Australian Standard®

Methods of testing concrete

Method 20.1: Determination of chloride and sulfate in hardened concrete and aggregates—Nitric acid extraction method

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METHOD

1 SCOPE

This Standard sets out the method for determining the presence of chlorides and sulfates (including easily oxidizable sulfides) in hardened concrete, mortar, grout and concrete aggregates.

This method differs from AS 1012.20.2 in that a nitric acid method of extraction is used instead of boiling water extraction and that a finer fraction of material, passing the 150 µm sieve is used.

The nitric acid extraction method will dissolve any easily oxidizable sulfides which are present and these will be reported as sulfate.

For compliance with the relevant requirements specified in AS 3600 and AS 5100, additional tests and calculations may be required.

NOTES:

1 Separate test methods are available for the analysis of the other concrete-making materials, e.g. cementitious materials, admixtures and water.

2 Gross variations in the chloride and sulfate contents of concrete and concrete-making materials can occur over distances of even a few millimetres. This can be caused, for example, by leaching with rainwater, surface evaporation and crusting and penetration of salt and ground waters. Sampling technique is of prime importance. As the effect of the use of water during coring, especially small diameter cores, can be significant, the amount of water used should be restricted.

3 The solutions obtained from this method may also be used to determine the acid-soluble calcium oxide content of these materials.