Technical Lead, R&D Rare Earth Elements Electrolytic Cells

WHO WE ARE

Demand for critical minerals to power the energy transition is growing exponentially. Yet, we know mining deeper and broader, and building landfills higher and wider, works against our fight to save the planet. At Nth Cycle, we see the path forward. We believe the critical minerals needed for the energy transition are already in circulation today. We just didn't have a clean, profitable way of retrieving them, until now.

Nth Cycle is a metal processing technology company. Our electro-extraction technology helps recyclers and miners capture more critical minerals—for use in lithium-ion battery manufacturing, among other things—while dramatically reducing costs and emissions. We are the heart of metals processing; we are the crucial step that profitably separates critical minerals from other elements, transforming them into production-grade feedstocks for the energy transition.

OUR CULTURE

You won't find another team like ours. We believe in open, honest communication, and enjoying our work while changing the world. And we value the perspectives and opinions of our colleagues while pushing each other to excel.

We're a dynamic team looking for a new team member who's also passionate about addressing climate change and advancing the clean energy industry. Consistent with our commitment to diversity & inclusion, we value colleagues with the ability to work on diverse teams and with a diverse range of people.

If this is you, keep reading.

JOB OVERVIEW

We are seeking a highly skilled and hands-on REE Cell Technical Lead to spearhead the testing and optimization of advanced electrochemical cells tailored for metal leaching and recovery from waste streams and ores. Utilizing principles from traditional chlor-alkali membrane electrolysis, you will take primary technical ownership for cell development for the creation of next-generation, sustainable electrolyzers that produce high-purity metals while simultaneously generating valuable byproducts like chlorine and/or hydrochloric acid. This role leads the electrochemical development around recovery of rare earth elements.

The ideal candidate combines strong expertise in electrochemistry, hydrometallurgy, and materials science with demonstrated leadership in testing and developing and industrial scale electrolytic

processes. The position requires a hands-on technical leader capable of driving innovation while coordinating with multidisciplinary R&D programs and teams.

KEY RESPONSIBILITIES

Research & Technology Development

- Lead R&D program focused on electrolytic cell design and electrochemical process development for Rare Earth Elements deposition.
- Investigate and optimize cell chemistry, electrolyte composition, additives, operating parameters, and electrochemical performance.
- Research and evaluate cell construction materials, including electrode materials, membranes, coatings, separators, and corrosion-resistant components.
- Develop innovative approaches to improve current efficiency, deposition quality, metal recovery, selectivity, and energy consumption.
- Advance understanding of electrodeposition mechanisms, nucleation, growth behavior, and impurity impacts within electrolytic systems.

Cell Materials & Electrochemistry

- Lead studies on anode and cathode materials, surface engineering, passivation, corrosion resistance, and lifecycle performance.
- Evaluate and optimize electrode geometry, current distribution, electrolyte flow, and mass transfer characteristics.
- Design and oversee electrochemical testing programs including:
    - Cyclic voltammetry
    - Polarization studies
    - Electrochemical impedance spectroscopy (EIS)
    - Deposition characterization and performance analysis
- Support development of novel materials and advanced electrolytic cell architectures for critical mineral recovery.

Leadership & Program Management

- Define R&D roadmaps, technical priorities, and experimental programs aligned with business strategy.
- Prepare technical reports, presentations, patent disclosures, and technology documentation.
- Collaborate with external research institutions, suppliers, and strategic partners when applicable.

Required Qualifications

- Bachelor's degree in Chemical Engineering, Metallurgical Engineering, Materials Science, Electrochemical Engineering, or related discipline; Master's or PhD preferred.
- Minimum 10–15 years of industrial or applied R&D experience in electrolytic systems, hydrometallurgy, or electrochemical process development.

- Demonstrated expertise in electrodeposition, electrowinning, electrorefining, or electrochemical materials development.
- Strong technical background in:
    - Electrochemistry
    - Electrolyte chemistry
    - Corrosion and materials science
    - Mass transfer and transport phenomena
    - Industrial electrochemical systems
    - Chlor-Alkali experience

SALARY RANGE

$120K - $150K

LOCATION

Burlington, Massachusetts