



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS R 2208 : 1998

**Dense shaped refractory products—
Determination of permanent change
in dimensions on heating**

ICS 81.080

Descriptors : refractory bricks, refractories, fire safety, bricks, refractory materials,
linear measurement, linearity, testing, permanent, heating tests,
thermal testing

Reference number : JIS R 2208 : 1998 (E)

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

Date of Establishment: 1950-04-19

Date of Revision: 1998-04-20

Date of Public Notice in Official Gazette: 1998-04-20

Investigated by: Japanese Industrial Standards Committee

Divisional Council on Ceramics

JIS R 2208:1998, First English edition published in 1999-02

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

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Printed in Japan

Dense shaped refractory products— Determination of permanent change in dimensions on heating

Introduction This Standard is the Japanese Industrial Standard prepared based on **ISO 2478**, *Dense shaped refractory products—Determination of permanent change in dimensions on heating*, published in 1987 as the second edition in accordance with the structure of the original International Standard, however, part of contents of the Standard has been altered in conformity with the actual circumstances of our country.

The places underlined with dots in this Standard show that the contents of the original International Standard have been altered, or that the matters are not included in the original International Standard.

1 Scope This Japanese Industrial Standard specifies the two measuring methods for permanent change in dimensions of dense shaped refractory bricks. It does not apply to products containing carbon.

2 Normative references Normative references to this Standard are given in the following.

ISO 5017 *Dense shaped refractory products—Determination of bulk density, apparent porosity and true porosity*

Informative reference : The contents are equivalent to **JIS R 2205**, *Testing method for apparent porosity, water absorption specific gravity of refractory bricks*.

ISO 5022 *Shaped refractory products—Sampling and acceptance testing*

Informative reference : The contents are equivalent to **JIS Z 9001**, *General rules for sampling inspection procedures*.

3 Definitions For the purposes of this Standard, the following definitions apply.

3.1 permanent change in dimensions on heating The expansion or contraction that remains in a shaped refractory product that is heated to a specified temperature for a specified time and then cooled to ambient temperature.

3.2 dense shaped refractory product A refractory product having a true porosity (volumetric percentage) of less than 45 % when measured in accordance with **ISO 5017**.

Informative reference : This true porosity coincides with the true porosity P_t obtained by using the bulk density D_b and true specific gravity D_t measured in accordance with **JIS R 2205** as well as the formula (1).

$$P_t = \left(1 - \frac{D_b}{D_t} \right) \times 100 (\%) \dots\dots\dots (1)$$