

STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 1774.23.1—2001

**Refractories and refractory materials—Physical test methods
Method 23.1: Abradability index—Oblique method**

RECONFIRMATION NOTICE

Technical Committee MN-007 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 4 April 2013.

The following are represented on Technical Committee MN-007:

Australian Institute of Mining and Metallurgy
Australian Ceramic Society
Bureau of Steel Manufacturers of Australia
Cement Industry Federation
CSIRO Manufacturing & Materials Technology
Institute of Refractories Engineers
Refractories Manufacturers Association of Australia
The University of New South Wales

NOTES

Australian Standard™

AS 1774.23.1

Refractories and refractory materials— Physical test methods

Method 23.1: Abradability index— Oblique method

1 SCOPE

This Standard sets out a method for determining the abradability index of a refractory material at room temperature.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

1774 Refractories and refractory materials—Physical test methods
1774.5 Part 5 The determination of density, porosity and water absorption

2243 Safety in laboratories (series)

2780 Refractories and refractory materials—Glossary of terms

TR 2 Certified reference materials

TR2.2-1 Float glass (for use in determination of abradability index by AS 1774.23.1)
Preparation and certification of ASCRM 002-1

3 DEFINITIONS

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

3.1 Abradability index

A measure of the erodability of a refractory material, expressed as a volume of material lost under specified conditions.

4 PRINCIPLE

The surface of a test specimen is subjected to the abrasive action of specified air-blown alumina grit under controlled conditions and its mass loss is determined. The abradability index is then calculated from an equation which uses the bulk density of the material and a correction factor.

NOTE: The correction factor compensates for wear of the apparatus and variation of the abrasive power of the grit. It is determined by abrading a certified reference specimen under the same conditions as the test specimen.

5 SAFETY

For information of safety in laboratories, reference should be made to the relevant parts of AS 2243.



6 APPARATUS AND MATERIAL

6.1 Main apparatus

6.1.1 General

The main apparatus shall consist of an air supply system, a standard venturi, a grit hopper, a differential pressure-measuring device, a test chamber fitted with a specimen holder, and a cyclone system. The cyclone, hopper, test chamber and exhaust pipe should be constructed of stainless steel.

The components shall be assembled in accordance with Figure 1.

NOTE: Unless specifically indicated on Figures 1, 2 and 3, all dimensions given in diagrams are recommendations only.

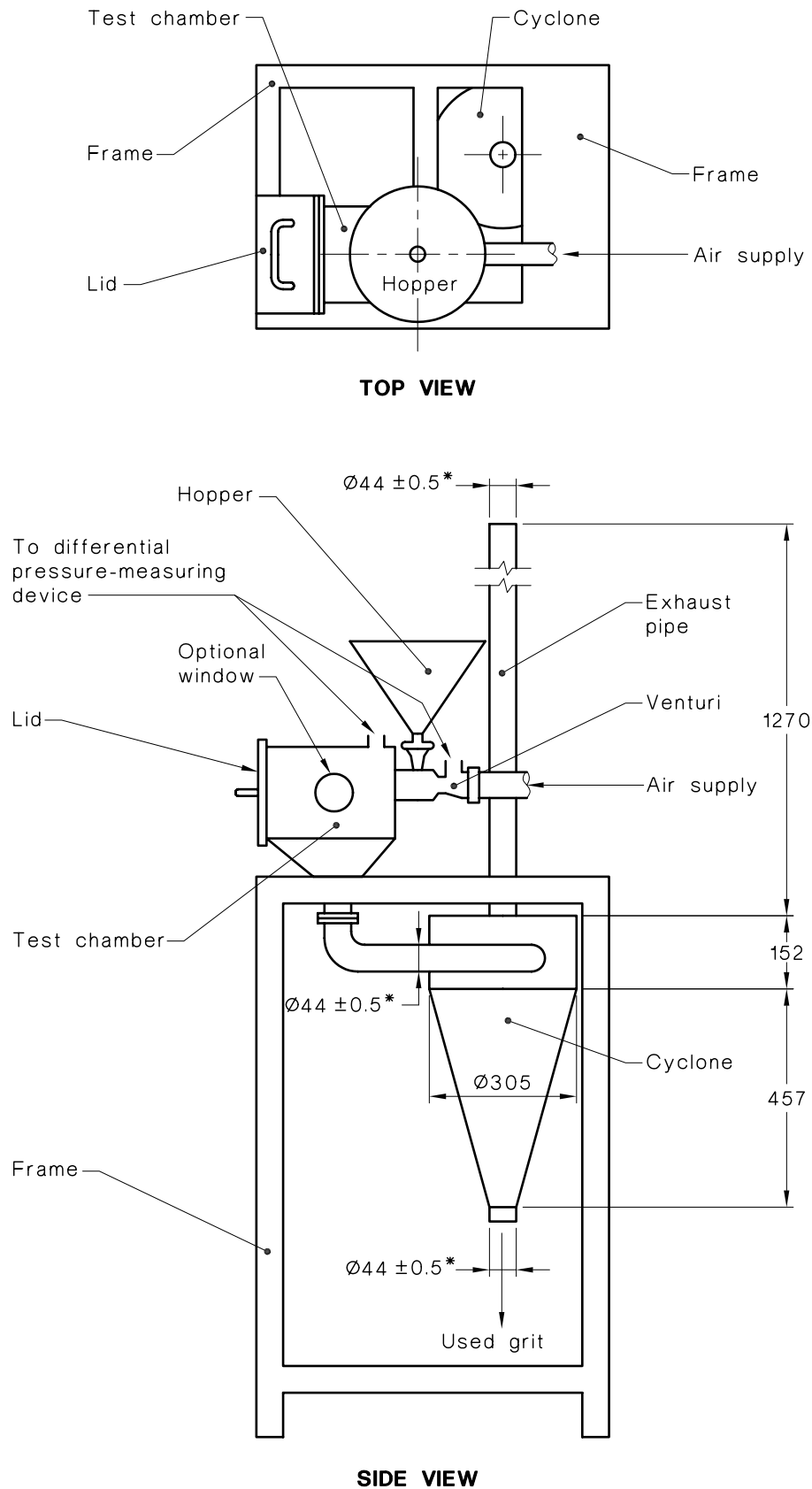
6.1.2 Test chamber

Consisting of a sealed compartment with a lid as one face. The venturi shall project through the face opposite the lid in accordance with Figure 2.

6.1.3 Specimen holder

Mounted on the inside surface of the lid of the test chamber and large enough to hold an oblong specimen of dimensions 75 mm × 50 mm × 25 mm. The specimen shall be mounted so that the centre of the surface to be abraded is 38 ± 1 mm from the mouth of the venturi and is at an angle of $45 \pm 2^\circ$ to its axis.

The front face of the specimen holder shall completely mask the edges of the test face of the specimen and the centre of the mask shall be within 2 mm of the centre line of the venturi. The dimensions of the front face shall be in accordance with Figure 2.



Dimensions marked * are mandatory

DIMENSIONS IN MILLIMETRES

FIGURE 1 TOP VIEW AND SIDE VIEW OF AN ABRADABILITY APPARATUS