

ACI Chicago

Research in Progress

Proposed Presentation

Presentation Title:

Research Progress with the ASTM C1202 Chloride Test

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Abstract:

The aim of this research is to overcome problems with the ASTM C1202 test which make it give misleading readings if pozzolans or some types of accelerating admixtures are used. These materials deplete or increase the numbers of charge carriers in concrete and thus affect the observed charge passing without necessarily affecting the true chloride diffusion.

Recent work has provided experimental validation of a multi-species model for the test. The experiments use an electrode which is drilled into the centre of the sample and shows that the voltage drop across it is not linear. By modelling the experiment the observations of this centre voltage have been used to calculate the intrinsic diffusion coefficient for chlorides in samples.

Further analysis of the model showed that it is also applicable to diffusion tests in which no voltage is applied and indicated that the traditional interpretation of these experiments using Fick's law may be improved.

The presentation will:

Outline the experimental methods and the modelling used.

Discuss some laboratory results and their applications.

Discuss future research which will be intended to develop experimental methods which achieve the same results but are more practical for general use in testing laboratories.

Give details of references for delegates who wish to see greater detail of the work.