Australian Standard®

Methods of testing soils for engineering purposes

Method 3.8.1: Soil classification tests—Dispersion—Determination of Emerson class number of a soil

1 SCOPE

This Standard sets out the method for determining the Emerson class number* of a soil. Soils are divided into seven classes on the basis of their coherence in water, with one further class being distinguished by the presence of calcium-rich minerals.

2 REFERENCED DOCUMENT

The following document is referred to in this Standard:

ISO
3310 Test sieves—Technical requirements and testing (series)

3 PRINCIPLE

The test primarily provides a visual assessment of the behaviour of soil particles to deflocculation in water. The particle is immersed in water and the soil crumb is observed after 10 minutes and classified as to colloids in suspension. However, if the soil is dispersive, the colloid suspension will not settle after a few hours.

The test may be performed using varying water types and on oven dried or in situ samples. In adopting varying preparation methods, the test results will vary to the standard method adopted.

4 APPARATUS

The following apparatus shall be used:

(a) 250 mL beakers (squat pattern).

(b) Sieves, 4.75 mm, 2.36 mm and 0.425 mm aperture, as designated in the ISO 3310 series.

(c) Spatula.

(d) Test tubes and stand.

(e) Thermometer readable to 1°C.

(f) A black background using heavy parchment or other suitable material.

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* For further information refer to Emerson, WW. 'A Classification of Soil Aggregates Based on their Coherence in Water'. *Australian Journal of Soil Research* 5(1) pp 47–57. 1967. Available on the CSIRO Publishing website.