

Australian Standard[®]

Methods of testing soils for engineering purposes

Method 5.3.5: Soil compaction and density tests—Determination of the field dry density of a soil—Water replacement method

1 SCOPE This Standard sets out the method for determining the field dry density of a natural or compacted coarse-grained soil by the water replacement method, using a circular density ring on the surface and a plastic sheet to retain the water (see Notes 1 and 2). This test is particularly appropriate for soils containing appreciable proportions of cobbles and boulders as defined in AS 1289.0, e.g. rock fill.

The gross mass per unit volume (wet density) may be computed and the dry mass per unit volume (dry density) obtained by correcting for the moisture content.

The field dry density is determined either for the total material or for material finer than 19.0 mm, unless otherwise specified.

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

AS

1152	Specification for test sieves
1289	Methods of testing soils for engineering purposes
1289.0	Method 0 General requirements and list of methods
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)
1289.3.1	Method B3.1 Establishment of correlation between a subsidiary method of moisture content determination and the standard method (AS 1289.B1.1)
1289.3.5.1	Method 3.5.1 Soil classification tests—Determination of the soil particle density of a soil—Standard method
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