Australian Standard™

Methods of testing soils for engineering purposes

Method 5.3.1: Soils compaction and density tests—Determination of the field density of a soil—Sand replacement method using a sand-cone pouring apparatus

1 SCOPE

This Standard sets out the procedure for determining the field density of fine-grained and medium-grained soils (as defined in AS 1289.0) by the sand replacement method using a sand-cone pouring apparatus.

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

The field dry density is determined for the total material at the test site.

A tray with a 200 mm hole is normally used for material with more than 20% of particles retained on the 19.0 mm sieve but, for material with less than 20% of particles retained on the 19.0 mm sieve, a tray with a 150 mm hole may be used.

NOTE: The choice of hole diameter and depth depends on the soil type and maximum particle size of the material excavated. Normally a 200 mm diameter hole is used but a 150 mm diameter hole may be used for fine-grained soils. The method of test may be used to any depth between 50 mm and 250 mm consistent with the soil type and the requirements for sand calibration. In clean sands, the lip projecting from the bottom should not be used as it will penetrate into the sand being tested.

2 REFERENCED DOCUMENTS

The following documents are referred to 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)