

## Sorption removal of arsenic (V) by Sn-loaded poly(hydroxamic) acid chelating resin

### ABSTRACT

Sorption conditions of arsenate ions onto Sn-loaded poly (hydroxamic acid) chelating resin (Sn-PHA) have been studied. Sorption isotherms data correlated well to the Langmuir model with maximum capacity of 38.46 mg g<sup>-1</sup> at pH 2. Sorption process follows pseudo-second order kinetics. Intraparticle diffusion was found to take part in sorption processes. The free energy (E) was 11.18 kJ mol<sup>-1</sup> which shows the sorption is an ion-exchange process. Thermodynamic parameters,  $\Delta H^\circ$ ,  $\Delta S^\circ$  and  $\Delta G^\circ$  were also calculated from the experimental data. Standard heat of sorption was found to be endothermic and entropy change value was calculated to be positive. Negative  $\Delta G^\circ$  value indicates that the sorption process for the arsenic anions onto Sn-PHA is spontaneous.

**Keyword:** Tin-poly(hydroxamic acid) resin; Arsenic removal