



# SLOVENSKI STANDARD

## SIST EN 1094-2:2000

01-september-2000

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**Toplotnoizolacijski ognjevzdržni izdelki - 2. del: Razvrstitev oblikovanih izdelkov  
(ISO 2245:1990, modificiran)**

Insulating refractory products - Part 2: Classification of shaped products (ISO 2245:1990 modified)

Feuerfeste Erzeugnisse für Isolationszwecke - Teil 2: Klassifizierung geformter Erzeugnisse (ISO 2245:1990 modifiziert)

Produits réfractaires isolants - Partie 2: Classification des produits façonnés (ISO 2245:1990 modifiée)

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**Ta slovenski standard je istoveten z: EN 1094-2:1998**

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**ICS:**

81.080

Ognjevzdržni materiali

Refractories

**SIST EN 1094-2:2000**

**en**

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EUROPEAN STANDARD

EN 1094-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1998

ICS 81.080

Descriptors: refractory materials, shaped refractories, shaped insulating refractory products, classifications, dimensional stability, designation

English version

## Insulating refractory products - Part 2: Classification of shaped products (ISO 2245:1990 modified)

Produits réfractaires isolants - Partie 2: Classification des produits façonnés (ISO 2245:1990 modifiée)

Feuerfeste Erzeugnisse für Isolationszwecke - Teil 2: Klassifizierung geformter Erzeugnisse (ISO 2245:1990 modifiziert)

This European Standard was approved by CEN on 1 October 1998.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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INTERNATIONAL STANDARD  
 EN 1094-2:1998  
 STEEL WELDED PRESSURE VESSELS  
 PART 2: BUTTWELD JOINTS  
 WITH REINFORCED TOOTHED  
 BUTT JOINTS  
 .....  
 INTERNATIONAL ORGANIZATION OF  
 STANDARDIZATION



## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 187 "Refractory products and materials", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 1999, and conflicting national standards shall be withdrawn at the latest by April 1999.

It is closely based on the corresponding International Standard, ISO 2245 "Shaped insulating refractory products - Classification", published by the International Organization for Standardization (ISO).

EN 1094 "Insulating refractory products" consists of seven Parts:

- Part 1 : Terminology for ceramic fibre products
- Part 2 : Classification of shaped products (ISO 2245:1990, modified)
- Part 3 : Classification of insulating products made from ceramic fibres (ENV)
- Part 4 : Determination of bulk density and true porosity
- Part 5 : Determination of cold crushing strength
- Part 6 : Determination of permanent change in dimensions of shaped products on heating (ISO 2477:1987 modified)
- Part 7 : Methods of test for ceramic fibre products (ENV)

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## Endorsement notice

SIST EN 1094-2:2000

The text of the International Standard ISO 2245 : 1990 has been approved by CEN as a European Standard with the agreed common modifications, as given below:

### 1 Scope

Change the first sentence to read:

"This European 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)."

- delete the word "mainly" from the last sentence of the first paragraph;
- delete the second paragraph.

### 2 Normative references

- replace ISO 5016 : 1986 by EN 1094-4;
- replace ISO 2477 : 1987 by prEN 1094-6;
- delete ISO 1109 : 1975.

### 3 Definition

- replace ISO 5016 by EN 1094-4 in the second paragraph;
- delete the word "shall" in the third paragraph and make the paragraph a note;
- delete the fourth paragraph.

### 4 Classification

- change first bullet point to point a), and replace ISO 2477 : 1987 by prEN 1094-6;
- change second bullet point to point b), and change wording to read:

“the bulk density, rounded to two decimal places, determined in accordance with EN 1094-4, to distinguish Class L products from those with the same grouping according to a) but with a higher porosity (see table 2).;

- delete the second paragraph;
- replace ISO 5016 : 1986 by EN 1094-4 in the third paragraph.

## 5 Designation

- Table 1 include the values:

| Group | °C   |
|-------|------|
| 80    | 800  |
| 90    | 900  |
| 100   | 1000 |
| 115   | 1150 |
| 120   | 1200 |

- Table 2 include the values:

| Group | g/cm <sup>3</sup> |
|-------|-------------------|
| 80    | 0,50              |
| 90    | 0,60              |
| 100   | 0,65              |
| 115   | 0,70              |
| 120   | 0,70              |

**Technical STANDARD PREVIEW**

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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## 1 Scope

This European 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

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and in the publications listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 1094-4 : Insulating refractory products - Part 4 : Determination of bulk density and true porosity.

prEN 1094-6 : Insulating refractory products - Part 6 : Determination of permanent change in dimensions of shaped products on heating (ISO 2477:1987 modified).

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## 3 Definition

For the purposes of this European Standard the following definition applies:

**Shaped insulating refractory products:** Products with a total porosity of at least 45 % (v/v) determined in accordance with EN 1094-4.

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

## 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 prEN 1094-6, is 2 % or less (see table 1);
- b) the bulk density, rounded to two decimal places, determined in accordance with EN 1094-4, to distinguish Class L products from those with the same grouping according to a) but with a higher porosity (see table 2).

For the determination of bulk density, the test pieces should be large enough for the desired accuracy to be attained. As opposed to EN 1094-4, the dimensions shall be measured to within  $\pm 0,1$  mm using callipers.

## 5 Designation

A shaped insulating product shall be designated by:

- the group to which it belongs;
- an indication of its bulk density;
- the fact that it belongs to Class L (where applicable).

Example 1 :

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Shaped insulating product according to EN 1094-2, group to which it belongs (125), bulk density (0,8).

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EN 1094-2 - 125 - 0,8

Example 2 :

Shaped insulating product according to EN 1094-2, group to which it belongs (140), bulk density (1,2).

EN 1094-2 - 140 - 1,2

Example 3 :

Shaped insulating product according to EN 1094-2, group to which it belongs (85), bulk density (0,55) and, if applicable, the fact that it belongs to class L.

EN 1094-2 - 85 - 0,55 - L

Example 4 :

Shaped insulating product according to EN 1094-2, group to which it belongs (140), bulk density (0,80) and, if applicable, the fact that it belongs to class L.

EN 1094-2 - 140 - 0,80 - L



**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   | 1000   |
| 105   | 1050   |
| 110   | 1100   |
| 115   | 1150   |
| 120   | 1200   |
| 125   | 1250   |
| 130   | 1300   |
| 135   | 1350   |
| 140   | 1400   |
| 150   | 1500   |
| 160   | 1600   |
| 170   | 1700   |
| 180   | 1800   |
| <p>NOTE : The temperatures given as limits for the groups according to the permanent change in dimension of the products are not necessarily the limits temperature of use, as the behaviour of products in service depends not only on the temperature, but also on the conditions of use.</p> |  |