
Refractories and refractory materials—Physical test methods

Method 11: Determination of thermal expansion

PREFACE

This Standard was prepared by the Standards Australia Committee MN-007, Refractories and Refractory Materials, to supersede AS 1774.11—1996.

This Standard incorporates Amendment No. 1 (August 2007). 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.

The content of this Standard arises from an examination of the commercially available apparatus most commonly used in the industry or of apparatus derived from this. Sample sizes, in particular, are considered to be of an order amenable to this test in terms of minimizing test times and optimizing the rate of heat distribution and stabilization throughout the specimen.

The previous edition has been editorially updated and confirms the method for determining the linear change of a refractory caused by temperature change.

This test determines the total thermal expansion for a test specimen as well as the reversible thermal expansion, as appropriate.

The objective of this Standard is to provide those responsible for the testing of refractories with standardized procedures for measuring the linear change with temperature.

The term ‘normative’ has been used in this Standard to define the application of the appendix to which it applies. A ‘normative’ appendix is an integral part of a Standard.

METHOD

1 SCOPE

This Standard sets out a method for the determination of the linear change of a refractory caused by a change in temperature.

This method is intended to determine the expansion characteristics of refractories up to specified temperatures, and to ascertain the reversibility of these characteristics. It may also be used to determine the expansion/contraction characteristics of raw materials and refractories that do not exhibit reversible linear changes with increasing temperature.

NOTE: The maximum temperature at which the test may be conducted is governed by the materials of manufacture of the test apparatus. For example, when fused silica tubes/rods are used, the maximum temperature should not exceed 1000°C.