

Australian Standard®

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

Method 11: Calculation of net acid-soluble sulfur (S_{NAS}), calcium (Ca_{NAS}) and magnesium (Mg_{NAS})

PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Working Group EV-009-02-01, Analysis of Acid Sulfate Soil, 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 to calculate net acid-soluble sulfur (S_{NAS}), calcium (Ca_{NAS}) and magnesium (Mg_{NAS}) in acid sulfate soil using the results obtained from the determination of S_{KCl} , Ca_{KCl} and Mg_{KCl} , and S_{HCl} , Ca_{HCl} and Mg_{HCl} .

METHOD

1 SCOPE

This Standard specifies a method for calculation of net acid-soluble sulfur (S_{NAS}), calcium (Ca_{NAS}) and magnesium (Mg_{NAS}) in acid sulfate soil using the results obtained from the determination of S_{KCl} , Ca_{KCl} and Mg_{KCl} (AS 4969.4), and S_{HCl} , Ca_{HCl} and Mg_{HCl} (AS 4969.8).

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

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| 4969 | Analysis of acid sulfate soil—Dried samples—Methods of test |
| 4969.0 | Part 0: Introduction and definitions, symbols and acronyms |
| 4969.4 | Method 4: Determination of 1 M potassium chloride extractable sulfur (S_{KCl}), calcium (Ca_{KCl}) and magnesium (Mg_{KCl}) |
| 4969.8 | Method 8: Determination of hydrochloric acid extractable sulfur (S_{HCl}), calcium (Ca_{HCl}) and magnesium (Mg_{HCl}) |

3 DEFINITIONS

For the purpose of this Standard the terms and definitions used in AS 4969.0 apply.

4 PRINCIPLE

Net acid-soluble sulfur (S_{NAS}) is calculated from the difference between the hydrochloric acid extractable sulfur (S_{HCl}) measured in AS 4969.8 and the KCl extractable sulfur (S_{KCl}) measured in AS 4969.4. Net acid-soluble calcium (Ca_{NAS}) and magnesium (Mg_{NAS}) are calculated in a similar manner as the difference between the hydrochloric acid extractable calcium (Ca_{HCl}) and magnesium (Mg_{HCl}) (AS 4969.8) and KCl extractable calcium (Ca_{KCl}) and magnesium (Mg_{KCl}) (AS 4969.4).

5 CALCULATION

Calculate the net acid-soluble sulfur (S_{NAS}) as percent sulphur on an oven-dry weight basis according to the equation below:

$$S_{\text{NAS}} = S_{\text{HCl}} - S_{\text{KCl}}$$

Calculate the net acid-soluble calcium (Ca_{NAS}) and magnesium (Mg_{NAS}) as %Ca and %Mg on an oven-dry weight basis according to the equations below:

$$Ca_{\text{NAS}} = Ca_{\text{HCl}} - Ca_{\text{KCl}}$$

$$Mg_{\text{NAS}} = Mg_{\text{HCl}} - Mg_{\text{KCl}}$$

6 TEST REPORT

The test report shall contain at least the following information:

- Sample identification as submitted to the laboratory.
- The results of the S_{NAS} , Ca_{NAS} and Mg_{NAS} calculations to the nearest 0.01% on an oven-dry weight basis.
- Reference to this Standard, i.e. AS 4969.11.

The test report may also include an estimation of measurement uncertainty.