



**Transport**  
Roads & Maritime  
Services

# Test method T216

## Sandstone 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	D.Dash	May 1999
		Date on Test Method Revised to Agree with Date on Revision Summary	D.Dash	Feb 2001
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 T216 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

# Test method T216

## Sandstone crushing value

### 1. Scope

This test method sets out the procedure for the determination of the crushing value for saturated samples of crushed sandstone or similar rocks. The crushing value is the percentage fines produced when rock particles are subjected to a gradually applied crushing force and provides a relative measure of the resistance to rock particles to crushing when saturated. The method is similar to Test Method T205 except for the use of saturated samples.

### 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) 19.0 mm, 13.2 mm and 2.36 mm AS sieves
- (d) A balance of 6000 g capacity, readable and accurate to 1g
- (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 diameter
- (i) Container in which to soak the test sample

### 3. Test Portion

- (a) Crush or break the sample to provide not less than 10000 g of material passing a 19.0 mm sieve and retained on a 13.2 mm sieve
- (b) The mass of crushed rock required for each determination shall be ascertained as follows:
  - (i) Fill the cylindrical measure about one-third full and compact the crushed rock with 25 strokes of the tamping rod. Add a further similar quantity of crushed rock and again compact with 25 strokes of the tamping rod. Finally, fill the measure to overflowing, tamp 25 times and strike off the surplus crushed rock using the tamping rod as a straightedge
  - (ii) Determine the mass of crushed rock contained in the cylindrical measure. Discard the crushed rock after weighing
  - (iii) Weigh out two amounts of crushed rock from the test portion, each equal in mass to the mass of crushed rock contained in the cylindrical measure, to provide two separate test samples

### 4. Procedure

- (a) Place the test sample in a suitable container and add sufficient water to cover the test sample. Allow the test sample to stand in water at room temperature for 24 hours
- (b) Remove the test sample from the water and allow to drain for 15 minutes
- (c) Position the crushing cylinder on the base-plate and add the 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 crushed rock 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

- (d) 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 + 4 kN per minute so that the total force is applied in 10 minutes
- (e) 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
- (f) Place the test sample in a metal dish and dry to constant mass in an oven at a temperature within the range of 105°C to 110°C
- (g) Screen the test sample on a 2.36 mm sieve until not more than one percent, by mass, passes the sieve during a further one minute of continuous hand sieving. Determine the mass of material passing the 2.36 mm sieve
- (h) Repeat the test using the other test sample

## 5. Calculations

Calculate the sandstone crushing value for each determination as follows:

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

Where

A = mass of dry 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 sandstone crushing value of the sample
- (b) The sandstone crushing value shall be reported to the nearest 0.5 percent