AS 4969.5—2008
Reconfirmed 2018

Australian Standard®

Analysis of acid sulfate soil—Dried samples—Methods of test

Method 5: Determination of peroxide sulfur (S_P), calcium (Ca_P) and magnesium (Mg_P)

PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand for Committee EV-009, Sampling and Analysis of Soil and Biota, Working Group EV-009-02-01, Analysis of Acid Sulfate Soil.

The objective of this Standard is to provide a method for the determination of peroxide sulfur (S_P), calcium (Ca_P) and magnesium (Mg_P) in acid sulfate soil after hydrogen peroxide digestion and the determination of peroxide pH (pH_{OX}), titratable peroxide acidity (TPA) and excess acid neutralizing capacity (ANC_E).

METHOD

1 SCOPE

This Standard specifies a method for the determination of peroxide sulfur (S_P), calcium (Ca_P) and magnesium (Mg_P) in acid sulfate soil after hydrogen peroxide digestion and the determination of pH_{OX}, and TPA and ANC_E in AS 4969.3.

NOTES:

1 This method recovers soluble and exchangeable sulfate, sulfate from gypsum, sulfate formed by oxidation of sulfide, sulfur released by the breakdown of organic matter as well as, variable amounts of sulfate from iron and aluminium sulfate minerals or compounds. Sulfate from jarosite and natrojarosite is not appreciably recovered. Methods to determine the residual sulfur held in these iron hydroxy-sulfate minerals are detailed in AS 4969.6 and AS 4969.11.

2 The peroxide extraction procedure recovers soluble and exchangeable calcium and magnesium, and calcium from gypsum. Calcium and/or magnesium released by the acid dissolution of carbonate, oxide or hydroxide minerals are also recovered.

3 The peroxide sulfur (S_P) measurement can be used in combination with KCl extractable sulfur (S_{KCl}, AS 4969.4) to calculate the peroxide oxidizable sulfur (S_{POS}, AS 4969.10).

4 The peroxide calcium (Ca_P) and magnesium (Mg_P) can be used in combination with KCl extractable calcium (Ca_{KCl}) and magnesium (Mg_{KCl}) (AS 4969.4) to determine 'reacted' calcium (Ca_A) and magnesium (Mg_A) (AS 4969.10).

5 The residual acid soluble sulfur (S_{RAS}) (AS 4969.6) can be determined on the entire soil residue following measurement of S_P.