

Extraction of Various Copper Complexes from Aqueous Solution into Room-Temperature Ionic Liquids - P. Smith (Westminster College)

The use of water-immiscible room-temperature ionic liquids (RTILs) as solvents for the solvent extraction and separation of metal ions has become increasingly popular in the past few years. Traditional solvents in solvent extraction are generally classified as volatile organic compounds (VOCs). RTILs offer distinct advantages over VOCs because they are low-odor and nonflammable. The chemical and physical properties of RTILs can also be fine tuned to maximize extraction and separation efficiencies. This work focuses on the extraction of various aqueous copper complexes into water-immiscible RTILs, typically dialkylimidazolium hexafluorophosphates or bistriflylimides. The complexes that are extracted have ligands that bond to the copper ions through nitrogen atoms. The effect of the ligand size, ligand denticity, and RTIL side-chain length on the extraction efficiency is studied.