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## Sustainability-model approach for chloride permeability based on concrete mixture (Article)

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### Abstract

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A predictive chloride permeability model accounting for the concrete mixture and cement hydration is developed. This paper presents the formulation, calibration, evaluation and validation of the proposed model. An experimental program is developed to evaluate the model. Analysis of the results reveal that the model provides a good fit to the experimental data and does not contain outliers or discerning pattern. Furthermore, the model is validated using an extensive database from the literature to test its accuracy and generalization capability. The corresponding standard error and correlation coefficient are 182 Coulombs and 0.90, respectively. Accordingly, the proposed model can be utilized in the design of concrete mixtures to ensure that chloride permeability requirements are met and improve the sustainability of concrete structures. © 2020 Institution of Structural Engineers

### SciVal Topic Prominence ⓘ

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Concrete Durability Hydration Packing density Permeability Porosity Rapid chloride permeability RCPT Sustainability

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