



## Sequestering of Cd (II) and Ni (II) from aqueous solutions onto chelex 100

Umesh K. Garg<sup>a,\*</sup>, V.K. Garg<sup>b</sup>, Dhiraj Sud<sup>a</sup>

<sup>a</sup>Department of Chemistry, Sant Longowal Institute of Engg & Technology, Longowal 148106

Tel. +91-1635-222145; Fax: +91-1639-240001; email: umeshkgarg@gmail.com

<sup>b</sup>Department of Environmental Science and Engineering, Guru Jambheshwar University of Science and Technology, Hisar 125001, India

Received 4 September 2010; Accepted 26 January 2011

---

### ABSTRACT

The chelating exchange resin Chelex 100, with functional group iminodiacetic acid (IDA), was used to remove Cd (II) and Ni (II) from aqueous solutions. Batch elution experiments using Cd (II) and Ni (II) solutions were compared. Experiments were finally performed at different pH values (2.0–7.0), metal ion concentrations (10–500 mg/l), and resin dose (1 g–15 g/l of metal ion solution), stirring speed (50–250 rpm) and contact time (10–120 min) at  $25 \pm 5^\circ\text{C}$ . Maximum metal removal was observed at pH 5.0 to 6.0. The removal efficiency of Chelex 100 for Cd (II) and Ni (II) removal were found to be 100% and 82.5% respectively for dilute solutions at 15 g/l resin dose under optimized conditions. The results revealed that Cd (II) and Ni (II) can be considerably removed by chelex 100 and it could be a potential material for the removal of these heavy metals from aqueous systems.

*Keywords:* Ion exchange; Iminodiacetic acid; Kinetic studies

---

---

\*Corresponding author.