unmoulded form is determined in accordance with ISO Recommendations

R 60, *Determination of apparent density of moulding material that can be poured from a specified funnel, and*

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

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

\* An ISO Recommendation relating to standard atmospheres for conditioning and testing plastic materials is being prepared.