

Australian Standard[®]

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

Method 8: Determination of sulfuric anhydride content

PREFACE

This Standard was prepared by the Standards Australia Committee on Supplementary Cementitious Materials for use with Portland Cement, and supersedes (in part) AS 1129, *Fly ash for use in concrete, Part 3: Methods of Test*.

METHOD

1 SCOPE This Standard sets out the reference method for determining gravimetrically the sulfuric anhydride content in supplementary cementitious materials.

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

2 REFERENCED DOCUMENT The following document is referred to in this Standard.

AS

3582 Supplementary cementitious materials for use with portland cement

3582.1 Part 1: Fly Ash

3 PRINCIPLE A test portion is digested with concentrated hydrochloric acid and the solution filtered to remove insolubles. The residue is then washed until free of soluble chlorides. The filtrate and washings are heated to boiling and treated with barium chloride solution to precipitate sulfates present. After filtration, the residue is ignited to constant mass and the sulfuric anhydride content is calculated.

4 REAGENTS

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

Distilled or demineralized water shall be used throughout the analysis.

4.2 Solutions The following are required:

- (a) Barium chloride solution (250 g/L)—prepare sufficient for the determination and heat to below boiling just before use.
- (b) Concentrated hydrochloric acid (ρ_{20} 1.180 kg/L).

5 APPARATUS The following apparatus is required:

- (a) Balance, capable of weighing the crucible and contents to an accuracy of 0.001 g.
- (b) Desiccator, containing sulfur-free desiccant.
- (c) Inert crucible, capable of withstanding the ignition temperature and which has been ignited at this temperature to constant mass (m_c). It shall be stored in a desiccator until required.
- (d) Muffle furnace, capable of maintaining a temperature of between 800°C and 900°C for the duration of the determination.