

## Accepted Manuscript

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PII: S1383-5866(17)30518-X

DOI: <http://dx.doi.org/10.1016/j.seppur.2017.09.009>

Reference: SEPPUR 14018

To appear in: *Separation and Purification Technology*

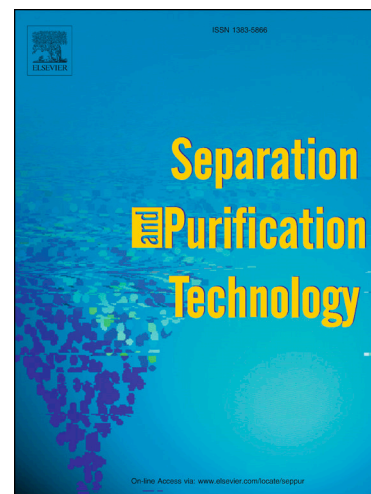
Received Date: 14 February 2017

Revised Date: 30 August 2017

Accepted Date: 3 September 2017

Please cite this article as: J. Ponou, L. Pang Wang, G. Dodbiba, T. Fujita, Separation of Palladium and Silver from Semiconductor Solid Waste by means of Liquid-liquid-powder Extraction using Dodecyl Amine Acetate as a Surfactant collector, *Separation and Purification Technology* (2017), doi: <http://dx.doi.org/10.1016/j.seppur.2017.09.009>

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Separation of Palladium and Silver from Semiconductor Solid Waste by means of Liquid-liquid-powder Extraction using Dodecyl Amine Acetate as a Surfactant collector

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**Key-words:** Liquid-liquid-powder extraction, silver, palladium, dodecyl amine acetate, oil droplets

**Abstract**

Liquid-liquid-powder extraction (LLPE) is the process of transferring fine solid particles from one liquid phase to another immiscible liquid in contact across the liquid-liquid boundary using a surface-active agent as a collector. LLPE has been applied to semiconductor fine solid waste to extract valuable Pd and Ag particles from Al using dodecyl amine acetate (DAA) surfactant as collector, kerosene as an organic phase and pure water as the aqueous hydrophilic phase. Metal concentrations in each phase was dependent on solution pH, and the recovery of Pd and Ag was highly dependent on this parameter. However, a pH of 10 was found to be optimal for separation of precious metals from Al, with Pd and Ag concentrating in the kerosene phase under this condition. The metal distribution as a function of DAA dosage at pH 10, showed that Pd and Al reached their maximum extraction percentages at a DAA dosage of 0.15%, whereas the Ag extraction percentage reached a maximum at a dosage of 0.2%. Thus, 0.15% was determined to be the optimum DAA dosage, which

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