



# Test method T280

Determination of maximum particle dimension of road construction materials by direct measurement

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## Revision Summary

Ed/Rev Number	Clause Number	Description of Revision	Authorisation	Date
Ed 1/ Rev 0	All	New Issue	J Friedrich	March 2015

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

The most recent revision to Test method T280 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

# Test method T280

## Determination of maximum particle dimension of road construction materials by direct measurement

### 1. Scope

This test method sets out the procedure for determining the maximum particle dimension by direct measurement for materials greater than 125 mm. Material with a maximum particle size of less than 125 mm is to be sampled and tested in accordance with relevant specifications and test methods.

*NOTE: Sieves are not suitable to use for the determination of the particle dimensions of material greater than 125 mm. The performance of test methods T106 or T201 is suitable to determine the maximum particle dimensions of material less than 125 mm.*

### 2. General

- (a) The following documents are referred to in this test method:
  - (i) AS1141.3.1 Sampling Aggregates
  - (ii) T106 Coarse particle size distribution of road construction materials (by dry sieving)
  - (iii) T201 Particle distribution of aggregates (by washing)

### 3. Apparatus

- (a) A measurement gauge of suitable size (readable to 1 mm) to determine the amount of materials greater than 125 mm
- (b) Power equipment for sampling (eg front end loader or similar)
- (c) Equipment to mark out 2 x 2m test area ( $\pm 0.0025 \text{ m}^2$ )

### 4. Preparation

#### 4.1 Stockpile pads

- (a) Prepare a pad using the back blade method as set out in AS1141.3.1
  - (i) Remove sufficient material from the base and the side of the stockpile with power equipment (preferred equipment front end loader) to a depth of at least 200 mm until a fresh face is exposed.
  - (ii) Cut a step in the stockpile from near full height to the base of the stockpile by drawing the loader bucket downwards through the cleared area. Draw this material to form a pad on a flat clean surface so the sides are at least 3 x 3m or a diameter of 3m. The depth of the pad is to be sufficient to have at least two layers of particles.
  - (iii) This is considered as one sample site.
- (b) Preparation of pad using other than back blade method.
  - (i) Remove sufficient material from the base and the side of the stockpile with power equipment (preferred equipment front end loader) to a depth of at least 200 mm until a fresh face is exposed.
  - (ii) From the fresh face, remove one or more bucketsful of at least 3 m<sup>3</sup> and place in a heap on a flat clean surface. Using the power equipment, turn over the heap until the material recovered from the stockpile is sufficiently mixed. Level the top of the heap to form a pad with the power equipment so the sides are at least 3 x 3m or a diameter of 3m. The depth of

the pad is to be sufficient to have at least two layers thick of the maximum particle dimension to be measured

- (iii) This is considered as one sample site.

#### 4.2 Insitu, loose, placed or compacted layers

- (a) Where measurement of the maximum particle dimension is greater than 125 mm, no preparation is required

#### 4.3 Samples supplied by others

- (a) Samples supplied by a client to the laboratory for measurement of the maximum particle dimension greater than 125 mm must be sufficient quantity to form a pad 3 x 3 m or diameter of 3 m. The depth of the pad is to be sufficient to have at least two layers thick of the maximum particle dimension to be measured

### 5. Procedure

#### 5.1 Measurement of particles in stockpiles or supplied by others

- (a) Prepare a pad as described in clause 4.1 or 4.3
- (b) Where measurement of the maximum particle dimension is greater than 125 mm, mark out an area of 2 x 2m square.
- (c) Use the measurement gauge to identify particles greater in size than nominated and record maximum dimension (in any orientation) of each oversized particle.
- (d) Count and record the number (N) of and the maximum dimension of the oversize particles of the sample in mm within the marked out area.
- (e) The steps given in (a) to (d) above are to be repeated for each additional location in the stockpile in accordance with the sampling frequency in Table 1 or in the site specific sampling plan.

**Table 1 - Sampling Frequency**

	1 – 500	501 - 1000	1001 - 2000	2001 – 4000
Total Mass of stockpile represented (tonnes)				
Minimum number of samples per stockpile	2	3	4	5

#### 5.2 Measurement of particles insitu, loose, placed or compacted layers

- (a) Sample locations must be determined as described in Roads and Maritime Specification Q6. L3.1 Sample and Testing, Note 3 (a) to (h) only. A site specific sampling plan showing sample locations is required.
- (b) Where measurement of the maximum particle dimension is greater than 125 mm, mark out an area 2 x 2m square. For sample locations located on lines 2, 3, 4 & 5 the centre of the square area is to be positioned on the sample location as determined in step 5.2 (a). For samples located on lines 1 and 6, the test area is to be positioned so the outer edge of the test area is on and parallel with lines 1 and 6.
- (c) Use the measurement gauge to identify particles greater in size than nominated and record maximum dimension (in any orientation) of each oversized particle.

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- (d) Count and record the number ( $N$ ) and the maximum dimension of the oversize particles of the sample in mm within the marked out area.
  - (e) The steps given in (a) to (d) above are to be repeated for each additional location.

## 6. Reporting

Include the following data and results in the report:

- (a) Type of material and its use.
- (b) The maximum specified particle dimension.
- (c) Whether the sample was taken from a stockpile or from insitu, loose placed or compacted layers or supplied by the client
- (d) Sampling method.
- (e) Origin of material.
- (f) Size of the test area  $m^2$
- (g) The number of particles ( $N$ ) in the test area for each sample.
- (h) The dimension of the largest particle identified (mm) for each sample.
- (i) Date of sampling.
- (j) Stockpile identification.
- (k) If the maximum particle dimension for material less than 125 mm was determined using T106 or T201, report the percent retained on the relevant sieve aperture as the largest dimension.
- (l) Reference to this test method.

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