AS 1774.26—2008
ISO 3187:1989
Reconfirmed 2018

Australian Standard®

Refractories and refractory materials—Physical test methods

Method 26: Creep in compression—Deformation under constant load and constant temperature

PREFACE

This Standard was prepared by the Standards Australia Committee MN-007, Refractories and Refractory Materials, to supersede AS 1774.26—1995, *Refractories and refractory materials—Physical test methods,* Method 26*: Creep in compression—Deformation under constant load and constant temperature.*

The objective of this Standard is to provide the refractories industry with an internationally accepted method for determining the deformation of a shaped refractory specimen when subjected to a constant compressive stress at a constant temperature.

This Standard is identical to and has been reproduced from ISO 3187:1989, *Refractory products—Determination of creep in compression*

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

(a) Its number appears on the cover and title page while the international standard number appears only on the cover.

(b) In the source text ‘this International Standard’ should read ‘this Australian Standard’.

(c) Replace Item (c) in Clause 9 with 'reference to this Australian Standard, AS 1774.26;'

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

References to International Standards should be replaced by references to Australian Standards, as follows:

Reference to International Standard ISO		*Australian Standard* AS	
R836	Vocabulary for the refractories industry	2780	Refractories and refractory materials—Glossary of terms
1893	Refractory products—Determination of refractoriness-under load (differential-with rising temperature)	1174	Refractories and refractory materials—Physical test methods
		1774.12	Method 12: Refractoriness under load—Temperatures of deformation at constant load with rising temperature

International references that are not listed have not been adopted as Australian Standards.

Refractory products — Determination of creep in compression

1 Scope

This International Standard specifies a method for determining creep in compression, which is the deformation of a refractory material or product subjected to a constant load under isothermal conditions.

The test rig used in this method of test is the same as that used for the determination of refractoriness-under-load (see ISO 1893).

NOTE — The apparatus described is generally suitable for determination of creep in compression up to 1 600 °C.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/R 836 : 1968, *Vocabulary for the refractories industry.*

ISO 1893 : 1989, *Refractory products — Determination of refractoriness-under-load (differential — with rising temperature).*

IEC 584-1 : 1977, *Thermocouples — Part 1: Reference tables.*

IEC 584-2 : 1982, *Thermocouples — Part 2: Tolerances.*

3 Definition

For the purposes of this International Standard, the following definition applies.

creep : Isothermal deformation of a stressed product as a function of time.[1)]

1) This definition is taken from ISO/R 836.

4 Principle

A test piece of given dimensions is heated under specified conditions to a given temperature and at one of two specified stages (see 7.2) in the test a constant compressive load is applied to it. The deformation of the test piece at constant temperature is recorded and the percentage change is evaluated as a function of time.

There are two forms of the test, one where the load is applied at room temperature and the other where it is applied at the test temperature.

NOTE — The values between the end of the fifth hour creep and the end of the test are usually in close agreement.

5 Apparatus

5.1 Loading device

5.1.1 General

The loading device shall be capable of applying a load centred on the common axis of the loading column, the test piece and the supporting column, and directed vertically along this axis at all stages of the test. The loading device consists of the items given in 5.1.2 to 5.1.5.

A constant compressive load is applied in a downward direction from above on the piece resting directly or indirectly on a fixed base. It follows that the deformation of the test piece is required to be measured by some device that passes either through the applied load or through an intermediate base. For simplicity, the text and the figures 1 and 2 in this International Standard show the measuring device passing through the base but, by interchanging the bored column and refractory plate with the unbored column and plate, it may be arranged that the measuring device passes through the load, as in figure 3.

NOTE — Although both arrangements are within the scope of the standard, it is preferable that the measuring device should be positioned below the assembly, as shown in the figures. The reasons for this are outlined in annex A.