Australian Standard®

Methods for sampling and testing aggregates

Method 36: Sulfur in metallurgical slag, crushed rock or other pavement materials

1 SCOPE This Standard sets out the method for the determination of the amount of sulfur in metallurgical slag, crushed rock or other pavement materials expressed as total sulfur content and acid soluble sulfate content. It includes a test for total sulfur and a test for acid soluble sulfate.

NOTE: Clause 8 includes some warnings applicable to the handling and use of concentrated acids or bromine.

2 PRINCIPLE In the total sulfur test, sulfur is oxidized and brought into solution as sulfate. Soluble silica is precipitated by boiling with acid. Mixed trioxide (R_2O_3) contamination is removed by precipitation and filtration. Sulfur present is precipitated as barium sulfate, the mass of which is then determined. The content of sulfur containing compounds is expressed as percentage total sulfur (percent S).

Acid soluble sulfate is determined by a similar procedure to the total sulfur procedure, however, the oxidation step is omitted. Acid soluble sulfate content is expressed as percentage sulfur trioxide (percent SO_3, sulfite).

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

AS
1141 Methods for sampling and testing aggregates
1141.1 Method 1: Definitions
1141.2 Method 2: Basic testing equipment
1152 Specification for test sieves

4 DEFINITIONS For the purpose of this Standard the definitions in AS 1141.1 apply.

5 APPARATUS The following apparatus, complying with the relevant provisions of AS 1141.2, is required:

(a) *Analytical balance*—with a limit of performance not exceeding ±0.5 mg.

(b) *Bath*—a steam bath.

(c) *Bunsen burner*.

(d) *Container*—airtight, for storage of test portion.

(e) *Crucible*—platinum.

(f) *Crushing equipment*—to crush to pass 2.36 mm, 600 μm and 150 μm seives.

(g) *Desiccator*—with dried silica gel.

(h) *Glassware*—beakers, flasks and other items, as necessary.