Australian Standard™

AS 1289.3.5.2

Methods of testing soils for engineering purposes

Method 3.5.2: Soil classification tests—Determination of the soil particle density of combined soil fractions—Vacuum pycnometer method

1 SCOPE

This Standard sets out a method for determining the soil particle density of combined coarse, medium and fine or medium and fine fractions of a soil, using a vacuum pycnometer.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS		
1289	Methods of testing soils for engineering purposes	
1289.0	Part 0:	General requirements and list of methods
1289.1.1	Method 1.1:	Sampling and preparation of soils—Preparation of disturbed soil samples for testing
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)

3 APPARATUS

The following apparatus is required:

(a) Pycnometer, a vacuum-type glass flask or stainless steel vessel equipped with a stopper or ground flat lid on the top with the top opening sufficiently wide to place the largest particles inside. The pycnometer volume required for material of a particular maximum particle size is given in Table 1.

(b) Pycnometer lid, slightly larger than the top of the pycnometer and ground flat on at least one side (a stopper may be used with a suitable pycnometer).

(c) Vacuum pump, capable of producing a vacuum of about 700 mm of mercury, including connections and water vapour traps, etc.

NOTE: A vacuum of about 700 mm of mercury necessitates care being taken, particularly in the initial stages, if material is not to be lost.

(d) Safety surround, to retain flying glass if an implosion should occur owing to the reduced pressure.

(e) Thermometer or other suitable temperature-measuring device covering a range of 0°C to 50°C, graduated to 1°C or less, with an uncertainty not greater than ±0.5°C.

(f) Balances with limits of performance as shown in Table 1.

(g) Drying oven as specified in AS 1289.0.

(h) Container for storing water at room temperature.