

## Mechanical Engineer – Burlington, MA

### 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. We work quickly but with intention—we've scaled our technology in size 100x in the past year. We're mission-oriented and think big—we're focused on reducing *gigatons* CO2 emissions from the atmosphere by 2050. 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.

### Position description.

This position joins Nth Cycle's Design Team to focus on the development of the core technology system; an electro-extraction technology for Li-ion battery recycling. You will leverage your design-build-test experience to help accelerate technology scale-up from lab to field. Experience in designing and controlling fluidic systems (hydraulic & pneumatic) will build robust and reliable lab and commercial scale chemical processing systems. You will drive development of complex parts, sub-assemblies of key technical components through design and verification. A quantitative and iterative approach helps you break complex problems into tangible and solvable steps. Leaning on first principles is core to your overall engineering approach, and rapid prototyping validates your analytical solutions. Your experience in CAD modeling and simulation (CFD, FEA) adds confidence to your data driven engineering. Clear and constant communications with suppliers, the R&D team, and Product Lead maintains an efficient shared learning environment. As Nth Cycle targets aggressive growth milestones, your motivation and organization skills will help the Design Team to deliver on fast

timelines. You may also use basic lab techniques to collect samples, prepare samples for analysis, and learn multiple characterization techniques.

As a team member, a leader, and technical contributor you will shine at Nth Cycle along with our friendly, humble, passionate, intelligent, and capable team!

### **Key responsibilities and accountabilities.**

- Can work with Autodesk to create and manipulate complex models & perform simulations (FEA, CFD).
- Design, develop, and commission chemical preprocessing equipment and instrumentation based on R&D optimizations.
- Risk management and risk mitigation.
- Establish and carry out test validation for new processes, equipment, and products made.
- Manage small to large capital projects for delivering needed results within budget and schedule.
- Communicate technical results and challenges across the organization to advance product development.
- Demonstrate understanding of established manufacturing processes and equipment.
- Establish and document manufacturing methods, processes, manuals, and training.
- Demonstrate safety leadership particularly with chemical operations (gas generation, pressure vessels, exothermic reactions, corrosive materials, etc.).
- This safety consciousness should permeate beyond designs and into daily life.
- Lead or participate in safety reviews such as HAZOP, which includes providing technical assistance with corrosive material concerns, cross contamination of chemicals, etc.
- Assist in implementing environmental improvement initiatives particularly with respect to emissions, pollutants identification, effluent control, neutralization of caustics/acids, etc.

### **Qualifications and experience.**

Qualified candidates will possess a strong combination of the following:

- BS or MS in Mechanical Engineering
- 5-10 years of experience in a related environment
- Proficiency with 3D CAD tools, Fusion 360 preferred.
- DFM/A using CNC (2, 3, 4-axis) equipment, metal forming, injection molding, metal coatings, welding, and manual assembly.
- Technical depth in fluid mechanics, mechanics & compatibility of materials, thermal design, and basic electrical engineering.
- Strong analytical skills in general engineering assessment and problem solving.
- Strong verbal and written/digital communication skills.
- Attention to detail, deadline and budget aware.
- Ability to work in a fast-paced environment.

Ideal candidates will possess some or all of the following:

- Experience in electro-chemical processing, e.g. H<sub>2</sub> production, chlor-alkali.
  - Electrode design & manufacturing, fluidic architecture, membranes.
- Familiarity with chemical process scale up.
- Experience with environmental permitting.

- Simulation experience (e.g. FEA, CFD).
- Experience with analytical solving tools (python, MATLAB, excel, etc.)
- Demonstrated familiarity with engineering codes (e.g. ASME).
- Previous experience/certifications in Lean manufacturing, 5S, and/or Six Sigma

Nth Cycle does not discriminate in employment on the basis of race, color, religion, sex (including pregnancy and gender identity), national origin, political affiliation, sexual orientation, marital status, disability, genetic information, age, membership in an employee organization, retaliation, parental status, military service, or other non-merit factor.

#### **Where we are and what we offer.**

- Greater Boston Area
- Full-time position
- Eligible for Medical, Dental, and Vision benefits where Nth Cycle pays 100% of the premiums
- Unlimited paid time off, 13 company holidays, and a Holiday Break at the end of the year
- Fully paid parental leave policy

#### **Closing Statement.**

Consistent with our commitment to diversity & inclusion, we value people with the ability to work on diverse teams and with a diverse range of people. We especially encourage members of traditionally underrepresented communities to apply, including women, people of color, LGBTQ people, veterans, and people with disabilities.

We know the right candidate might not check every box in this job description. You could also have important skills we haven't thought of. If you think you're a great candidate for this role, apply and tell us why.

**To apply, send us a resume and a few sentences about why you are interested in this position and what you bring to the table. We're looking forward to hearing from you.**

**Contact:** Pat Perillo, Human Resources, Nth Cycle

**Email:** [perillo@nthcycle.com](mailto:perillo@nthcycle.com)

**Phone:** 978-764-8504