Australian Standard™

Refractories and refractory materials—Physical test methods

Method 31.1: Modulus of elasticity—Flexural method

This Standard incorporates Amendment No. 1 (May 2002). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

1 SCOPE

This Standard provides a procedure for determining the modulus of elasticity of refractories by the tensile method at elevated temperatures.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS		
1774	Refractories and refractory materials—Physical test methods	
A1 1774.27	Method 27:	Modulus of rupture at elevated temperatures
1774.30	Method 30:	Drying and firing schedules
2243	Safety in laboratories (series)	
2780	Refractories and refractory materials—Glossary of terms	

3 DEFINITIONS

For the purpose of this Standard, the definitions given in AS 2780 and those below apply.

3.1 Modulus of elasticity

The stress divided by the corresponding strain with no permanent deformation.

3.2 Strain

The ratio of the deformation to the total value of the dimension in which the deformation occurred.

3.3 Stress

The force per unit area tending to produce a deformation.

4 PRINCIPLE

A test specimen is heated to the test temperature at a specified rate and is maintained at that temperature. A force is then applied through a three-point system at a constant rate of increase. The deformation corresponding to the force is recorded. Young's modulus is determined by an appropriate equation.