

# Australian Standard<sup>®</sup>

AS 5101.3.2—2008

## Methods for preparation and testing of stabilized materials

### Method 3.2: Lime or cement content of stabilized pavement materials (EDTA method)

#### 1 SCOPE

This Standard sets out the method for determining the lime or cement content of samples of soils, gravel or crushed rock stabilized with lime or cement either in a cured or uncured state by titrating with ethylene diamine tetra-acetic acid disodium salt (EDTA) to determine the soluble calcium ion content ( $\text{Ca}^{2+}$ ).

The method is dependent on determining the amount of calcium ions in the stabilized material, the lime or cement additive and the unstabilized material on a dry basis.

NOTE: With certain clay minerals present in the matrix, low results may be observed. In such cases, more accurate results may be obtained by using a standard addition technique, that is, standards prepared from known masses of lime and pavement material. These techniques are not described in this Standard and the number of this Standard is not applicable if a standard addition technique is used.

#### 2 PRINCIPLE

This method involves steps designed to achieve the following:

- (a) To dissolve the available calcium in weak acid (it assumes that all the soluble calcium comes from the stabilizing agent).
- (b) To remove the iron oxide and aluminium oxide, which would otherwise react with EDTA to give a false high result, as follows:
  - (i) Removing elemental iron and other ferromagnetic minerals and contamination with a magnet.
  - (ii) Baking to coarsen gelatinous silicates which could block filtering.
  - (iii) Making very slightly alkaline to precipitate  $\text{Fe}(\text{OH})_3$  and  $\text{Al}(\text{OH})_3$  by slow and not excessive addition of ammonia. (Too quick addition may result in gelatinous precipitate.)
  - (iv) Filtering the precipitate.
- (c) To determine the concentration of calcium ions by titration. One mole of  $\text{Ca}^{2+}$  ions reacts with one mole of EDTA.

#### 3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

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