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 as a guide to the amount of fine silt, clay and similar materials in fine aggregates. It is not generally applicable to sands manufactured by crushing rock when there is little silt and clay present.

2 APPARATUS The required apparatus, complying with the relevant provisions of AS 1141.2, is a glass or transparent plastic 250 ml stoppered measuring cylinder graduated to 5 ml increments.

3 REAGENT The reagent shall be common salt or table salt.

4 TEST PORTION A test portion shall be taken sufficient to yield about 100 mL of fine aggregate from the sample. This test portion shall be used without further treatment.

5 PROCEDURE The procedure shall be as follows:

(a) Prepare a nominal 1 percent solution of common salt in water by adding 10 g of common or table salt to 1 L of water.

(b) Place about 50 mL of the salt solution in the 250 mL stoppered measuring cylinder. Pour aggregate into the cylinder until its measured volume in the cylinder is approximately 100 mL. If the volume is less than 150 mL make the volume up to 150 mL by the addition of more salt solution and stopper the cylinder.

(c) Shake the mixture vigorously for approximately 30 s until adherent particles have been dispersed. Place the measuring cylinder on a level surface, and gently tap it until the surface of the aggregate is level.

(d) Allow the measuring cylinder and contents to stand for 3 h. At the end of that time note the volume of the sand (S) and the volume of the settled clay and fine silt (F) (see Figure 1).

NOTE: When using a measuring cylinder, reading the heights in millimetres is sufficient as the cross-sectional area of the cylinder is the same at any height and therefore the ratio of the heights is equivalent to the ratio of the volumes.

6 CALCULATIONS The ratio (C) of the volume of clay and fine silt to the volume of sand below shall be calculated and expressed as a percentage, using the following formula:

$$C = \frac{F}{S} \times 100$$

where

C = ratio by volume of clay and fine silt to sand expressed as a percentage

F = volume of settled clay and fine silt above the sand

S = volume of the sand after settling.