INTERNATIONAL STANDARD

ISO 2245

Third edition
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Shaped insulating refractory products — Classification

Produits réfractaires isolants façonnés — Classification

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Foreword

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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 2245 was prepared by Technical Committee ISO/TC 33, *Refractories*.

This third edition cancels and replaces the second edition (ISO 2245:1990), Clauses 3 and 5 and Tables 1 and 2 of which have been technically revised.

Shaped insulating refractory products — Classification

1 Scope

This International Standard specifies a classification of shaped insulating refractory products, based on the determination of permanent change in dimension on heating, with a secondary classification based on bulk density to cover lightweight products (Class L). Products composed of ceramic fibres are excluded.

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 836: 2001, *Terminology for refractories*

ISO 5016, *Shaped insulating refractory products — Determination of bulk density and true porosity*

ISO 2477, *Shaped insulating refractory products — Determination of permanent change in dimensions on heating*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 836 and the following apply.

3.1
shaped insulating refractory product
shaped insulating refractory
shaped refractory having a true porosity of not less than 45 % by volume

NOTE 1 Adapted from ISO 836:2001.

NOTE 2 The true porosity is determined in accordance with ISO 5016.

NOTE 3 These products are characterized by low thermal conductivity and low heat capacity.

4 Classification

Shaped insulating refractory products are subdivided into groups according to:

a) the temperature at which the permanent change in dimensions, determined in accordance with ISO 2477, is 2 % or less (see Table 1);

b) the bulk density, rounded to two decimal places, determined in accordance with ISO 5016, to distinguish Class L products from those with the same grouping according to a), but with a higher porosity. Products with average bulk densities equal to or below that given in Table 2 shall be designated as Class L.

For the determination of bulk density, the test pieces should be large enough for the desired accuracy to be attained. The determination shall be carried out in accordance with ISO 5016, except that the dimensions shall be measured to within ± 0,1 mm using callipers.

Table 1 — Classification by temperature

Group	Temperature at which the test of permanent change in dimensions is carried out °C
75	750
80	800
85	850
90	900
95	950
100	1 000
105	1 050
110	1 100
115	1 150
120	1 200
125	1 250
130	1 300
135	1 350
140	1 400
150	1 500
160	1 600
170	1 700
180	1 800
NOTE The temperatures given as limits for the groups according to the permanent change in dimension of the products are not necessarily the limit temperatures of use, as the behaviour of products in service depends not only on the temperature, but also on the conditions of use.	

Table 2 — Classification by bulk density

Group	Maximum average bulk density [a] of class L products g/cm^3 [b]
75	0,40
80	0,50
85	0,55
90	0,60
95	0,65
100	0,65
105	0,65
110	0,70
115	0,70
120	0,70
125	0,75
130	0,80
135	0,85
140	0,90
150	0,95
160	1,15
170	1,35
180	1,60

a In each group of class L, the bulk density is considered only as a distinguishing property and is given to two decimal places.

b 1 g/cm^3 = 10^3 kg/m^3.

5 Designation

A shaped insulating product shall be designated by:

a) a reference to this International Standard;

b) the group to which it belongs;

c) an indication of its bulk density;

d) the fact that it belongs to class L (where applicable).

EXAMPLE 1

Shaped insulating product in accordance with ISO 2245, group to which it belongs (120), bulk density (0,8):

ISO 2245-120-0,8

EXAMPLE 2

Shaped insulating product in accordance with ISO 2245, group to which it belongs (140), bulk density (1,2):

ISO 2245-140-1,2

EXAMPLE 3

Shaped insulating product in accordance with ISO 2245, group to which it belongs (80), bulk density (0,5) and, if applicable, the fact that it belongs to class L:

ISO 2245-80-0,5-L

EXAMPLE 4

Shaped insulating product in accordance with ISO 2245, group to which it belongs (140), bulk density (0,80) and, if applicable, the fact that it belongs to class L:

ISO 2245-140-0,80-L

ICS 81.080

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