The biodegradable complexing agents as an alternative to chelators in sorption of heavy metal ions

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ABSTRACT

The aim of this study was to explain the influence of chemical conditions on the ion exchange capacity and the kinetics of heavy metal ions i.e. copper(II), zinc(II), cobalt(II) nickel(II), cadmium(II), lead(II) and iron(III) in the presence of complexing agents of a new generation. For investigations the following complexing agents were selected: sodium salt of N-(1,2-dicarboxyethyl)-D,L-aspartic acid, which has the commercial name Baypure CX 100 (IDS), glutamic diacetic acid (GLDA) also known as Dissolvine GL-38 and N,N’- ethylenediaminedisuccinic acid (EDDS) known as EnviometTM C140. In the studies an anion exchange was applied which is a method used in water treatment and wastewater purification. This method is suitable for removal of all contaminants in the ionic form including heavy metal ions in the presence of complexing agents from different systems. The results obtained under different experimental conditions will be presented and discussed in this paper.

Keywords: Heavy metal ions; Ion exchangers; Biodegradable complexing agents