Australian Standard®

Methods of testing concrete

Method 23: Water content of freshly mixed concrete—Microwave oven method

1 SCOPE

This Standard provides a method of estimation of the free water content of fresh concrete using a relatively high-powered microwave oven within a short period of time.

This method is applicable for concrete containing aggregates with absorption of less than 3% and with water/cementitious material ratio of 0.50 or less. Concrete with water/cementitious material ratio greater than 0.50 but less than or equal to 0.60 may also be tested with this method; however, the level of accuracy of the results is diminished.

NOTES:

1 It has been found that for water/cementitious material ratio 0.50 an accuracy of ±5% is obtained for drying of 11 minutes. For water/cementitious material ratios between 0.50 and 0.60 an accuracy ±8% is obtained for drying of 12 minutes. If the net water content of concrete is required from results of this test, the water absorption of coarse and fine aggregates used in the concrete must be determined.

2 It is the intention of this Standard not to fully dry the concrete during the test.

3 This Standard may involve hazardous materials, operations, and equipment. This Standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this Standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS
1012 Methods of testing concrete
1012.1 Method 1: Sampling of fresh concrete
1012.2 Method 2: Preparation of concrete mixes in the laboratory
1012.5 Method 5: Mass per unit volume of freshly mixed concrete

3 DEFINITION

For the purpose of this Standard the definition below applies.

3.1 Free water content

Water that is available in the concrete to hydrate the cementitious material. Additional water, which is absorbed in the aggregate, is not available for hydration.