

Kinetic study of Mn extraction for LIBs waste leachate by D2EHPA

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This work presents the detail kinetic model for Mn extraction from Lithium batteries leachate. The kinetic model was developed with an available extraction experiment data. The leachate collected from Sungeel Hi-Tech Inc. is extracted by Di-(2-ethylhexyl) phosphoric acid (D2EHPA)/D-80 under isothermal condition. The major factors such as pH, aqueous / organic phase volume ratio (A/O ratio) and saponification rate were investigated to estimate kinetic parameters. The Inductively Coupled Plasma Mass Spectrometry (ICP-MS) method was applied to measure the metal concentration. The result indicated that, the optimal pH for Mn extraction is approximately 4. At the high of A/O ratio, the extraction efficiency is low and increase when the saponification rate increase. These observed effect is achieved principally by promoting the reduction of H radicals.

Keywords: Mn extraction, Lithium batteries, kinetic model, leachate, saponification.

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