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Shaped insulating refractory products — Classification

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FOREWORD

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

It was approved in August 1971 by the Member Bodies of the following countries :

Australia	India	South Africa, Rep. of
Brazil	Ireland	Spain
Czechoslovakia	Italy	Sweden
Egypt, Arab Rep. of	Netherlands	Switzerland
France	New Zealand	Turkey
Germany	Portugal	United Kingdom
Hungary	Romania	U.S.S.R.

The Member Body of the following country expressed disapproval of the document on technical grounds :

Canada

Printed in Switzerland

Shaped insulating refractory products — Classification

1 SCOPE AND FIELD OF APPLICATION

This International Standard gives the definition, classification and designation of shaped insulating refractory materials.

2 REFERENCES

ISO/R 1109, *Classification of dense refractory products.*

ISO 2477, *Shaped insulating refractory products — Determination of the permanent change in dimensions on heating.* (At present at the stage of Draft.)

3 DEFINITION

shaped insulating refractory materials : Shaped refractory materials of which the total porosity is at least 45 %.

This conventional definition results from the fact that insulating refractory products should have a low heat conductivity and a reduced thermal capacity, properties which are related to the total porosity of the product.

The bulk density, which, for a given product, is directly connected with the porosity, and whose determination is simple, can consequently be chosen as a criterion for classification.

4 CLASSIFICATION

This classification follows the same principal divisions as the classification of dense refractory products[1] in terms of the chemical and mineralogical nature of the product, namely :

- high alumina products (Group 1 and Group 2);
- fireclay and siliceous fireclay products;
- semi-silica products;
- silica products;
- basic products;
- special products.

1) See ISO/R 1109.

NOTE — Certain insulating products which do not correspond to the definition of refractory products (i.e. pyroscopic resistance at least equivalent to 1 500 °C) but which nevertheless correspond to the criteria of the present classification, can be classified in the same way.

5 SUBDIVISIONS OF HIGH ALUMINA, FIRECLAY AND SILICEOUS FIRECLAY PRODUCTS

5.1 The criteria for subdivision are as follows :

- the temperature at which the material does not show any permanent linear change in dimension greater than 2 %[2], at the end of a conventional test[3];
- the apparent density, rounded off to the nearest decimal place.

5.2 The first criterion gives rise to the following subdivisions into six groups :

Group	Temperature at which the material should not show more than 2 % permanent linear change in dimension in the conventional test
	°C
110	1 100
125	1 250
140	1 400
150	1 500
160	1 600
170[4]	1 700[4]

NOTE — The temperatures given in the table as limits of the groups are not to be taken as acceptable service temperature limits but as arbitrary classification temperatures with respect to the standard method of test. Actual limits may vary from these considerably depending on the conditions under which the materials are to be used.

5.3 A product shall be designated by the Group reference to which it belongs followed by the bulk density value rounded off to the nearest decimal place.

2) Taking into account the accuracy of the test method.

3) See ISO 2477.

4) The criteria for classification within this group are to be specified later.