

# Australian Standard®

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## Methods of testing soils for engineering purposes

### 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

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#### METHOD

**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 (see Note 1).

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 (see Note 1).

**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	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.B3.1	Method B3.1: Soil moisture content tests—Establishment of correlation between a subsidiary method of moisture content determination and the standard method (AS 1289.2.1.1)
1289.C5.1	Method C5.1: Soil classification tests—Determination of the soil particle density of a soil (standard 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

**3 APPARATUS** The following apparatus is required:

- (a) A sand pouring apparatus; either a sand-cone or a wind-shield sand-cone complete with conical funnel and tap. Typical designs are shown in Figures 1 and 2.