

Australian Standard™

Methods of testing soils for engineering purposes

Method 5.3.2: Soil compaction and density tests—Determination of the field density of a soil—Sand replacement method using a sand pouring can, with or without a volume displacer

AS 1289.5.3.2

1 SCOPE

This Standard sets out a procedure for determining the field density of fine-grained, medium-grained and coarse-grained soils (as defined in AS 1289.0), by sand replacement with or without the use of volume displacers.

NOTE: The choice of hole diameter and depth depends on the maximum particle size of the material. Normally a 200 mm diameter hole is used for medium-grained materials and a 150 mm diameter hole is used for fine-grained materials. Care should be taken that the hole size is at least 4 times, and the hole depth at least 2.5 times, the nominal maximum particle size. However the method may be used to any depth provided that the appropriate apparatus is used.

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 density is determined for the total material at the test site.

Any of the following procedures may be used:

- (a) Procedure A—without a volume displacer, layer thickness about 50–250 mm.
- (b) Procedure B—with a known-volume displacer, layer thickness not less than about 100 mm.
- (c) Procedure C—with an IPC/D volume displacer device, layer thickness about 75–250 mm.

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)