

## Separation of Mercury(II) from Petroleum Produced Water via Hollow Fiber Supported Liquid Membrane and Mass Transfer Modeling

**Authors :** Srestha Chaturabul, Wanchalerm Srirachat, Thanaporn Wannachod, Prakorn Ramakul, Ura Pancharoen, Soorathep Kheawhom

**Abstract :** The separation of mercury(II) from petroleum-produced water from the Gulf of Thailand was carried out using a hollow fiber supported liquid membrane system (HFSLM). Optimum parameters for feed pretreatment were 0.2 M HCl, 4% (v/v) Aliquat 336 for extractant and 0.1 M thiourea for stripping solution. The best percentage obtained for extraction was 99.73% and for recovery 90.11%, respectively. The overall separation efficiency noted was 94.92% taking account of both extraction and recovery prospects. The model for this separation developed along a combined flux principle i.e. convection-diffusion-kinetic. The results showed excellent agreement with theoretical data at an average standard deviation of 1.5% and 1.8%, respectively.

**Keywords :** separation, mercury(ii), petroleum produced water, hollow fiber, liquid membrane

**Conference Title :** ICW 2015 : International Conference on Wastewater

**Conference Location :** Paris, France

**Conference Dates :** June 25-26, 2015