

Australian Standard®

Methods of testing soils for engineering purposes

Method 3.9: Soil classification tests— Determination of the cone liquid limit of a soil

1 SCOPE This method sets out a procedure for the determination of the cone liquid limit of a soil using a cone penetrometer. The definition of liquid limit inherent in this method is not the same as that in the method using the Cassagrande apparatus (AS 1289.C1.1) although the values can be numerically similar (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.A2 Method A2: General and sample preparation—Preparation of disturbed soil samples for testing

1289.B1.1 Method B1.1: Soil moisture content tests—Determination of the moisture content of a soil—Oven drying method (standard method)

1289.C1.1 Method C1.1: Soil classification tests—Determination of the liquid limit of a soil—Oven drying method (standard method)

BS

1377 Methods of test for soils for civil engineering purposes

2000 Methods of test for petroleum and its products
Part 49: Penetration of bituminous materials

3 APPARATUS The following apparatus is required:

- (a) Enamel, glass or plastics bowls of about 150 mm diameter, with suitable close-fitting covers.
- (b) A flat glass plate of about 10 mm thickness and approximately 450 mm square (optional).
- (c) Two palette knives each having a blade approximately 200 mm long and 30 mm wide, or other convenient size.
- (d) A manual or automatic release penetrometer generally complying with BS 2000: Part 49, with the exception of the total mass of the needle and shaft, and generally as illustrated in BS 1377 and Figure 1.
- (e) A metal right cone of length not less than 32 mm and an included angle of 30 ± 1 degrees. The cone shall have a smooth, unblemished, polished surface and shall be replaced when the point can no longer be felt when brushed lightly with a fingertip when the tip of the cone is pushed through a hole of 1.5 mm diameter bored through a metal plate 1.75 ± 0.1 mm thick. The cone is fitted to the penetrometer in the manner shown in Figure 1. The combined mass of the cone and the sliding shaft shall be 80.00 ± 0.05 g.
- (f) A rigid cup of near constant internal diameter of not less than 53 mm and internal height not less than 40 mm with a smooth rim parallel to a flat base.
- (g) Apparatus for moisture content determination as described in AS 1289.B1.1.
- (h) A wash bottle and potable water.
- (i) A metal straightedge (optional).