

Extraction and regeneration mechanism of Cobalt Using ionic liquid [P₈₈₈][oleate]

Background:

The water purification companies, chemical and mining industries produce numerous aqueous streams polluted with valuable (heavy) metal salts. Economically and technically, it is challenging to remove these impurities from the water before reuse or discharge. Furthermore, it is challenging to selectively separate the different metal salts from each other in order to recover them from the water at a high value. Therefore green ionic liquid [P₈₈₈][oleate] has been implemented in liquid liquid extraction instead of conventional volatile organic solvent due to its double role, as green solvents and parents of metal extraction. However, the high affinity of metal ions to stabilize in ionic liquid still need to be understood.

The idea in this proposal is to study the extraction and regeneration mechanism and find the driving force behind the affinity of metal transformation between the two phases.

Your Task:

1. Literature review of metal extraction/regeneration mechanism.
2. Synthesize ionic liquid and performing extraction/regeneration experiments to understand extraction mechanism.
3. Finding and optimizing the main parameters that affect the extraction and regeneration mechanism.
4. Write a master thesis.

Your Profile:

- You have strong background in chemistry/organic chemistry.
- You are able to work independently and you have good analytical and experimental skills
- You are fluent in English (speaking and writing) and are willing to work in an international environment

Duration, salary and location:

- The duration of your internship or thesis will be at least 7-8 months at the water technology institute Wetsus in Leeuwarden, Netherlands.
- Salary : 350 € per month

Contact details:

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