Australian Standard®

# Methods of testing soils for engineering purposes

# Method 6.4.2: Soil strength and consolidation tests—Determination of compressive strength of a soil—Compressive strength of a saturated specimen tested in undrained triaxial compression with measurement of pore water pressure

**1 SCOPE** This method describes a basic test procedure applicable to cohesive soils and sets out a method for determining the compressive strength of a specimen of soil in a triaxial compression apparatus under conditions in which the cell pressure is maintained constant. There is no change in the total water content of the specimen during shearing and the pore pressure is monitored throughout the test (see Notes 1 and 2). The procedure is applicable only to fully saturated soils meeting the requirements stated herein. The test described is limited to specimens in the form of right cylinders of height not less than twice, and not more than 2.5 times, the diameter of the cylinder (see Note 3). The shearing stage of the triaxial test in which an axial compressive load is applied to the specimen at a constant rate may be preceded by a saturation stage to bring the specimen to an effectively fully saturated state or a dissipation stage, or both, where the specimen is allowed to consolidate under constant total stress conditions (see Note 4).

Cohesionless materials may be tested by triaxial methods; however, special techniques are required for the specimen preparation, for which information can be obtained from the reference sources (see Note 4). The specific conditions of any test procedure are defined by a geotechnical engineer who ensures the test method is appropriate for the data required.

**2 REFERENCED DOCUMENT** The following document is referred to in this Standard:

AS
1289 Methods of testing soils for engineering purposes
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 and shall be operated in a room in which the temperature is maintained at a constant level ±2°C:

(a) A triaxial test cell of dimensions appropriate to the size of the specimen, suitable for use with the selected fluid at the highest test pressure, and provided with a means of applying additional axial compressive load to the specimen through a loading ram.