Australian Standard®

Methods of test for supplementary cementitious materials for use with portland cement

Method 13: Determination of chloride ion content

PREFACE

This Standard was prepared by the Standards Australia Committee on Supplementary Cementitious Materials for use with Portland Cement.

METHOD

1 SCOPE This Standard sets out the reference method for determination of the chloride ion content in supplementary cementitious materials.

NOTE: This method is based on Clause 19 of ASTM C114.

WARNING: OBSERVE SAFE PROCEDURES FOR DILUTING CONCENTRATED ACIDS AND ALKALIS AND WHERE TOXIC GASES ARE GENERATED.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard.

AS
2162 Code of practice for the use of volumetric glassware

ASTM
C114 Method for chemical analysis of hydraulic cement

3 PRINCIPLE After decomposition with nitric acid, the test portion is treated with hydrogen peroxide to remove interfering sulfide ions. After ensuring the mixture is slightly acidic, it is filtered and the total chloride ion content in the filtrate is determined by the potentiometric titration of chloride with standard silver nitrate solution.

4 REAGENTS

4.1 Purity of reagents All reagents shall be of analytical reagent grade and free from impurity levels which will significantly interfere with the determination of chloride ion by this method.

Distilled or demineralized water shall be used throughout the analysis.

4.2 General solutions The following are required:

(a) Hydrogen peroxide solution (30 percent (*m/m*).

(b) Methyl orange indicator (2.0g/L)—dissolve in water.

(c) Nitric acid (500 mL/L)—prepare carefully from nitric acid (ϱ_{20} 1.420 kg/L).

4.3 Standard solutions The following are required:

(a) Silver nitrate solution (0.05 mol/L)—dissolve approximately 8.5 g silver nitrate crystals in water and transfer the solution to a 1 L volumetric flask. Make up to the mark and mix thoroughly. Using the procedure commencing with Clause 6(j), and a 5.00 mL aliquot of standard sodium chloride diluted to 150 mL with water instead of the 2.00 mL aliquot cited in Clause 6(k), determine the concentration of the silver nitrate solution as follows: