Australian Standard™

Method of testing soils for engineering purposes

Part 0: General requirements and list of methods

Standards Australia

This Australian Standard was prepared by Committee CE/9, Testing of Soils for Engineering Purposes. It was approved on behalf of the Council of Standards Australia on 3 December 1999 and published on 28 February 2000.

The following interests are represented on Committee CE/9:

Australian Building Codes Board

Australian Geomechanics Society

AUSTROADS

Crushed Stone Association of Australia

Department of Industry, Sport and Tourism, Scientific Services Laboratory

AGAL

Institution of Engineers, Australia

National Association of Testing Authorities, Australia

University of Melbourne

University of Sydney

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about Standards can be found by visiting the Standards Australia web site at www.standards.com.au and looking up the relevant Standard in the on-line catalogue.

Alternatively, the printed Catalogue provides information current at 1 January each year, and the monthly magazine, *The Australian Standard*, has a full listing of revisions and amendments published each month.

We also welcome suggestions for the improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.com.au, or write to the Chief Executive, Standards Australia International Ltd, PO Box 1055, Strathfield, NSW 2135.

This Standard was issued in draft form for comment as DR 98521.

Australian Standard™

Method of testing soils for engineering purposes

Part 0: General requirements and list of methods

Originated as part of AS A89—1966.
Final edition AS 1289.0—1991.
Second edition 2000.

Published by Standards Australia International Ltd
PO Box 1055, Strathfield, NSW 2135, Australia

ISBN 0 7337 3206 2

PREFACE

This Standard was prepared by the Standards Australia Committee CE/9, Testing of Soils for engineering Purposes, to supersede AS 1289.0—1991, *Methods of testing soils for engineering purposes*, Part 0: *General requirements and list of methods*.

The objective of this standard is to provide —

(a) a list of methods of test in the AS 1289 series;

(b) definitions for of terms used; and

(c) a list of requirements for testing.

At present, the AS 1289 series of methods comprises over 60 methods with additional methods in the course of preparation. In order to monitor the integrity of this series (i.e. its edition status), this Part (AS 1289.0) will be revised at regular intervals and will contain (as this edition does) a table that provides a complete up-to-date list of the methods as well as any supplementary information of a general nature.

CONTENTS

LIST OF METHODS

Method	Title
1289.0	Part 0: General requirements and list of methods
1289.1.1	Method 1.1: Sampling and preparation of Soils—Preparation of disturbed soil samples for testing
1289.1.2.1	Method 1.2.1: Sampling and preparation of Soils—Disturbed samples—Standard method
1289.1.3.1	Method 1.3.1: Sampling and preparation of Soils—Undisturbed samples—Standard method
1289.1.4.1	Method 1.4.1: Sampling and preparation of Soils—Selection of sampling or test sites—Random number method
1289.1.4.2	Method 1.4.2: Sampling and preparation of Soils—Selection of sampling or test sites—Stratified random number method
1289.2.1.1	Method 2.1.1: Soil moisture content tests—Determination of the moisture content of a soil—Oven drying method (standard method)
1289.2.1.2	Method 2.1.2: Soil moisture content tests—Determination of the moisture content of a soil—Sand bath method (subsidiary method)
1289.2.1.4	Method 2.1.4: Soil moisture content tests—Determination of the moisture content of a soil—Microwave-oven drying method (subsidiary method)
1289.2.1.5	Method 2.1.5: Soil moisture content tests—Determination of the moisture content of a soil—Infrared lights method (subsidiary method)
1289.2.1.6	Method 2.1.6: Soil moisture content tests—Determination of the moisture content of a soil—Hotplate drying method (subsidiary method)
1289.2.2.1	Method 2.2.1: Soil moisture content tests—Determination of the total suction of a soil—Standard method
1289.2.3.1	Method 2.3.1: Soil moisture content tests—Establishment of correlation—Subsidiary method and the standard method
1289.3.1.1	Method 3.1.1: Soil classification tests—Determination of the liquid limit of a soil—Four point Casagrande method
1289.3.1.2	Method 3.1.2: Soil classification tests—Determination of the liquid limit of a soil—One point Casagrande method (subsidiary method)
1289.3.2.1	Method 3.2.1: Soil classification tests—Determination of the plastic limit of a soil—Standard method
1289.3.3.1	Method 3.3.1: Soil classification tests—Calculation of the plasticity index of a soil
1289.3.3.2	Method 3.3.2: Soil classification tests—Calculation of the cone plasticity index of a soil
1289.3.4.1	Method 3.4.1: Soil classification tests—Determination of the linear shrinkage of a soil—Standard method
1289.3.5.1	Method 3.5.1: Soil classification tests—Determination of the soil particle density of a soil—Standard method
1289.3.5.2	Method 3.5.2: Soil classification tests—Determination of the soil particle density of combined soil fractions—Vacuum pycnometer method
1289.3.6.1	Method 3.6.1: Soil classification tests—Determination of the particle size distribution of a soil—Standard method of analysis by sieving
1289.3.6.2	Method 3.6.2: Soil classification tests—Determination of the particle size distribution of a soil—Analysis by sieving in combination with hydrometer analysis (subsidiary method)
1289.3.6.3	Method 3.6.3: Soil classification tests—Determination of the particle size distribution of a soil—Standard method of fine analysis using a hydrometer
1289.3.7.1	Method 3.7.1: Soil classification tests—Determination of the sand equivalent of a soil using a power-operated shaker
1289.3.8.1	Method 3.8.1: Soil classification tests—Dispersion—Determination of Emerson class number of a soil
1289.3.8.2	Method 3.8.2: Soil classification tests—Dispersion—Determination of the percent dispersion of a soil

Method	Title
1289.3.8.3	Method 3.8.3: Soil classification tests—Dispersion—Determination of the pinhole dispersion classification of a soil
1289.3.9	Method 3.9: Soil classification tests—Determination of the cone liquid limit of soil
1289.4.1.1	Method 4.1.1: Soil chemical tests—Determination of the organic matter content of a soil — Normal method
1289.4.2.1	Method 4.2.1: Soil chemical tests—Determination of the sulfate content of a soil and the sulfate content of the ground water — Normal method
1289.4.3.1	Method 4.3.1: Soil chemical tests—Determination of the pH value of a soil — Electrometric method
1289.4.4.1	Method 4.4.1: Soil chemical tests—Determination of the electrical resistivity of a soil—Method for sands and granular materials
1289.5.1.1	Method 5.1.1: Soil compaction and density tests—Determination of the dry density/moisture content relation of a soil using standard compactive effort
1289.5.2.1	Method 5.2.1: Soil compaction and density tests—Determination of the dry density/moisture content relation of a soil using modified compactive effort
1289.5.3.1	Method 5.3.1: Soil compaction and density tests—Determination of the field density of a soil—Sand replacement method using a sand-cone pouring apparatus
1289.5.3.2	Method 5.3.2: Soil compaction and density tests—Determination of the field dry density of a soil—Sand replacement method using a sand pouring can, with or without a volume displacer
1289.5.3.5	Method 5.3.5: Soil compaction and density tests—Determination of the field dry density of a soil—Water replacement method
1289.5.4.1	Method 5.4.1: Soil compaction and density tests—Compaction control test—Dry density ratio, moisture variation and moisture ratio
1289.5.4.2	Method 5.4.2: Soil compaction and density tests—Compaction control test—Assignment of maximum dry density ratio and optimum moisture content values
1289.5.5.1	Method 5.5.1: Soil compaction and density tests—Determination of the minimum and maximum dry density of a cohesionless material—Standard method
1289.5.6.1	Method 5.6.1: Soil compaction and density tests—Compaction control test—Density index method for a cohesionless material
1289.5.7.1	Method 5.7.1: Soil compaction and density tests—Compaction control test—Hilf density ratio and Hilf moisture variation (rapid method)
1289.5.8.1	Method 5.8.1: Soil compaction and density tests—Determination of field density and field moisture content of a soil using a nuclear surface moisture-density gauge—Direct transmission mode
1289.5.8.4	Method 5.8.4: Soil compaction and density tests—Nuclear surface moisture-density gauges—Calibration using standard blocks
1289.5.8.5	Method 5.8.5: Soil compaction and density tests—Nuclear surface moisture-density gauge—Determination of density of a Type A or Type C standard density block
1289.5.8.6	Method 5.8.6: Soil compaction and density tests—Nuclear surface moisture-density gauge—Assignment of density for a Type B standard density block
1289.5.8.7	Method 5.8.7: Soil compaction and density tests—Nuclear surface moisture-density gauges—Water content of a standard moisture block using hydrogen content of components
1289.5.8.8	Method 5.8.8: Soil compaction and density tests—Nuclear surface moisture-density gauges—Water content of a standard moisture block using proportion of water
1289.5.8.9	Method 5.8.9: Soil compaction and density tests—Nuclear surface moisture-density gauge—Assignment of water content for a standard moisture block using comparison against primary blocks

Method	Title
1289.6.1.1	Method 6.1.1: Soil strength and consolidation tests—Determination of the California Bearing Ratio of a soil—Standard laboratory method for a remoulded specimen
1289.6.1.2	Method 6.1.2: Soil strength and consolidation tests—Determination of the California Bearing Ratio of a soil—Standard laboratory method for an undisturbed specimen
1289.6.1.3	Method 6.1.3: Soil strength and consolidation tests—Determination of the California Bearing Ratio of a soil—Standard field-in-place method
1289.6.2.1	Method 6.2.1: Soil strength and consolidation tests—Determination of the shear strength of a soil—Field test using a vane
1289.6.2.2	Method 6.2.2: Soil strength and consolidation tests—Determination of the shear strength of a soil—Direct shear test using a shear box
1289.6.3.1	Method 6.3.1: Soil strength and consolidation tests—Determination of the penetration resistance of a soil—Standard penetration test (SPT)
1289.6.3.2	Method 6.3.2: Soil strength and consolidation tests—Determination of the penetration resistance of a soil—9 kg dynamic cone penetrometer test
1289.6.3.3	Method 6.3.3: Soil strength and consolidation tests—Determination of the penetration resistance of a soil with a Perth sand penetrometer
1289.6.4.1	Method 6.4.1: Soil strength and consolidation tests—Determination of the compressive strength of a soil—Compressive strength of a saturated specimen tested in undrained triaxial compression without measurement of pore water pressure
1289.6.4.2	Method 6.4.2: Soil strength and consolidation tests—Determination of the compressive strength of a soil—Compressive strength of a saturated specimen tested in undrained triaxial compression with measurement of pore water pressure
1289.6.5.1	Method 6.5.1: Soil strength and consolidation tests—Determination of the static cone penetration resistance of a soil—Field test using a mechanical cone or friction-core penetrometer
1289.6.6.1	Method 6.6.1: Soil strength and consolidation tests—Determination of the one-dimensional consolidation properties of a soil — Standard method
1289.6.7.1	Method 6.7.1: Soil strength and consolidation tests—Determination of the permeability of a soil—Constant head method for a remoulded specimen
1289.6.7.2	Method 6.7.2: Soil strength and consolidation tests—Determination of the permeability of a soil—Falling head method for a remoulded specimen
1289.6.7.3	Method 6.7.3: Soil strength and consolidation tests—Determination of the permeability of a soil—Constant head method using a flexible wall permeameter
1289.6.8.1	Method 6.8.1: Soil strength and consolidation tests—Determination of the resilient modulus and permanent deformation of a granular and unbound pavement materials
1289.6.9.1	Method 6.9.1: Soil strength and consolidation tests—Determination of the common impact value
1289.7.1.1	Method 7.1.1: Soil reactivity tests—Determination of the shrinkage index of a soil—Shrink-swell index
1289.7.1.2	Method 7.1.2: Soil reactivity tests—Determination of the shrinkage index of a soil—Loaded shrinkage index
1289.7.1.3	Method 7.1.3: Soil reactivity tests—Determination of the shrinkage index of a soil—Core shrinkage index

STANDARDS AUSTRALIA

Australian Standard
Method of testing soils for engineering purposes

Part 0: General requirements and list of methods

1 SCOPE

This Standard is fundamental to all of the methods in the AS 1289 series. It provides the following information:

(a) A list of methods in the AS 1289 series.

(b) Related documents.

(c) Definitions.

(d) Apparatus used in a number of methods in the series and the Standards with which that apparatus have to comply.

(e) Soil groups for use in a number of methods.

2 REFERENCED AND RELATED DOCUMENTS

2.1 Referenced documents

The following documents are referred to in this Standard:

AS	
1141	Methods for sampling and testing aggregates
1141.3.1	Method 3.1: Sampling—Aggregates
1152	Specification for test sieves
1289	Method of testing soils for engineering purposes (Set)
1349	Bourdon tube pressure and vacuum gauges
1726	Geotechnical site investigation
2026	Density hydrometers
2163	Laboratory glassware—Measuring cylinders
2164	Laboratory glassware—One mark volumetric flasks
2165	Laboratory glassware—Burettes
2166	One-mark pipettes
2245	Glass filter funnels
2831	Thermometers—Solid stem—Long and short—For precision use
BS	
733	Pycnometers
733.2	Part 2: Methods for calibration and use of pycnometers
1739	Specification for filter flasks
1752	Specification for laboratory sintered or fritted filters including porosity grading
4019	Specification for rotary core drilling equipment
4019.3	Part 3: Specification for System A—Metric units

