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Australian Standard

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METHODS FOR SAMPLING AND TESTING AGGREGATES

AS 1141.22

WET/DRY STRENGTH VARIATION*

1 SCOPE. This standard sets out the method for the determination of the variation in strength for aggregate tested both in the oven dry and saturated surface dry condition.

NOTES:

1. The test is normally performed on aggregate passing the 13.2 mm AS sieve and retained on the 9.50 mm sieve (known as the 'standard size fraction'), but can also be done on other size fractions and also on crushed spalls or drill cores.
2. General notes on this test method are given in Appendix A.

2 DEFINITION. For the purpose of this standard, the strength is defined as the crushing force which, when applied to a known mass of coarse aggregate, will produce fines amounting to 10 percent of the mass of the dry test portion.

3 APPARATUS. The following apparatus, complying with the relevant provisions of AS 1141.2, is required:

- (a) *Absorbent cloth or towelling.*
- (b) *Balance*—a balance of 10 kg capacity, readable and accurate to 1 g.
- (c) *Basket*—wire basket of sufficient size to contain the test sample with mesh aperture less than that of the size fraction to be tested.
- (d) *Cylinder*—an open-ended steel cylinder with plunger and baseplate to suit the aggregate size to be tested (see Table 1).
- (e) *Dishes*—metal dishes or trays of dimensions appropriate to the nominal size of the material.
- (f) *Mallet*—rubber mallet with face about 75 mm diameter, mass 1100 ± 100 g and handle length about 300 mm.
- (g) *Measure*—a standard measure of 115 ± 5 mm diameter and 180 ± 5 mm height, a large measure of 240 ± 5 mm diameter and 300 ± 5 mm height, and a small measure of 60 ± 3 mm diameter and 90 ± 3 mm height.
- (h) *Oven*—thermostatically controlled oven with good air circulation capable of maintaining a temperature within the range of 105°C to 110°C .
- (i) *Sieves*—53.0, 37.5, 26.5, 19.0, 13.2, 9.50, 6.70, 4.75 mm (perforated plate), 3.35, 2.36, 1.70, 1.18 mm, 850 μm and 600 μm (wire cloth) sieves as required, complying with AS 1152.†
- (k) *Straightedge*—about 300 mm length.
- (l) *Testing machine*—compression testing machine which can be loaded to apply a force having a range of at least 500 kN at a uniform rate of application appropriate to the type of material (see Clause 5.1(c) and Clause 5.2(b)).

4 PREPARATION OF TEST PORTIONS. The test portions shall be prepared as follows:

- (a) Obtain a bulk sample of material large enough to yield the amount of aggregate of required size, as specified in Table 1.
- (b) Prepare a sample of standard size fraction as follows:
 - (i) Separate the 13.2 mm to 9.50 mm fraction by sieving and discard the material retained on the 13.2 mm sieve and passing the 9.50 mm sieve. If sufficient of the standard size fraction is not obtained, refer to Notes 1 and 2 in Appendix A.
 - (ii) Wash (with water) the selected fraction on the retaining sieve (refer to Table 1, column 2) to remove adhering fines.
 - (iii) Dry to constant mass in the oven.

*The wet/dry strength variation test is a modification of the BS 812 Ten Percent Fines, based on Test Method T215 of the Department of Main Roads, New South Wales.
†AS 1152, Test Sieves.