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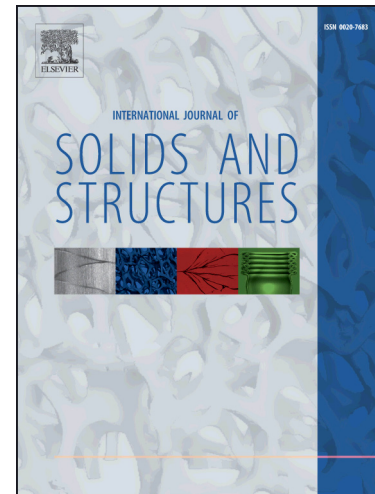
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A closer look to the mechanical behavior of the oxide layer in concrete reinforcement corrosion

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Abstract

Results of concrete cracking in accelerated corrosion tests are presented for concrete prisms cast around a smooth steel tube simulating a rebar. Special instruments were used to measure the variation of inner diameter and volume of the tube while recording the width of the main crack by classical means. Numerical simulations of the tests with a model that reproduces the volumetric expansion of the oxide and the associated concrete cracking were used to narrow the uncertainties in the mechanical properties of the oxide layer with satisfactory results.

Keywords: cohesive crack, accelerated corrosion tests, reinforced concrete, finite element modelling, fracture mechanics

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