

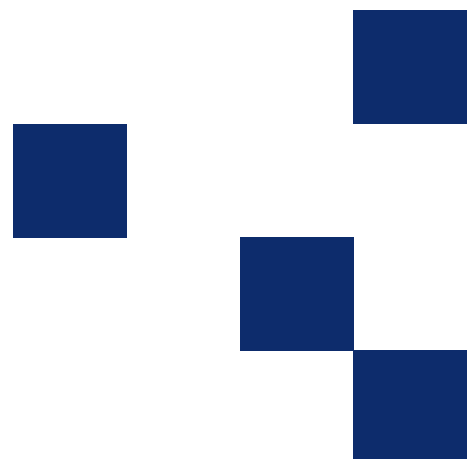


Transport
Roads & Maritime
Services

Test method T322

Flow of grout mixtures

OCTOBER 2012



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 T322 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

Test method T322

Flow of grout mixtures

1. Scope

This test method sets out the procedure to be used in assessing the flow of grout mixtures by measuring the time of efflux of a specified volume of grout from a standard flow cone. The method may be used both in the laboratory and in the field and is identical to the U.S. Corps of Engineers Test Method CRD-C79.

2. Apparatus

- (a) Flow cone conforming to the dimensions and other requirements set out in the U.S. Corps of Engineers Test Method CRD-C79.
- (b) An electrically driven mixer unit fitted with at least a 125W motor which imparts both a planetary and revolving motion about a vertical axis to the mixing paddle, the paddle revolving at a rate of 140 ± 5 revolutions per minute when set on slow speed and 285 ± 10 revolutions per minute when set on medium speed. The dimensions of the machine to comply with those set out in the Australian Standard 1315 - Specification and Methods of Test for Portland Cement.
- (c) Stop watch having a least reading of not more than 0.2 seconds.
- (d) Balance or scale capable of weighing up to 4000g with a tolerance of 1g
- (e) Volumetric Apparatus for measuring mixing water with a sufficient capacity to measure the necessary quantity of water without refilling, and delivering the indicated volume at 23°C with a tolerance of 1 per cent

3. Calibration of Apparatus

- (a) Mount the flow cone firmly in such a manner that the top is level and the cone free from vibration. Close the discharge tube by placing the finger over the lower end.
- (b) Introduce a quantity of water equal to 1725 ± 1 mL into the cone. Adjust the point gauge to indicate the level of the water surface.

4. Sample

The test sample consists of 1725 ± 1 mL of grout.

5. Procedure

- (a) Place the required amount of mixing water in the mixing bowl and introduce 3000g of cement. Mix the cement in with a spatula, breaking up all lumps.
- (b) Start the mixer and raise the bowl and mix for 30 seconds at slow speed followed by 30 seconds at medium speed.
- (c) Stop the mixer, lower the bowl, and scrape down the cement paste clinging to the sides of the bowl and on the mixing paddle. Allow to stand for a total period of 90 seconds.
- (d) Restart the mixer, raise the bowl and mix for a further period of one minute at medium speed.
- (e) Moisten the inside surface of the flow cone. Place the finger over the outlet of the discharge tube and introduce the grout carefully into the cone until the grout surface rises into contact with the point gauge.
- (f) Start the stop watch and remove the finger from the aperture simultaneously.
- (g) Stop the watch at the first break in the continuous flow of grout from the discharge tube.
- (h) Record the time indicated by the stop watch as the time of efflux of the grout.
- (i) Make at least two tests for any grout mixture.

6. Reporting

Report the average time of efflux to the nearest 0.2 seconds and the water/cement ratio, and record the temperature of the sample at the time of test.

Note: When carrying out tests on admixtures they must be incorporated in such a way that a homogeneous mixture results. Dry powdered admixtures must be premixed with the cement to ensure complete dispersion. Liquid admixtures must be added to the mixing water before the cement is added.