

THE SOLVENT EXTRACTION OF ZINC (II) AND CADMIUM (II) FROM CHLORIDE SOLUTION BY OXIME OF HYDROPHOBIC 2-PYRIDYL KETONE

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The solvent extraction is one of the important techniques for the separation and recovery of metals in many industrial fields. Although many extractants are known and used in industry, the research of finding new extractants is always important. Pyridineketoximes could be the interesting group of a new extractant agent. The pyridineketoximes can form complexes with many metals ions, for example: zinc, cadmium, nickel and copper, in the broad range of pH [1,2]. These compounds can form solvating and chelating complexes with ions of metals. The formation of pyridineketoximes complexes with metals depend on several factors such as nature of organic solvent, concentration of the metal cations and acidity of the aqueous phases [3,4].

The aims of this work were the synthesis of hydrophobic derivatives of 2-pyridineketoximes (with octyl, decyl and dodecyl group) and the studies of the zinc(II) and cadmium(II) extraction from chloride solutions. The extraction experiments were carried out at constant water activity ($a_w = 0,8352$) for pH range 2,0 – 8,0, different ionic strength ($I=1$ and $I=4$), chloride ions concentration range 0–4M, and the different ligand concentration. NaCl, LiNO₃ and NaNO₃ were used to adjust the activity of water. NaCl and NaClO₄ were used to adjust the ionic strength.

The obtained results indicate than all synthesized hydrophobic pyridineketoximes extracted zinc(II) and cadmium (II) from chloride solution, at the broad range of chloride concentration. In the excess of ligand to metal, the extraction did not depends on the chloride concentration.

The degree of extraction of zinc slightly depends on the pH of the aqueous phase. Water could be used as the reextraction agent.

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