

Technisch-Chemisches Kolloquium

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Partition of metal ions in aqueous two-phase systems:

Application to the hydrometallurgy of copper

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Due to an increasing world demand for copper and of the other elements that accompanying it, as the molybdenum and rhenium, there is a strong necessity to develop environmentally friendly processes for copper, molybdenum and rhenium extraction from low-grade ores. In the hydrometallurgy process, solvent extraction (SX) provides a convenient method for the extraction and separation of metal ions. Unfortunately, established SX methods use organic solvents that are considered hazardous materials because they are detrimental to the environment and harmful to human health. Therefore, it is important to develop novel extraction methods that are cleaner and safer. In this sense, the aqueous two-phase systems (ATPSs) have been introduced as a promising liquid–liquid extraction system for metal ion separation because it mostly uses water and other nontoxic and nonflammable constituents.

In this context, there are documents that reported the extraction and separation of metal cations by ATPS, especially by ATPS formed by poly (ethylene glycol) (PEG) and inorganic salts.

However, there were a little report on extraction and separation of metal anions, such as molybdate and perrhenate anion by ATPSs. The partition behavior of all sort of solutes in a given ATPS is known to be dependent on various factors.

Therefore, it is important to analyze the parameters that influence in the partition of metal ions that in a future allows to optimize and develop better ATPS for a specific application.

Gäste sind herzlich willkommen!