



**Transport**  
Roads & Maritime  
Services

# Test method T205

## Aggregate crushing value

OCTOBER 2012



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## Revision Summary

Ed/Rev Number	Clause Number	Description of Revision	Authorisation	Date
		Reformatted and Revision Summary Added A.S. No. Revised	D.Dash	May 1999
Ed 2/ Rev 0	All	Reformatted RMS template	J Friedrich	October 2012

Note that Roads and Maritime Services is hereafter referred to as 'RMS'.

The most recent revision to Test method T205 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

# Test method T205

## Aggregate crushing value

### 1. Scope

This test method sets out the procedure for the determination of the aggregate crushing value which is the percentage of fines produced when an aggregate is subjected to a gradually applied crushing force. The aggregate crushing value provides a relative measure of the resistance of an aggregate to crushing.

The standard test is made on dry aggregate passing a 13.2 mm AS sieve and retained on a 9.50 mm AS sieve and is performed in duplicate. This method conforms to the method described in Australian Standard 1141.21

### 2. Apparatus

- (a) An open-ended steel cylinder having an internal diameter of approximately 150 mm and an internal height of approximately 133 mm, with plunger and base-plate. A suitable form of apparatus is described in Australian Standard 1141.
- (b) A metal tamping rod, 15 mm diameter, approximately 500 mm long, with a spherical end.
- (c) A balance of 6000 g capacity, readable and accurate to 1 g
- (d) 13.2 mm, 9.50 mm and 2.36 mm AS sieves for standard tests
- (e) A compression testing machine which can be loaded to apply a force having a range of at least 400 kN at a uniform rate of application of 40 kN per minute.
- (f) A cylindrical metal measure having an internal diameter of 115 mm and an internal height of 180 mm
- (g) A thermostatically controlled oven with good air circulation, capable of maintaining a temperature within the range of 105°C to 110°C
- (h) Metal dishes, 225 mm and 350 mm.

### 3. Test Portion

- (a) The test portion shall be sufficient to yield not less than 10000 g of material passing a 13.2 mm sieve and retained on a 9.50 mm sieve.
- (b) The test portion shall be dried to constant mass in an oven at a temperature within the range of 105°C to 110°C and then screened on 13.2 mm and 9.50 mm sieves.
- (c) The mass of aggregate required for each determination shall be ascertained as follows:
  - (i) Fill the cylindrical measure about one-third full and compact the aggregate with 25 strokes of the tamping rod. Add a further similar quantity of aggregate and again compact with 25 strokes of the tamping rod. Finally, fill the measure to overflowing, tamp 25 times and strike off the surplus aggregate using the tamping rod as a straight edge.
  - (ii) Determine the mass of aggregate contained in the cylindrical measure. Discard the aggregate after weighing.
  - (iii) Weigh out two amounts of aggregate from the test portion, each equal in mass to the mass of aggregate contained in the cylindrical measure, to provide two separate test samples. Excess material should be placed in a container, sealed, labelled and stored.

### 4. Procedure

- (a) Position the crushing cylinder on the base-plate and add a test sample in thirds, compacting each third with 25 strokes of the tamping rod. Particular care must be taken in the case of weak materials not to break the particles. Carefully level the surface of the aggregate and insert the plunger so that it rests horizontally on this surface, taking care to ensure that the plunger does not jam in the crushing cylinder. Remove the lifting handles from the plunger.

- (b) Place the crushing apparatus, with the test sample and plunger, in position between the platens of the compression testing machine and apply a force of 400 kN at a uniform rate of 40 kN per minute so that the total force is applied in 10 minutes.
- (c) Release the force and remove the crushing apparatus from the compression testing machine. Withdraw the plunger and extract the whole of the test sample from the crushing mould without further breaking of particles in the test sample and taking care to avoid loss of fines.
- (d) Screen the test sample on a 2.36 mm sieve until not more than one per cent, by mass, passes the sieve during a further one minute of continuous hand sieving. Determine the mass of the material passing the 2.36 mm sieve.
- (e) Repeat the test with the other test sample.

## 5. Calculations

Calculate the aggregate crushing value for each determination as follows:

$$\text{Aggregate Crushing Value} = \frac{B}{A} \times 100$$

Where

- A = mass of test sample  
B = mass of material passing 2.36 mm sieve.

## 6. Reporting

- (a) The mean of the two results shall be reported as the aggregate crushing value of the sample.
- (b) The aggregate crushing value shall be reported to the nearest 0.5 per cent.