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Zhang, L., Hong, S., He, J., Gan, F.X. and Ho, Y.S. (2010), Isotherm study of phosphorus uptake from aqueous solution using aluminum oxide. *Clean-Soil Air Water*, **38** (9), 831-836.

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Abstract: Aluminum oxide, which could be an alternative filter media for phosphorus uptake from aqueous solution, was selected as an adsorbent for the isotherm study of phosphorus uptake from aqueous solution. Batch method was adopted to investigate the adsorption behavior of phosphorus onto aluminum oxide. The Langmuir, Freundlich, and Redlich-Peterson isotherms were used to analyze the experimental data by both the linear and nonlinear regression methods. The adsorption experiment was conducted at various temperatures, to choose the appropriate method and obtain the creditable adsorption parameters for phosphorus uptake studies. The results indicated that the nonlinear regression method might be a better way to compare the best-fitting isotherm and obtain the parameters for the adsorption of phosphorus onto aluminum oxide. Both the Redlich-Peterson and the Freundlich isotherms have high coefficients of determination for the adsorption of phosphorus onto aluminum oxide at various temperatures. In addition, a new relationship between the Redlich-Peterson and the Freundlich isotherm parameters was presented.

Author Keywords: Adsorption; Aluminum oxide; Isotherm parameters; Nonlinear regression; Phosphorus

KeyWords Plus: Sorption Isotherm; Adsorption; Gases

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