Australian Standard®

Methods for sampling and testing aggregates
Method 33: Clay and fine silt (settling method)

1 SCOPE

This Standard describes a settling test which may be used in the field or laboratory as a guide to the amount of fine silt, clay and similar materials in fine aggregates. The test is not recommended for fine aggregates known to have more than 10% passing the 75 µm sieve aperture as it is unlikely that the clay and fine silt will separate from sand-sized particles in the settling column. The test may not be suitable for fine aggregates containing some active clays as these clays may not separate from the sand during the settlement period. This test is not suitable for testing manufactured sands.

2 PRINCIPLE

The test method causes a sample that is a mixture of sand, silt and clay-sized particles to be agitated in a column of a salt solution. The particles settle in the liquid and the silt and clay particles that require a longer time to settle out of the suspension, usually form a distinct layer above the sand-sized particles. The sodium ions in the salt solution assist in settling the clay particles by causing partial flocculation. The test result is the volume of clay and silt particles in relation to the volume of the sand particles.

In samples where there is a high volumetric proportion of clay and silt, or where the clay particles are active (i.e. have a high cationic exchange capacity) clay and silt particles may remain visible, trapped within the sand particles at the end of the test. In these instances, this standard test is not appropriate for the material in question, although the method provides some suggestions for dealing with this situation.

The test provides a volumetric measure of the clay and silt particles present in the sample. There is no consistent relationship between this test result and the result of the mass passing the 75 µm test (either AS 1141.11.1 or AS 1141.12). In general, the magnitude of the result of this test will be greater than the result of the passing 75 µm. It is probable that the greater the difference between the two tests, the more active the clay in the sample.

3 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard:

NOTE: Documents referenced for informative purposes are listed in the Bibliography.

AS		
1141	Methods for sampling and testing aggregates	
1141.1	Part 1:	Definitions
1141.2	Method 2:	Basic testing equipment
1141.3.1	Method 3.1:	Sampling—Aggregates

4 DEFINITIONS

For the purposes of this Standard, the definitions of AS 1141.1 apply.