AS 1289.4.2.1:2020

Australian STANDARD®

# Methods of testing soils for engineering purposes

# Method 4.2.1: Soil chemical tests — Determination of the sulfate content of a natural soil and the sulfate content of the groundwater — Normal method

STANDARDS Australia

AS 1289.4.2.1:2020

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Australian Building Codes Board
Australian Chamber of Commerce and Industry
Australian Geomechanics Society
AUSTROADS
Cement Concrete & Aggregates Australia — Aggregates
Engineering & Construction Laboratories Association
Engineers Australia
National Association of Testing Authorities Australia
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Originated as part of AS A89—1966.
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# Preface

This Standard was prepared by the Standards Australia Committee CE-009, Testing of Soils for Engineering Purposes, to supersede AS 1289.4.2.1—1997, *Methods of testing soils for engineering purposes — Soil chemical tests — Determination of the sulfate content of a natural soil and the sulfate content of the groundwater — Normal method*

The objective of this standard is to determine water-soluble sulfate content of natural soil and the sulfate content of the groundwater.

The terms “normative” and “informative” have been used in this Standard to define the application of the appendix to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

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## 1 Scope

This Standard covers the determination of the water-soluble sulfate content of natural soil and the sulfate content of the groundwater. The results obtained give the sulfate contents at the time of sampling only and both these values are subject to seasonal fluctuations. The two sulfate contents and the moisture content of the soil are mutually interdependent.

Good practice in chemical testing requires that duplicate specimens should be tested. In this method, the measurement of only one value is described.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents for informative purposes are listed in the Bibliography.

AS 1289.0, *Methods of testing soils for engineering purposes, Part 0: Definitions and general requirements*

AS 1289.1.1, *Methods of testing soils for engineering purposes, Method 1.1: Sampling and preparation of soils — Preparation of disturbed soil samples for testing*

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 3310-2, *Test sieves — Technical requirements and testing — Part 2: Test sieves of perforated metal plate*

## 3 Terms and definitions

No terms and definitions are listed in this document.

## 4 Apparatus and materials

The following apparatus and materials are required:

(a) A drying oven, conforming to AS 1289.0 and capable of maintaining a temperature between 75 °C and 80 °C.

(b) A balance of at least 400 g capacity, with a limit of performance not greater than ± 0.005 g.

(c) A glass bottle for mass determinations, approximately 25 mm diameter and 50 mm high, fitted with a ground-glass stopper.

(d) A mechanical shaker or stirrer capable of keeping 10 g of soil continuously suspended in 150 mL of water.

(e) An extraction bottle of 500 mL capacity.

(f) A Buchner funnel of about 100 mm diameter.

(g) A filter flask to take the Buchner funnel, of 500 mL capacity.

(h) A glass filter funnel of about 100 mm diameter.