

**E2-50: Ion-exchange and adsorption studies of lead ions through brick-particle packed columns**

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Glass columns packed with burnt brick particles show an excellent potential for removal of lead ions from polluted water. The effectiveness of the removal process highly depends on experimental parameters of the treatment procedure. Mechanistic studies of the process under optimized conditions is thus desirable for its better understanding.

The pH of the lead ion solution after treatment always lies in the vicinity of the neutral value regardless of the initial pH. The relationship between the amount of lead adsorbed on to brick particles and the bulk concentration of the lead ion solution between pH 4 and pH 6 results in the validity of the Freundlich isotherm in many occasions, while the Langmuir model seems to fit in certain cases. Increase in the concentration of other ions in the eluent suggests that the ion-exchange is another contribution to this process. Such columns exhibit a reasonably high capacity towards the lead removal process.