

## عنوان مقاله:

Prediction of recovery of gold thiosulfate on activated carbon using artificial neural networks

## محل انتشار:

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## خلاصه مقاله:

Since a high toxicity of cyanide which use as a reagent in the gold processing plant, thiosulfate has been recognized as an environmentally friendly reagent for leaching of gold from ore. After gold leaching process it's important for recovery of gold from solution using adsorption or extraction methods, One of these methods is activated carbon. The loading of gold from industrial thiosulfate solution that obtained from Zarshuran gold plant-Takab-Iran, onto activated carbon have been investigated. The affecting variables of the adsorption of gold on the carbon included, temperature, concentration of gold, size of activated carbon, pH and the ratio of amount of activated carbon to the volume of solution. The results show that at low concentration of gold in solution, effective loading can be achieved at pH 10.5. The size of activated carbon has a significant effect on the loading of gold on surface of activated carbon. In this study the recovery of gold on activated carbon has been predicted using artificial neural network. For this purpose temperature, pH, the proportion of solution volume to weight of activated carbon, gold concentration and time of adsorption were taken as input parameters, whereas, the recovery of gold on activated carbon from thiosulfate solution was considered as an output parameter. The network with LMBP algorithm with two hidden layer were used and the topology 5-4-13-1 showed the best ability for prediction. Moreover sensitive analyze indicated that pH and temperature have substantial influence on adsorption.

## کلمات کلیدی:

Thiosulfate, gold, activated carbon, zarshuran gold plant, artificial neural network

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