

## Australian Standard™

AS 1774.31.1

**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
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.