Australian Standard™

Methods of testing concrete

Method 21: Determination of water absorption and apparent volume of permeable voids in hardened concrete

PREFACE

This Standard was prepared by the Standards Australia Committee BD/42, Methods of Testing Concrete. This method is one of a series applying to the sampling and testing of concrete. In the course of preparing this Standard, the Committee took into account Australia's experience in using existing methods, and gave consideration to the methods set out in ASTM C 642-90, *Test Method for Specific Gravity, Absorption and Voids in Hardened Concrete,* and BS 1881:Part 122:1983, *Testing concrete,* Part 122: *Method for determination of water absorption*. Acknowledgment is made of the assistance received from these sources.

The Committee recognizes the limited experience with the apparent volume of permeable voids (AVPV) method in Australia. Therefore, it will review two years from publication, all the data accumulated using this test method to establish the precision of the test method. This Standard will then be revised.

METHOD

1 SCOPE This Standard sets out the procedure for determining the immersed absorption (*Ai*) and, if required, boiled absorption (*Ab*) and apparent volume of permeable voids (AVPV) in hardened concrete. The drying operation in this test may withdraw the free water that is mechanically held in concrete, and some of the water from the colloidal cementitious gel. The absorptions indicated by the test are larger than those associated with the normal temperature and humidity environment of concrete in service. This method is not intended for use as an absolute measure of durability.

NOTES:

1 Test results obtained by this procedure will be affected by a number of factors including compaction, curing, absorption, age, air entrainment, absorption and vesicular nature of the aggregate and whether the specimen is moulded, is cut from an existing structure or is a piece of irregularly shaped concrete. Test results may also be affected if concrete specimens are carbonated.

2 This Standard may involve the use of hazardous materials and equipment, and engagement in hazardous operations. 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 to determine the applicability of regulatory limitations prior to use.