

# Australian Standard<sup>®</sup>

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## Methods of testing soils for engineering purposes

### Method 2.2.1: Soil moisture content tests— Determination of the total suction of a soil—Standard method

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**1 SCOPE** This Standard sets out a method for the laboratory determination of the total suction of a soil (see AS 2870) by measurement of the dewpoint temperature of a thermocouple in a small air space in equilibrium with the soil. The method is applicable for suctions ranging from pF 3.2 to approximately pF 5.

**2 REFERENCED DOCUMENT** The following document is referred to in this Standard:  
AS  
2870 Residential slabs and footings—Construction

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

- (a) Thin-walled sampler consisting of a tube with a bevelled cutting edge machined directly on the sample tube. The bevelled cutting edge shall make an angle not exceeding 15° to the axis of the tube with a permitted land width at the cutting edge not exceeding 0.5 mm. The ratio of net projected area of sampler to projected area of sample core shall not exceed 10%, and any internal clearance shall not exceed 1% of the diameter at the cutting edge.
- (b) Dewpoint microvoltmeter and psychrometric sample chamber (see Note 1) with manufacturer's instruction manual.
- (c) Flat glass plate approximately 10 mm thick and at least 400 mm square.
- (d) Palette knife having a blade approximately 100 mm long and 20 mm wide and a scalpel for cutting.
- (e) Clock or watch with a sweep second hand or a digital stopwatch for determining equilibrium times and cooling and heating times.
- (f) Drying room with temperature controlled at 23 ±2°C and with a relative humidity maintained between 40% and 60%. In areas of Australia where maintenance of these temperature and humidity limits is impractical, the equipment shall be calibrated and operated in a similarly stable climatic environment.

**4 SAMPLES** An intact sample shall be obtained from a thin-walled sampler pushed into the soil. The sample shall be at least 30 mm in length and a practical minimum of 30 mm in diameter (see Note 2). A visual description of the soil shall be recorded. After the sample is obtained, it shall be sealed quickly and thoroughly, taking care to exclude air. Samples shall be stored in the temperature controlled drying room for a minimum period of six hours prior to testing.