

Application of Neural Network on the Loading of Copper onto Clinoptilolite

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Abstract : The study investigated the implementation of the Neural Network (NN) techniques for prediction of the loading of Cu ions onto clinoptilolite. The experimental design using analysis of variance (ANOVA) was chosen for testing the adequacy of the Neural Network and for optimizing of the effective input parameters (pH, temperature and initial concentration). Feed forward, multi-layer perceptron (MLP) NN successfully tracked the non-linear behavior of the adsorption process versus the input parameters with mean squared error (MSE), correlation coefficient (R) and minimum squared error (MSRE) of 0.102, 0.998 and 0.004 respectively. The results showed that NN modeling techniques could effectively predict and simulate the highly complex system and non-linear process such as ion-exchange.

Keywords : clinoptilolite, loading, modeling, neural network

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