ISBN	978-93-88122-14-6	VOL	01
Website	www.veltech.edu.in	eMail	nisdce@veltech.edu.in
Received	05-May-2020	Accepted	20-May-2020
Article ID	NISDCE147	eAID	2020.nisdce.147

MODELLING CORROSION CURRENTS OF REINFORCED CONCRETE USING ANN

Vijaya B[1] Senthil Selvan S[2]

[1] *Assistant Professor, Dr. M. G. R Educational and Research Institute, Tamil Nadu.*
[2] *Professor, SRMIST, Tamil Nadu.*

Abstract: The present study focuses on evaluating the corrosion performance characteristics of steel embedded in concrete, in which Manufactured Sand (M-Sand) is used as a partial and full replacement for natural sand. Corrosion performance of steel that is embedded in concrete are analyzed by impressed voltage test for M30 grade concrete replaced with 60% manufactured sand for river sand which is found optimum. The corrosion currents are modeled using feed forward Artificial Neural Networks (ANNs).The obtained results were then compared with the modeled ones in terms of Root Mean Square Error (RMSE), Mean Absolute Percentage Error (MAPE) and correlation coefficient criterion. The test results exhibits that the durability property of concrete against the effect of corrosion is reduced considerably, for the partial replacement of river sand with 60 % M-Sand for the selected grade of concrete. Accurate modeling results for corrosion currents was obtained using Artificial Neural Network (ANNs). The test results exhibits that ANN modeling produced close prediction current values to that of experimental results.

Keywords: *Manufactured Sand, Corrosion Current, Artificial Neural Network*