

Investigation of 7-((dioctylamino)methyl)quinoline-8-ol for uptake and removal of uranyl ions

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Abstract/Résumé : A new 8-hydroxyquinoline derivative extractant was synthesized via the Mannich reaction from a secondary amine. Various analytical techniques (H-1, C-13 NMR, FTIR, mass spectroscopy) were used to characterize our product. The use of this new extractant for the uptake and removal of uranyl ions in aqueous solution was investigated. Conditions for an effective sorption were optimized with respect to different experimental parameters in batch process. The results showed that the extraction rate increases for solutions with a pH in the range [0.65-1.13]. The total sorption capacity was 105 (mg g(-1)) under optimum experimental conditions. The extraction of UO₂ (2+) was found to be quantitative (100 %) at initial uranyl concentration less than or equal to 41.59 mg/L. Thermodynamic parameters showed the adsorption of an endothermic process and a spontaneous nature, respectively.

Keywords/Mots clés:

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