AS 1289.1—1991

Australian Standard®

Methods of testing soils for engineering purposes

Method 1: Preparation of disturbed soil samples for testing

METHOD

1 SCOPE OF METHOD This Standard sets out a procedure for preparing samples, as received from the field, for testing in accordance with the various methods in the AS 1289 series. AS 1289.0 contains a list of all the methods as well as definitions of the terms used in this series.

NOTES:

1 *Sampling procedure* The procedure for sampling is not described in this Method; reference should be made to AS 1726.

2 *Sample size* The size of the sample from which disturbed soil samples are to be prepared, depends upon the tests which it is proposed to carry out, the relative proportion of coarse and fine material in the original soil and the maximum size of material in the original soil.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS	
1152	Test sieves
1289	Methods of testing soils for engineering purposes
1289.0	Part 0: General requirements and list of methods
1289.B1.1	Method B1.1: Soil moisture content tests—Determination of the moisture content of a soil—Oven drying method (standard method)
1289.B1.2	Method B1.2: Soil moisture content tests—Determination of the moisture content of a soil—Sand bath method (subsidiary method)
1289.B1.3	Method B1.3: Soil moisture content tests—Determination of the moisture content of a soil—Methylated spirit ignition method (subsidiary method)
1289.B1.4	Method B1.4: Soil moisture content tests—Determination of the moisture content of a soil—Microwave oven drying method (subsidiary method)
1289.B1.5	Method B1.5: Soil moisture content tests—Determination of the moisture content of a soil—Infrared lights method (subsidiary method)
1289.C1.1	Method C1.1: Soil classification tests—Determination of the liquid limit of a soil—Oven drying method (standard method)
1289.C1.2	Method C1.2: Soil classification tests—Determination of the liquid limit of a soil—One point method (subsidiary method)
1289.C2.1	Method C2.1: Soil classification tests—Determination of the plastic limit of a soil
1289.C4.1	Method C4.1: Soil classification tests—Determination of the linear shrinkage of a soil
1289.C5.1	Method C5.1: Soil classification tests—Determination of the soil particle density of a soil
1289.C6.1	Method C6.1: Soil classification tests—Determination of the particle size distribution of a soil—Standard method of analysis by sieving
1289.C6.3	Method C6.3: Soil classification tests—Determination of the particle size distribution of a soil—Standard method of fine analysis using a hydrometer
1289.3.9	Method 3.9: Soil classification tests—Determination of the cone liquid limit of a soil

1289.D1.1 Method D1.1: Soil chemical tests—Determination of the organic matter content of a soil
1289.D2.1 Method D2.1: Soil chemical tests—Determination of the sulfate content of an undisturbed soil and the sulfate content of the ground water
1289.D3.1 Method D3.1: Soil chemical tests—Determination of the pH value of a soil (standard method)
1289.D3.2 Method D3.2: Soil chemical tests—Determination of pH value of a soil—Colorimetric method (subsidiary method)
1289.E1.1 Method E1.1: Soil compaction and density tests—Determination of the dry density/moisture content relation of a soil using standard compaction (standard method)
1289.E1.2 Method E1.2: Soil compaction and density tests—Determination of the dry density/moisture content relation of a soil using standard compaction (subsidiary method)
1289.E2.1 Method E2.1: Soil compaction and density tests—Determination of the dry density/moisture content relation of a soil using modified compaction (standard method)
1289.E2.2 Method E2.2: Soil compaction and density tests—Determination of the dry density/moisture content relation of a soil using modified compaction (subsidiary method)
1289.F1.1 Method F1.1: Soil strength and consolidation tests—Determination of the California bearing ratio of a soil—Standard laboratory method for a remoulded specimen
1726 SAA Site Investigation Code

3 APPARATUS The following apparatus is required for the preparation of disturbed soil samples for testing:

(a) Balances with capacity to weigh sub-samples of up to 150 kg.
NOTE: Division of sub-samples for weighing purposes is acceptable.

(b) Mortar and a rubber pestle (rubber hardness Shore 87 approximately), or a mechanical device suitable for breaking up soil aggregates without reducing the size of the individual particles.

(c) AS 1152 sieves 19 mm, 6.7 mm, 2.36 mm, and 425 μm.

(d) 10 mm screen.
NOTE: A commercial nominal 10 mm woven wire screen is acceptable.

(e) Sample divider of the multiple slots type (riffle-box) similar to that shown in Figure 1 or rotary cone splitter (optional).

(f) Thermostatically controlled drying oven capable of maintaining a temperature of 45 °C to 50 °C (optional).

(g) Drying trays of suitable dimensions.

4 SAMPLE PREPARATION PROCEDURE

4.1 Preliminary preparation of soil Reduce the size of soil clods as received by chopping, grating or crumbling until aggregations of soil pass a 10 mm screen taking care not to crush individual particles. Recombine all particles retained on the 10 mm screen with the soil fraction and mix thoroughly.

NOTE: If the material is too wet to permit the preliminary preparation it should be air dried or placed in an oven not exceeding 50 °C until it is just dry enough to permit crumbling of the soil aggregations to enable sieving through the 10 mm screen.

4.2 Sample for determination of moisture content If the moisture content of the natural soil as received is required, obtain, by splitting, a representative sub-sample of the following minimum quantity—

for a fine-grained soil ..... 30 g;
for a medium-grained soil ..... 300 g; or
for a coarse-grained soil ..... 3 kg.

Then determine the moisture content as described in AS 1289.B1.1, AS 1289.B1.2, AS 1289.B1.3, AS 1289.B1.4 or AS 1289.B1.5, whichever is appropriate.

NOTE: For the test in AS 1289.B1.3, a sub-sample of about 150 g to 200 g for fine-grained soil, 300 g to 500 g for medium-grained soil and over 3 kg for coarse-grained soil, is required.

4.3 Sample for determination of liquid limit, cone liquid limit, plastic limit and linear shrinkage Thoroughly mix the sample prepared in accordance with Clause 4.1.

Subdivide the sample by splitting to obtain a representative sub-sample of sufficient size to provide the following amounts passing the 425 μm sieve:

(a) Liquid limit of the soil by either of AS 1289.C1.1 or AS 1289.3.9 and plastic limit by AS 1289.C2.1 ..... at least 300 g.