

Australian Standard[®]

Methods of testing soils for engineering purposes

Method 5.5.1: Soil compaction and density tests—Determination of the minimum and maximum dry density of a cohesionless material—Standard method

1 SCOPE This method covers the determination of the minimum and maximum dry density of a cohesionless material, using loose pouring to obtain the minimum dry density and vibratory compaction to obtain the maximum dry density (see Notes 1 and 2).

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

AS

- 1289 Methods of testing soils for engineering purposes
- 1289.0 Method 0: General requirements and list of methods
- 1289.1 Method 1: Preparation of disturbed soil samples for testing

3 APPARATUS The following apparatus shall be used:

- (a) Vibratory table consisting of a steel table of adequate size to accommodate the required size of mould (see Item (b)), and actuated by a unidirectional vibrator with a nominal operating frequency of 50 Hz and a vertical double amplitude (peak to peak) setting of 0.5 ± 0.05 mm when the table is loaded with the mould and material (see Note 3).
- (b) Cylindrical metal mould of known volume conforming to the nominal size requirements given in Table 1 and provided with handles and lugs for attachment to the vibratory table. The moulds shall be of sufficient rigidity to retain their form under rough usage.
- (c) Collar guide sleeve, with clamp assembly to fit each mould and to accommodate a surcharge (see Figure 1).
- (d) Surcharge as listed in Table 1.
- (e) Funnels of 13 mm and 25 mm diameter, and 150 mm long, with cylindrical spouts. It is advantageous if each funnel can be fitted with a lip or flange at the upper end for its attachment to a pouring can of about 5 L capacity.
- (f) Scoops with straight upright sides and flat base, of convenient size to suit the desired mould.
- (g) Balance of suitable capacity with a limit of performance not greater than ± 5 g.
- (h) Drying oven complying with the requirements of AS 1289.0, and accommodating the entire contents of the mould used.
- (i) Metal dishes or trays of suitable size to hold the samples during the drying or filling processes.
- (j) Steel straightedge.