

Australian Standard®

Methods of testing portland and blended cements

Method 2: Chemical composition of portland cement

1 SCOPE This Standard sets out the requirements for the determination, by proven chemical methods, of the composition of portland cement.

2 APPLICATION The method of analysis chosen shall be qualified by the procedures in Clause 4, excepting those for loss on ignition and insoluble residue for which methods are set out in Clauses 5.5.2 and 5.5.3.

3 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

2162 Code of practice for the use of volumetric glassware

2706 Numerical values—Rounding and interpretation of limiting values

2830 Good laboratory practice

2830.1 Part 1: Chemical analysis

4 QUALIFICATION OF CHOSEN METHOD

4.1 Principle The chemical composition of at least four internationally accredited cement standard reference materials (SRM) shall be determined on duplicate portions using the chosen test method. The difference between duplicate values for each component and the deviation of the mean of the values from the certified value shall be compared with the figures given in Table 1. Where possible, the SRM shall be selected to cover the expected range of component percentages.

Where SRMs have been used for calibration purposes, different SRMs shall be used for qualification.

The method of test for each component shall be qualified individually as outlined in Clause 4.2 before use and after relocation or replacement of any instrument used.

4.2 Procedure The chosen test method shall be fully documented and proven using the following procedure:

- (a) Using the chosen test method, analyse duplicate portions of the four SRMs for the required constituents. The duplicate portions shall be tested on different days.
- (b) The difference between duplicate values for each constituent shall not exceed the maximum value given in Column 2 of Table 1 for at least three of the four SRMs and twice the maximum value for the fourth.
- (c) The arithmetic mean of duplicate determinations for each constituent shall not differ from the certified value by more than the maximum value shown in Column 3 of Table 1 for at least three of the four SRMs and by twice the maximum value for the fourth.
- (d) If more than one instrument or set of equipment is used in a laboratory for the same test method, each shall be qualified separately.
- (e) Provided that the method of test meets the requirements set down in Items (b) and (c), it may be used to determine the chemical composition of portland cement.
- (f) For the purpose of qualification only, all results determined by a chosen analytical method shall be fully documented, dated and recorded to the nearest 0.01% and signed by the analyst.