AS 1774.11:2015
ISO 16835:2014

Australian Standard®

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—2005.

The objective of this Standard is to specify test methods for measuring the thermal expansion of refractory products caused by a change in temperature. It describes a method for determining the linear thermal expansion percentage, the linear thermal expansion curve, and the linear thermal expansion coefficient from the measurements.

The objective of the revision is to adopt the current ISO Standard to align with international practices.

This Standard is identical with, and has been reproduced from ISO 16835:2014, *Refractory products—Determination of thermal expansion*.

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text 'this International Standard' should read 'this Australian Standard'.

(b) A full point substitutes for a comma when referring to a decimal marker.

None of the normative references in the source document have been adopted as Australian or Australian/New Zealand Standards.

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

STANDARDS Australia

METHOD

1 Scope

This International Standard specifies test methods for the thermal expansion of refractory products. It describes a method for determining the linear thermal expansion percentage, the linear thermal expansion curve, and the linear thermal expansion coefficient.

This International Standard includes the following three test methods for the thermal expansion of refractory products:

a) a contact method with a cylindrical test piece;

b) a contact method with a rod test piece;

c) a non-contact method.

The characteristics of these methods are shown in Annex A.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 836, *Terminology for refractories*

IEC 60584-1, *Thermocouples — Part 1: Reference tables*

IEC 60584-2, *Thermocouples — Part 2: Tolerances*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 836 and the following apply.

3.1
starting point temperature
T_0
starting point temperature for collecting thermal expansion results, (record ambient temperature)

3.2
reference material
materials with a known linear thermal expansion (percentage) and coefficient

3.3
lowest limit temperature
T_1
lowest temperature in the measurement range for linear thermal expansion

3.4
highest limit temperature
T_2
highest temperature in the measurement range for linear thermal expansion

