

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

RECONFIRMATION

OF

AS/NZS 2350.17:2006

Methods of testing portland, blended and masonry cements

Method 17: Determination of soundness of masonry cement

RECONFIRMATION NOTICE

Technical Committee BD-010 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 24 February 2016.

Approved for reconfirmation in New Zealand on behalf of the Standards Council of New Zealand on 18 May 2016.

The following are represented on Technical Committee BD-010:

AUSTROADS

Cement and Concrete Association of New Zealand

Cement Concrete and Aggregates Australia

Cement Concrete and Aggregates Australia—Cement

Cement Concrete and Aggregates Australia—Concrete

Concrete Institute of Australia

Concrete Masonry Association of Australia

Engineers Australia

Portland Cement Association

NOTES

Australian/New Zealand Standard™

Methods of testing portland, blended and masonry cements

Method 17: Determination of soundness of masonry cement

1 SCOPE

This Standard sets out the method for determining the soundness of masonry cements using a paste of normal consistency.

NOTES:

- 1 The testing procedure herein may involve the use of materials or equipment that require safety measures to be observed.
- 2 This Standard does not purport to address all of the safety concerns, if any, associated with its use.
- 3 The user of this Standard should establish appropriate safety and health practices, and determine the applicability of regulatory limitations prior to use.

2 REFERENCED DOCUMENTS

The following document is referred to in this Standard:

AS/NZS

- | | |
|--------|---|
| 2350 | Methods of testing of portland, blended and masonry cements |
| 2350.1 | Method 1: Sampling |
| 2350.3 | Method 3: Normal consistency |

3 PRINCIPLE

A measure of the soundness is given by an increase in volume of the hardened cement paste as indicated by an increase in the gauge length of a test specimen after autoclaving.

4 APPARATUS AND RELATED CONDITIONS

4.1 Laboratory

The air within the laboratory in which the specimens are made and tested shall be maintained at a temperature of $23 \pm 2^\circ\text{C}$ and a relative humidity of not less than 50%. The humidity-controlled room or cabinet for storing the specimen in the mould shall be continuously maintained at a temperature of $23 \pm 2^\circ\text{C}$ and a relative humidity of not less than 90%.

4.2 Autoclave prism moulds

Moulds shall provide for test specimens of 25 mm × 25 mm × 285 mm having an effective gauge length of 250 mm. They may be single-compartment or two-compartment moulds. The effective gauge length shall be considered as that length between the innermost points of the gauge studs used as reference points. The parts of the moulds shall be tight fitting and firmly held together when assembled. The moulds shall be made of steel. The sides of the moulds shall be sufficiently rigid to prevent spreading or warping. Each end plate of the moulds shall be equipped to hold properly in place, during the setting period, a stainless steel or non-corroding metal gauge stud having a diameter of 6 mm. The gauge studs shall be set so that their principal axes coincide with the principal axes of the test specimen and shall extend into the specimen 17.5 ± 0.5 mm. The distance between the inner end of the gauge studs shall be 250 ± 2.5 mm.

In preparation for use, the autoclave moulds shall be thinly covered with mineral oil; after this operation, the stainless steel or non-corroding metal gauge studs shall be set, care being taken to keep them clean and free of oil.

4.3 Autoclave

The autoclave shall consist of a high-pressure steam vessel provided with a thermometer well and equipped with an automatic pressure control and a safety valve or rupture disc. The capacity of the heating unit shall be such that with maximum load (water plus specimens) the pressure of the saturated steam in the autoclave may be raised to a gauge pressure of 2000 kPa in 1 to 1.25 h.

The automatic pressure control shall be capable of maintaining the pressure at 2000 ± 70 kPa for at least 3 h. For saturated steam, a gauge pressure of 2000 ± 70 kPa corresponds to a temperature of $215.7 \pm 1.7^\circ\text{C}$.

The pressure gauge shall be a 100 mm nominal size industrial gauge and shall be graduated from 0 to 4000 kPa with scale divisions of not more than 50 kPa. The error in the gauge shall be not greater than ± 20 kPa at the operating pressure of 2000 kPa. The autoclave shall be designed to permit the gauge pressure to drop from 2000 kPa to less than 70 kPa without venting for 1.5 h after the heat supply has been shut off. It shall be equipped with a vent valve for allowing the escape of air during the early part of the heating period and for releasing any steam pressure remaining at the end of the 1.5 h cooling period.

NOTE: For autoclave precautions, see Appendix A.

4.4 Length comparator

Changes in length of the test specimen shall be measured by a dial gauge or digital micrometer comparator having a range of at least 7.5 mm. When tested at any point throughout its range, the instrument shall be graduated to at least 0.001 mm, and error shall be not greater than ± 0.004 mm. The difference between repeated measurements shall be not greater than 0.002 mm.

4.5 Reference bar

The comparator shall be equipped with a setting reference bar. The reference bar shall have an overall dimension of 300 ± 1.5 mm with an insulating handgrip, and shall be checked with this reference bar before and after each set of readings. The comparator shall be equipped to hold the specimen in position while it is being measured.

5 PROCEDURE

5.1 Preparation of the paste to normal consistency

The paste shall be prepared in accordance with AS/NZS 2350.3.