

## **Developing A Chloride Penetration Model For Recycled Aggregate Concrete Using The Automatic Regression Technique**

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Replacing natural aggregates with recycled coarse aggregates (RCAs) can reduce the burden on natural resources from the environment and limit the landfill of RCA. Chloride ions ingress into concrete is one of the crucial chemical attacks that a concrete structure can experience during its service life. Different standards have proposed several time-consuming and expensive rapid chloride penetration tests to model the behaviour of concrete against chloride ions. Machine learning techniques can help have a reasonable estimation of the results of rapid chloride penetration tests. A comprehensive database of the rapid chloride migration test of recycled aggregate concrete (RAC) was gathered from the literature in this study. Then, the automatic regression technique was utilized to have a reliable predictive, and user-friendly model for the chloride migration coefficient of RAC. This model can automatically find the optimal mathematical equation and the effective input features. The findings of this study show that the developed automatic regression model can predict the chloride migration coefficient of RAC with a reasonable error. In addition, the proposed model provides a user-friendly mathematical equation that civil engineers can use conveniently.