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REFRACTORIES AND REFRACTORY MATERIALS—GLOSSARY OF TERMS

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

Australian Institute of Mining and Metallurgy

Bureau of Steel Manufacturers of Australia

Cement and Concrete Association of Australia

Commonwealth Scientific and Industrial Research Organization

Electricity Supply Association of Australia

Australian Foundry Institute (N.S.W. Branch)

Institute of British Foundrymen (Australian Branch)

Refractories Manufacturers' Association of Australia

University of New South Wales

Representatives of the following interests also participated in the drafting of this standard:

ACI Technical Centre Pty Ltd

Chemical Laboratories of Dept. of Mineral Resources

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AUSTRALIAN STANDARD

REFRACTORIES AND REFRACTORY MATERIALS—GLOSSARY OF TERMS

AS 2780—1985

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PREFACE

This standard was prepared by the Association's Committee on Refractories at the request of the refractories industry. It supersedes AS R27—1970, Glossary of Terms Used in the Refractory Industry.

Since the release of the earlier standard the Australian industries manufacturing and using refractories have undergone a great increase in specialization concurrent with changes in technical specifications and requirements for quality control of these products. Thus this standard gives greater detail in the specialized areas of common refractory application such as iron and steel-making, non-ferrous metallurgy, raw materials processing and glass-making. It is felt that for industries not cited the bulk of terms used within those industries is adequately covered by this standard.

The definitions given in this standard are of a general nature and should not be interpreted as fully technical definitions. Where a more complete technical definition is sought, reference may need to be made to other Australian standards such as the AS 1774 series of tests or standards relating to relevant specifications or sampling procedures. However the definitions in this standard are not in conflict with the technical definitions contained within and specific to those other standards.

The source documents for this standard include ISO Recommendation R836, Vocabulary for the Refractories Industry (1968), BS 3446:1962, Glossary of Terms Relating to the Manufacture and Use of Refractory Materials and many industrial reference documents supplied by the industries, councils and associations of the ferrous, non-ferrous and refractories manufacturers and users within Australia.

This standard differs from AS R27 in the broadening of scope, the sectionalizing of contents into specialist areas and in providing a comprehensive and easy-to-use index, not to mention the inclusion of numerous outline diagrams to aid in the clarification of the terms and definitions. The committee believes that in this form it will be a valuable reference to both student and expert alike.

The following standards are referred to in this standard:

AS 1228	Water-tube Boilers	
AS 1617	Fireclay 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
	1774.6	The Determination of True Density
	1774.9	The Determination of Resistance to the Disintegrating Effects of Carbon Monoxide
	1774.10	The Determination of Pyrometric Cone Equivalent (Refractoriness)
	1774.14	Refractoriness Under Load
	1774.15	The Determination of Permanent Dimensional Change After Heating
	1774.19	The Determination of Sieve Analysis and Water Content
	1774.21	Workability Index of Mouldable Refractories
	1774.23*	Abradability Index
	1774.25	The Determination of Powder Density (Using Rees-Hugill Flask)
	1774.27	Modulus of Rupture at Elevated Temperature
	1774.28*	Preparation of Castables and Mouldables
AS 1797	Fire-tube, Shell and Miscellaneous Boilers	
AS 2497	Sampling Procedures for Acceptance Testing of Shaped Refractory Products	

* In course of preparation.

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STANDARDS ASSOCIATION OF AUSTRALIA

AUSTRALIAN STANDARD
for
REFRACTORIES AND REFRACTORY MATERIALS—GLOSSARY OF TERMS

SECTION 1. GENERAL TERMS

Term	Definition
abrasion	The wearing of a surface by mechanical action between solids (cf. *corrosion, erosion, abradability index, abrasion resistance*).
aggregate	A refractory material consisting of particles of various sizes. It is one of the components used in the manufacture of formed or monolithic bodies.
amorphous	Having no crystalline structure.
anisotropic	Refers to crystalline materials for which the physical properties depend upon the direction of the crystal axes.
annealing	The release of internal stress by controlled heating and cooling.
argillaceous	Refers to fine-grade sedimentary material of the clay type.
arris	The sharp edge formed by the angular contact of two plane or curved surfaces.
bat (batt)	(a) A fired slab of refractory material, generally of thin section, used to support ware in the firing of ceramic products. (b) Reject or broken brick, sometimes used as *grog*.
batch	(a) The whole of the various constituents making up the mixture for one operation (cf. *batch composition*). (b) A quantity of material for sampling purposes (refer to AS 2497).
batch composition	The blend of raw materials proportioned in accordance with the basic formula of the product (cf. *batch*).
binder	(a) A substance added to a granular material to give it green and/or dry strength. (b) A term sometimes used synonymously with the term '*bond*' (see also *binder brick*).
blending	Mixing together of different-sized grains or materials to obtain a desired texture or composition (cf. *grading*).
bloating	A permanent expansion resulting from the formation of a gaseous phase (which in turn creates a vesicular texture) that occurs when some types of clay are fired (cf. *exfoliation, intumescence*).
body	A blend of mixed and moistened raw materials, ready for making into refractory products (cf. *mix*).
bond	(a) A material that binds together the discrete grains of a mix, sometimes used synonymously with the term '*binder*'. (b) The link or force responsible for adhesion between the atoms and/or molecules making up a substance. The nature of the bond possessed by the substance determines its physical properties (cf. *ceramic bond, chemical bond*).
burning	(a) Heat treatment of calcined raw materials at elevated temperatures. (b) An alternative term for firing (cf. *calcination, firing, sintering*).
calcination (calcining)	Heat treatment producing physical and/or chemical changes in refractory raw materials, particularly decomposition to hydroxides and carbonates (cf. *burning, dead-burned, firing, sintering*).
calcine	The product of calcination.
ceramic	A term applicable to products made thermochemically from heat-resistant, non-metallic, inorganic materials (cf. *ceramic bond*).