Darcy Tait, P.Eng.

Ontario Office

C: +1 (647) 523-0478 | **E:** darcy.tait@lydium.ca

I am an experienced hydrometallurgist with a track record of supervising, managing, and leading complex process development projects for difficult feedstocks such as low-grade ore bodies and lithium-ion battery materials. My work spans the project lifecycle—from bench-scale testing through pilot plant operations into full scale engineering support. I have deep expertise in extractive metallurgy, specializing in separating and refining metals from ores and battery materials to produce high-purity products. I excel in process engineering scale-up, having successfully transitioned numerous processes from laboratory concept to pilot-scale operation. I have a knack for identifying and working through the sticking points in hydrometallurgical projects—whether that means developing novel separation techniques, optimizing leaching and solvent extraction processes, or designing robust precipitation and crystallization systems to meet project objectives.

Education

B.Eng, Chemical Engineering; Laurentian University — **2006 – 2010**

Work Experience

Principal Process Engineer – Li-Cycle Corp. **2018 – 2025**

- Collaborated with third party lab to develop chemical process steps and parameters
- Designed, procured, constructed and operated a pilot plant facility for the communion and chemical processing of lithium-ion batteries
- Conducted PFS, DFS and Detailed Engineering as a member of the Owners Engineering team, focused on process engineering for the construction of the chemical processing facility
- Engaged in identification for commercialization of a remote start-up of the chemical processing facility
- Interfaced with legal counsel to prepare and maintain the company IP portfolio

Hydrometallurgist – Process Research ORTECH **2011 – 2018**

- Working in fast paced R&D/consulting engineering environment on process development
- Manage long term projects
- Setup and implementation of pilot plant testing and operation
- Evaluation of operating results to optimize the leaching and solvent extraction processes
- Conduct process balancing for pilot as well as full scale operation

Technical skills

- Flowsheet development with integration of novel processes for Lithium, Nickel/Cobalt, Rare Earth Elements and recycled materials
- Chemical and metallurgical pilot plant design, procurement, installation, and commissioning.
- Engineering and R&D project management
- Process engineering: including PFDs, P&IDs, mass and energy balances, equipment selection, and control systems.
- Extractive metallurgy: crushing and grinding, leaching, precipitation, solid/liquid separation, solvent extraction, ion exchange, crystallization
- Hands-on operations experience: pilot plant commissioning and operation, forklift, overhead crane, hazardous area PPE, radioactive sample handling, transportation of dangerous goods.

Select publications

PUBLICATIONS

Davis, B., Watson, K., Roy, A., Kochhar, A., **Tait, D.**, (2019). Li-Cycle – A Case Study in Integrated Process Development. REWAS 2019 Manufacturing the Circular Materials Economy Conference Proceedings.

Lakshmanan, V.I., Halim, M.A., **Tait, D.**, Hatch, G., Wong, P., (2016). An Integrated Process for Separation and Purification of Rare Earth Elements in Chloride Medium. 28th International Mineral Processing Congress.

Professional memberships

Member of the Professional Engineer of Ontario (P.E.O.) **2016 – current**

Patent applications

Biederman, C.J., **Tait, D.L.**, Johnston, T.G., Haziq Uddin, M., (2022). System and Method for Recovering Metal from Battery Materials. Application No. US 18/292,209; U.S. Patent and Trademark Office.

Biederman, C.J., **Tait, D.L.**, Johnston, T.G., Grixti, S.P., Misic, O., (2022). A Method for Target Metal Removal via Sulphide Precipitation. Application No. US 18/548,781; U.S. Patent and Trademark Office.