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Australian Standard

METHODS FOR SAMPLING AND TESTING AGGREGATES

AS 1141.23 LOS ANGELES VALUE

1 SCOPE. This standard sets out the procedures for the determination of the loss on abrasion of aggregate particles by means of the Los Angeles abrasion testing machine. The test may also be applied to aggregate particles from crushed rock, gravel or crushed slag, or to crushings derived from rock spalls or drill cores. It takes into account the fact that the Los Angeles value is affected by the size and particle shape of the aggregate tested.

NOTE: This method is a modification of ASTM C131—76, Los Angeles Abrasion Loss, and is based on Country Roads Board Test Method CRB 371.01.

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

- (a) *Balance*—of 10 kg capacity, readable and accurate to 1 g.
- (b) *Brushes*—suitable for cleaning sieves, containers and machine.
- (c) *Crusher* (or other suitable equipment)—for reducing the spalls and cores to the required sizes.
- (d) *Los Angeles machine*—with charge of steel balls, each 417 ± 27.5 g mass and approximately 48 mm diameter, as shown in Tables 2 and 3.
- (e) *Mechanical sieve shaker* (optional)—suitable for 300 mm sieves.
- (f) *Oven*—thermostatically controlled to operate at a temperature within the range 105°C to 110°C.
- (g) *Sample dividers (riffle boxes)*.
- (h) *Sieves*—300 mm diameter, 37.5, 26.5, 19.0, 13.2, 9.50, 6.70, 4.75 mm (perforated plate), 1.70 mm (wire cloth) and pan, complying with AS 1152*.
- (j) *Slotted sieves*—with rectangular apertures of the sizes specified in the method for determination of flakiness index (see AS 1141.15, Table 15.1); or
Thickness gauge—with apertures conforming to the dimensions shown in AS 1141.15, Fig. 15.1, may be used and is normal for particles larger than 26.5 mm.
- (k) *Vibrating table* (optional)—which shall utilize a high frequency lateral and vertical motion.

3 SELECTION OF TEST GRADING. The test portion shall consist of a combination of aggregate fractions obtained by sieving, washing and riffing representative material to comply with a grading given in Table 1, 2 or 3. Where spalls or drill cores are submitted for testing, the rock shall be crushed and a test portion prepared to comply with the B-25 percent flaky particles grading (see Table 1).

Where aggregates, crushed rock or gravel are submitted for testing, the Los Angeles value test grading (see Table 2 or 3) nearest to the grading of the actual material supplied shall be selected. No adjustment of the percentage of flaky particles in the test portion is required when using Table 2 or 3.

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

- (a) Prepare the required unwashed amount of each fraction (see Table 1, 2, or 3) by sieving representative material on appropriate sieves by hand or in a mechanical shaker.
- (b) Separate the flaky particles in each fraction using the slotted sieves or thickness gauge. Determine the percentage of flaky particles in each fraction (by mass). Record these values and then recombine flaky and non-flaky particles of each fraction. If the test portion is being prepared to comply with the B-25 percent flaky particles grading (see Table 1), keep flaky and non-flaky particles separated for later blending.

*AS 1152, Test Sieves.