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REFRACTORY BRICKS AND SHAPES—HIGH ALUMINA

STANDARDS ASSOCIATION OF AUSTRALIA
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The following interests are represented on Committee MN/7:

Australasian Institute of Mining and Metallurgy

Bureau of Steel Manufacturers of Australia

Commonwealth Scientific and Industrial Research Organization

Electricity Supply Association of Australia

Institute of Australian Foundrymen (N.S.W. Division)

Institute of British Foundrymen (Australian Branch)

Refractory Manufacturers Association of Australia

University of New South Wales

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REFRACTORY BRICKS AND SHAPES—HIGH ALUMINA

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PREFACE

This standard was prepared by a subcommittee of the Association's Committee on Refractories and Refractory Materials in response to a request from refractory manufacturers and refractory users in Australia for standards specifying the minimum requirements of refractory products in common use.

This standard only refers to the main high alumina refractory types produced by the Australian refractory industry and was developed from a survey of refractories and available raw materials used by that industry.

Reference was made to the classification scheme given by the proposed revision of SABS 35-1949, Standard Specification for Shaped Refractory Bricks, by the South African Bureau of Standards.

This standard attempts to align itself with and be a companion standard to AS 2525, Basic Refractory Bricks—Magnesite, Chrome and AS 2779, Refractory Bricks and Shapes—Silica.

It is the committee's intention that the specifications in this standard take into account a great variety of applications for the products specified herein. Hence, for some applications, the specifications may well appear to be too generous, but it should be kept in mind that the requirements specified are only minimal and may be improved according to customer need.

It is emphasized that the assignment of certain AQL values is included in this standard to provide guidance to the quality of the bricks/shapes specified herein. Users are entitled to specify other AQL values appropriate to the end use of the product, but any corresponding adjustments to the physical requirements must be in accordance with the quality specified herein.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
REFRACTORY BRICKS AND SHAPES—HIGH ALUMINA

1 SCOPE. This standard specifies requirements for machine-made high alumina refractory bricks and shapes.

2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1618 Preferred Sizes for Refractory Bricks

AS 1619 Method for Determining the Dimensions of Refractory Bricks

AS 1774 Methods for Physical Testing of Refractories and Refractory Materials
- 1774.1— The Determination of Cold Compressive Strength
- 1774.3— The Determination of Cold Modulus of Rupture
- 1774.5— The Determination of Density, Porosity and Water Absorption
- 1774.13—The Determination of Permanent Dimensional Change after Heating

AS 2497 Sampling Procedures for Acceptance Testing of Shaped Refractory Products

AS 2503 Methods for the Chemical Analysis of Refractories and Refractory Materials Part 3—High Alumina Refractory Materials

AS 2780 Refractories and Refractory Materials—Glossary of Terms

3 DEFINITIONS. For the purpose of this standard, the following definition applies. For further definitions refer to AS 2780.

High alumina refractory—a general name for all alumina-silicate refractories with an alumina content higher than that of pure, calcined kaolin, i.e. greater than 46 percent by mass.

4 MATERIALS. The bricks and shapes, classified in accordance with Table 1, shall be produced essentially from the predominant raw materials listed in Table 1.

5 CLASSIFICATION. The bricks and shapes are classified on the basis of the—

(a) predominant raw material;

(b) alumina content;

(c) bond;

in accordance with Table 1.

6 DIMENSIONS. The bricks may be of any size and shape. The preferred dimensions of bricks are those specified in AS 1618.

TABLE 1
CLASSIFICATION OF HIGH ALUMINA REFRACTORIES

Predominant raw materials	Al_2O_3 content % (m/m)	Bond	Classification code (for reference to Table 2)
Bauxite	> 46 ≤ 55	Ceramic	A1
	> 55 ≤ 65	Ceramic	A2
	> 65 ≤ 75	Ceramic	A3
		Phosphate (fired)	A4
	> 75 ≤ 88	Ceramic	A5
		Phosphate (unfired)	A6
		Phosphate (fired)	A7
Andalusite, sillimanite, kyanite	> 55 ≤ 65	Ceramic	B1
	> 65 ≤ 75	Ceramic	B2
Processed mullite	> 65 ≤ 75	Ceramic	C1
	> 75 ≤ 88	Ceramic	C2
Tabular, sintered or fused alumina	> 88 ≤ 98	Ceramic	D1
	> 98	Ceramic	D2