STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS FOR PHYSICAL TESTING OF REFRACTORIES AND REFRACTORY MATERIALS

AS 1774.22
BONDING STRENGTH OF REFRACTORY MORTAR

1 SCOPE. This standard sets out a method for the preparation and testing of specimens of refractory mortars for determining the bonding strength after drying and/or firing.

2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1774 Methods for Physical Testing of Refractories and Refractory Materials
1774.3 The Determination of Cold Modulus of Rupture

AS 2193 Methods for Calibration and Grading of Force-measuring Systems of Testing Machines

AS 2780 Refractories and Refractory Materials—Glossary of Terms

3 PRINCIPLE. Two halves of a refractory shape are joined in a prescribed manner with the test mortar and dried and/or fired as specified. A transverse stress is then applied to the specimen at a constant rate of increase, at room temperature, until failure occurs.

4 DEFINITIONS. For the purpose of this standard, the definitions in AS 2780 apply.

5 APPARATUS.

5.1 Drying oven. A fan-forced, ventilated-type oven of sufficient capacity to accommodate the test specimen(s) oriented so that the long axis is vertical, and capable of maintaining a temperature of 110°C to an accuracy of ± 5°C.

5.2 Spacing rods. Two joint-thickness spacing rods which are—

(a) made of corrosion-resistant metal;

(b) 1.50 ± 0.05 mm in thickness; and

(c) at least 100 mm in length.

5.3 Testing machine. Any mechanical or hydraulic testing machine that has a sensitivity complying with Grade B of AS 2193.

5.4 Bearing edges. The bearing edges shall be rounded when viewed in section to a radius of 16 ± 1 mm. They shall be straight and of a length at least equal to the width of the test specimen. The span between the two lower bearing edges shall be 180 ± 5 mm and the upper bearing edge shall be at mid-span. The supporting members for the lower bearing edges shall be constructed so as to provide a means of aligning the bearing edges with the under-surface of the test specimen. A suitable arrangement is shown in Fig. 1.

5.5 Furnace (if firing is required).

5.5.1 *Size of heating chamber.* The heating chamber shall be of such a size that it can accommodate the test specimen(s) oriented so that the long axis/axes is/are vertical.