

PREDICTION OF PARTITION COEFFICIENTS FOR CHROMIUM BY NEURAL NETWORKS

N. Shariatmadari, Dept. of Civil Engineering, Iran University of Science and Technology, Iran.
M. Farrokhi, Dept. of Electrical Engineering, Iran University of Science and Technology, Iran
A. Falamaki^{*}, Graduate Student of Civil Engineering, Iran University of Science and Technology,
Tel. (Fax) 021-73913101, Email: afalamaki@civilEng.iust.ac.ir

Abstract

The partition or distribution coefficient (K_d); is an important parameter in estimating the potential for the adsorption of dissolved contaminants in soil pollution problems. Soil chemists and geochemists have understood that K_d values can result in significant errors for predicting the impacts of contaminant migration or site - remediation options. The empirical predictor equations may be derived commonly by statistical analysis and take the form of a linear or nonlinear polynomial expression. In recent times, artificial neural net works (ANNs) have been applied to many geotechnical and environmental problems and showed some degree of success. The application of ANNs may overcome the limitations of traditional methods. In this study the ANNs is used to predict the variation of the partition (or distribution) coefficient, K_d , with variation of environmental components. The objective is to investigate the feasibility of ANN technique for predicting of K_d variation with variation of environmental components for a certain soil. To accomplish this object the database reported by Rai et. al. [1] for chromium adsorption were used. Results show that ANNs are powerful tools for prediction of partition coefficient variation with variation of environmental components for a certain soil.

Key Words: Partition or Distribution Coefficient, Artificial Neural Net Works, Chromium Adsorption