

Australian Standard[®]

**Refractories and refractory
materials—Chemical analysis**

Part 2: Aluminosilicate refractories

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Aluminium Development Council
Australasian Ceramic Society
Australasian Institute of Mining and Metallurgy
Bureau of Steel Manufacturers of Australia
Cement Industry Federation
CSIRO, Division of Materials Science and Technology
Refractories Manufacturers Association of Australia
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PREFACE

This Standard was prepared by the Standards Australia Committee on Refractories and Refractory Materials as a revision of AS 2503.2—1983, *Chemical analysis of refractories and refractory materials, Part 2: Aluminosilicate refractory materials*. It deals with the chemical analysis of aluminosilicate refractory materials. Separate parts of this Standard deal with the analysis of the other refractory materials in the series, as follows:

- Part 1: Silica 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.

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Australian Standard

Refractories and refractory materials—Chemical analysis

Part 2: Aluminosilicate refractories

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard sets out methods for the sampling, preparation of sample and analysis of aluminosilicate refractories and refractory materials. Procedures are described for determining—

- (a) the loss on ignition; and
- (b) 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 aluminosilicate 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 ALUMINOSILICATE
REFRACTORY MATERIALS

Constituent	Expressed as	Range, percent
Silicon dioxide	SiO ₂	40 to 93
Aluminium oxide	Al ₂ O ₃	5 to 46
Calcium oxide	CaO	0 to 5
Iron	Fe ₂ O ₃	0 to 5
Potassium oxide	K ₂ O	0 to 5
Titanium(IV) dioxide	TiO ₂	0 to 2
Magnesium oxide	MgO	0 to 1
Phosphorus pentoxide	P ₂ O ₅	0 to 1
Manganese(II) oxide	MnO	0 to 0.5
Sodium oxide	Na ₂ O	0 to 0.5
Lithium oxide	Li ₂ O	0 to 0.5

1.2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

- AS
1152 Specification for test sieves
- 2243 Safety in laboratories
- 2243.2 Part 2: Chemical aspects