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Prediction of calcium leaching resistance of binary blended cement composites

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ABSTRACT

In this study, artificial neural network (ANN) technique is utilized to develop a rational and effective predictive model for calcium leaching resistance of plain and modified cement composites. Extensive database results from the literature are used to establish the network model. The developed ANN model used 15 most influential parameters, varying from cement composite constituents, chemical and mechanical properties, and experimental process, as input to predict calcium leaching resistance. The model is validated by comparison between numerical simulations and experimental results. The findings revealed that ANN can be an effective tool for evaluating and maintaining the concrete structures serving in harsh environments caused by calcium leaching.

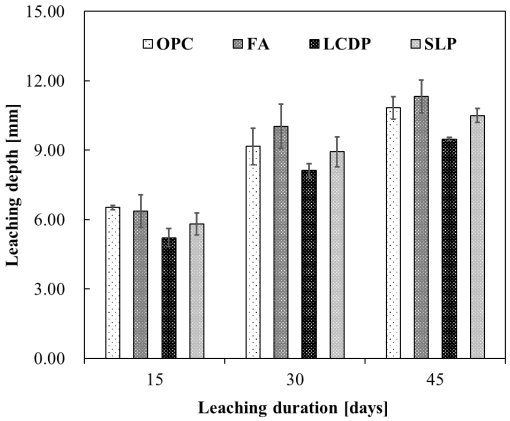

Fig. 1 Leaching depth of plain and modified pastes at different leaching durations

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