AS 1289.4.1.1:2019

Australian STANDARD®

Methods of testing soils for engineering purposes

Method 4.1.1: Soil chemical tests — Determination of the organic matter content of a soil — Normal method

STANDARDS Australia

AS 1289.4.1.1:2019

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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
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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 1289.4.1.1—1997, *Methods of testing soils for engineering purposes, Method 4.1.1: Soil chemical tests—Determination of the organic matter content of a soil—Normal method*.

The objective of this Standard is to determine the percentage of organic matter present in a soil.

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1 Scope

This Standard covers the determination of the percentage by mass of organic matter present in a soil.

NOTE A wide variety of both dry and wet combustion methods are at present in use for the determination of the organic matter content of soil. This method, originally due to Walkley and Black[1] and since revised by Walkley[2], has been widely employed and has been found to give reproducible results that are accurate for day-to-day engineering purposes.

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: 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 Reagents

The following reagents of analytical reagent (AR) grade shall be used:

(a) *Potassium dichromate 0.1667M solution*

Dissolve 49.035 g of potassium dichromate in distilled water and make up to the mark in a 1 L volumetric flask with distilled water.

(b) *Concentrated sulfuric acid*

Density 1.84 g/mL.

(c) *Iron II sulfate approximately 0.5M solution*

Dissolve approximately 140 g of ferrous sulfate heptahydrate ($FeS0_4.7H_2O$) in 0.5M sulfuric acid and make up to the mark in a 1 L volumetric flask.

Keep this solution tightly stoppered as it is unstable in air. Standardize it against the dichromate solution at least once per week.

(d) *Orthophosphoric acid 85 %*

Density 1.7 g/mL to 1.75 g/mL.

(e) *Indicator solution*

Dissolve 0.25 g of sodium diphenylamine-sulfonate in 100 mL of distilled water.