



Post-doctoral researcher wanted - Process Engineering

Project: Reagent recycling in hydrometallurgy of critical elements

Context and project overview: Critical and strategic elements (CSM) include lesser-known elements such as graphite, vanadium, antimony, cobalt and copper. Graphite is a strategic mineral for Li-ion batteries used in electric vehicles. High performance Li-ion batteries require graphite to be purified to levels above 99.95 %, through complex, expensive processes with potential environmental impacts. This project will focus on caustic soda (NaOH) recycling in graphite purification, with a view to apply knowledge to other critical/strategic elements. The overall **objectives** include minimizing environmental footprint and costs of the hydrometallurgical purification of graphite, by:

- Understanding and modelling the use of sodium hydroxide (NaOH) in the purification of natural graphite.
- Testing NaOH reconditioning methods, and comparing them, to maximize NaOH recycling for use in CSM processing.

Location: The researcher will be based at the Research Institute on Mines and the Environment (RIME) at the Rouyn-Noranda campus of the Université du Québec en Abitibi-Témiscamingue, under the supervision of profs. Jean-François Boulanger, Lucie Coudert (UQAT) and Claude Bazin (U. Laval) supported by a team of specialized professionals. **RIME supports research targeting the development of environmentally sustainable solutions for the whole mining lifecycle.** This project is part of the activities of the Centre for Excellence in Strategic Minerals, Éléments 08 (<https://elements08.com/>), which targets the responsible extraction of CSM.

Financial support: A minimum salary \$50 000 per year, to which social benefits are added.

Required profile: A completed or nearly completed PhD diploma, in the fields of hydrometallurgy, metallurgical or materials engineering, chemical/process engineering, mining engineering or any other field deemed fit. A good publication record. A high level of autonomy and curiosity, and the desire to be part of a team. Knowledge of process simulation will be an asset.

Duration and start: A 1-year contract, to be renewed for a second year upon satisfactory performance, **start in winter 2023.**

To apply: Send 1) a curriculum vitae (CV), with pertinent published papers, 2) a cover letter, 3) an academic transcript and 4) the name and contact information of two (2) references or reference letters. The position will be open until filled, with priority given to applications received before **November 1st 2022.**

Send your complete application package (or questions) to jean-francois.boulanger@uqat.ca

Jean-François Boulanger, Ph. D., P. Eng., Professor in hydrometallurgy, Phone : 418 262-5271



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