Australian Standard®

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

Method 12: Determination of available alkali

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 available alkali content in supplementary cementitious materials.

NOTE: This method is based on Sections 13 and 14 of ASTM C 311-87.

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
2134 Recommended practice for chemical analysis by atomic absorption spectrometry
2134.1 Part 1: Flame atomic absorption spectrometry
2162 Code of practice for the use of volumetric glassware
2234 Beakers
3582 Supplementary cementitious materials for use with portland cement
3582.1 Part 1: Fly ash
3753 Recommended practice for chemical analysis by ultraviolet/visible spectrophotometry

ASTM
C311-87 Method for sampling and testing fly ash or natural pozzolans for use as a mineral admixture in portland cement concrete

3 PRINCIPLE The test material is blended with a specified mass of calcium hydroxide. A specimen of this blend is intimately mixed with water and allowed to digest for a specified time in a sealed plastics vial, whereupon the resulting material is removed from the vial, crushed, mixed with water and dissolved in dilute hydrochloric acid. A test solution is then made up with water and the sodium and potassium oxide content is determined.

4 REAGENTS

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

Distilled or demineralized water shall be used throughout the analysis.