

Australian Standard[®]

**Refractories and refractory materials—
Chemical analysis**

Part 1: Silica refractories

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- Australasian Ceramic Society
 - Australasian Institute of Mining and Metallurgy
 - Bureau of Steel Manufacturers of Australia
 - CSIRO Manufacturing and Infrastructure Technology
 - Cement Industry Federation
 - Institute of Refractories Engineers
 - Refractories Manufacturers Association of Australia
 - The University of New South Wales
-

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through public comment period.

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RECONFIRMATION

OF

AS 2503.1—2006

Refractories and refractory materials—Chemical analysis
Part 1: Silica refractories

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**Refractories and refractory materials—
Chemical analysis**

Part 1: Silica refractories

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PREFACE

This Standard was prepared by the Standards Australia Committee MN-007, Refractories and Refractory Materials, as a revision of AS 2503.1—1996, *Refractories and refractory materials—Chemical analysis, Part 1: Silica refractories*. It deals with the chemical analysis of silica refractory materials.

Other parts of this Standard dealing with the chemical analysis of the other refractory materials, are as follows:

Part 2: Aluminosilicate refractories

Part 3: High alumina materials

Part 4: Dolomites and magnesites

Part 5: Chrome-bearing materials

The Committee acknowledges the documented work of ISO/TC 33, Refractories, and the reference Standard BS 1902, *Methods of testing refractory materials*, which were used as source materials in the development of this Standard.

The objective of this revision is to bring the Standard into alignment with current style.

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

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STANDARDS AUSTRALIA

Australian Standard

Refractories and refractory materials—Chemical analysis

Part 1: Silica refractories

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out methods for the sampling, preparation of samples and analysis of silica refractories and refractory materials. Procedures are described for determining—

- the loss on ignition; and
- the chemical composition, viz. the amount of silicon, phosphorus, aluminium, iron, titanium, manganese, calcium, magnesium, sodium, potassium and lithium present, expressed as the oxides of these elements.

Table 1.1 illustrates the typical composition of silica refractories and the associated form of expression.

NOTE: A schematic presentation of the analytical procedures in this Standard is given in Appendix A.

TABLE 1.1
COMPOSITION OF SILICA REFRACTORY MATERIALS

Constituent	Expressed as	Range, percent
Silicon dioxide	SiO ₂	≥93
Aluminium oxide	Al ₂ O ₃	0 to 5
Calcium oxide	CaO	0 to 4
Iron(III) oxide	Fe ₂ O ₃	0 to 3
Potassium oxide	K ₂ O	0 to 0.25
Titanium(IV) dioxide	TiO ₂	0 to 2
Magnesium oxide	MgO	0 to 0.5
Phosphorus pentoxide	P ₂ O ₅	0 to 0.25
Manganese(II) oxide	MnO	0 to 0.25
Sodium oxide	Na ₂ O	0 to 0.25
Lithium oxide	Li ₂ O	0 to 0.25

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

- AS
1152 Specification for test sieves