

Re: Achieving concrete cover in construction

Dear *Concrete in Australia*,

The article by Wolfgang Merretz and Godfrey Smith "Achieving concrete cover in construction", in the March 2010 issue raises some important points about the difficulties faced by contractors in meeting performance based durability parameters.

Here is an opportunity for the CIA Durability Committee to provide some much needed recommendations on the durability tests to be employed in the Australian industry. Hopefully precast concrete and ready mix concrete suppliers would then have the confidence to undertake durability testing to pre-empt the request for such data and provide the necessary correlations between diffusion tests for design purposes and routine quality control tests. The availability of the data in turn would provide reassurance to all parties and reduce the risk of disputes over compliance.

The authors appear to single out diffusion testing as the problem rather than the ASTM C1202 test. The paper by Wilfried Krieg "Rapid Chloride Permeability Testing – A critical review", presented at the 2006 Bahrain Conference found that the ASTM C1202 coulomb did not correlate with chloride ion migration and merely

reflected the electrical conductivity of the sample. The latter is influenced by numerous factors, not least the silica fume content. We had our own experience of the eccentricities of the test when asked to investigate non-compliant ASTM C1202 results at a facility in Qatar. The test results were non-compliant but no-one on site was certain why or what that meant for the large number of piles they represented. The

problem was eventually tracked to poor dispersal of the silica fume. By a tortuous route we were able to translate this into a meaningful effect on durability. The use of a test with a more direct relationship to chloride migration would have saved the client much time and our modest fees.

Yours sincerely
Don Wimpenny

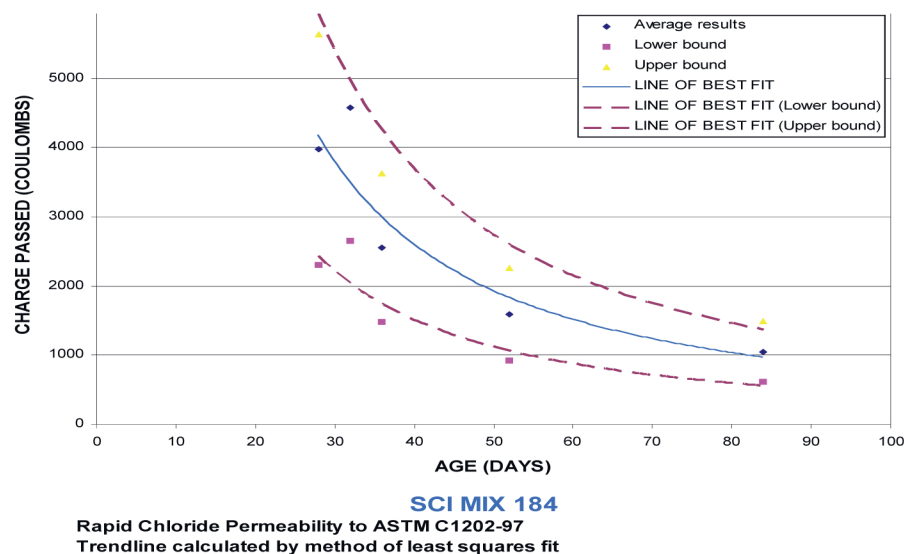


Figure: This graph showing rapid chloride permeability was extracted from Merretz W and Smith G, (2010), "Achieving concrete cover in construction", *Concrete in Australia*, Vol 36 No 1, pp 43.