

THE USE OF DIATOMITE FILTERS TO REMOVE SOLUBLE TOXIC COMPOUNDS – THERMODYNAMIC STUDIES

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Abstract

Diatomite pellets were prepared and used as filler of adsorbent material on filter preparation. The material were used to adsorb and remove toxic compounds obtained as leached and/or dissolved products of lead solid waste product produced by lead smelting plant, located at the basin of the River Ribeira de Iguape - São Paulo, Brazil. The study was performed and the experimental results of the dissolution and the adsorption processes of lead and zinc leached dissolved ions were used to obtained the removal percentage, the adsorption removal percentage were 60% for lead ions and 55% for zinc ions. The thermodynamic studies performed on adsorption process at different temperatures indicate the adsorption process as physical adsorption with the Gibbs Energy - $\Delta G^\circ < 5 \text{ KJmol}^{-1}$ on spontaneous process.

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