



**Transport**  
Roads & Maritime  
Services

# Test method T364

## Concrete prism test for AAR assessment

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 1/ 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 T364 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

# Test method T364

## Concrete prism test for AAR assessment

### 1. Scope

- (a) The purpose of this test is to determine the susceptibility of aggregate and/or aggregate-cement combinations to expansive reactions involving sodium and potassium alkalis, known as alkali aggregate reaction (AAR)\*. The determination is obtained by measuring the increase in length of representative concrete prisms during storage under prescribed test conditions.

**\* The test method is suitable for assessment for Alkali Silica Reactivity and also for Alkali Carbonate Reactivity.**

### 2. Test procedures

**The test is carried out on duplicate specimens of concrete prisms. Test procedures shall be in accordance with AS 1012 - Methods of testing concrete. Method 13 - Determination of the drying shrinkage of concrete for samples prepared in the field or in the laboratory, except that :**

- (a) Concrete constituents shall be in accordance with the Contractor's nominated mix design with a minimum cement content equivalent to 420 kg/m<sup>3</sup> of concrete,
- (b) Sodium hydroxide shall be added to the mixing water so as to adjust the level of cement alkali to 1.38% Na<sub>2</sub>O equivalent,
- (c) The "dry room" shall be replaced by "humidity cabinet" or container which is maintained at 38°C and 100% relative humidity,
- (d) Initial measurements and all other measurements shall be carried out in a constant temperature room of 23 ± 2°C. All measurements subsequent to the initial measurements shall be done after the specimens have recovered in the 23 ± 2°C room overnight
- (e) Length measurements shall be carried out weekly in the first month and twice a month in the next two months and monthly afterwards up to the age of one year (or longer if specified) commencing from the time of placing the concrete prisms in the humidity cabinet.
- (f) Instead of Clause 8 of AS 1012.13, the procedures detailed in Clause 3 of this document shall apply.

### 3. Calculation and expression of results

- (a) The results are calculated and expansion is expressed as follows:
- (b) For each period of storage time, subtract the mean initial length measurement, in millimetres, from the length measurement, at that time, in millimetres.
- (c) Divide the difference obtained from Item (a) by the original effective gauge length, which shall be taken as 250 mm.
- (d) Express the result, in percentage expansion relative to the gauge length of 250 mm.
- (e) For each period of storage time for the one sample of concrete, calculate the average expansion of the duplicate results.

### 4. Aggregate classification

- (a) Aggregate shall be classified reactive when the average expansion at 12 months is greater than 0.03%, and non reactive when it is equal to or below 0.03%.