Paraclete Energy Inc.

Employment Opportunity: Electrochemist/Material/Battery Scientist/Engineer

Company Overview

Paraclete Energy, Inc. located outside of Ann Arbor Michigan in the city of Chelsea, Michigan is establishing itself as the leading supplier of high capacity anode materials with its nanoparticle SM-Silicon^{TM} family of products to the fast-growing Lithium Ion battery industry. Paraclete's nanoparticle silicon is the standard silicon for the Department of Energy's National Lab's Next Generation Anode materials. Paraclete in the coming months is scaling its production facilities beyond Michigan to get closer to its customer facilities in the US, Europe and Asia. This expansion has created a need for a variety of core skills and opportunities for Electrochemist and Material and Battery scientist and engineers to include manufacturing process engineers beyond this position.

Paraclete offers a very attractive pay and benefit package along with bonuses and stock-based compensation with a very liberal vacation, holiday and days off per year.

The Position

Paraclete is seeking scientists and engineers with experience and a broad knowledge of cell design and building and electrochemical testing for lithium ion battery electrodes and cells that contain silicon. The candidate will be able to demonstrate the ability to design and then to make graphite and silicon-based anode slurries and then build half and full coin cells or pouch cells with a variety of nickel and non-nickel-based cathodes. The candidate must have experience designing and conducting electrochemical tests for measuring lithium-ion battery performance. The candidate must be a team player and able to work with others.

This person will build research cells along with others in the Paraclete laboratory and perform electrochemical and chemical characterizations for lithium-ion battery materials to support enhanced anode materials development goals. This role will involve developing a detailed understanding of the relationships between material properties, cell design and electrochemical and other performance parameters for high energy density, cycle stable battery characteristics. The candidate will be able to use such information to conduct post mortem success and failure analysis. This role will include working with other member of the Paraclete team to discuss, brainstorm and strategize next steps towards improved product development.

Duties and Responsibilities

- 1-5 years of relevant experience.
- Deep understanding of electrochemical impedance spectroscopy and its interpretation for optimizing electrode performance.
- 3-electrode measurements and electrochemical tests using Li reference electrodes.
- Understanding of electrode porosity, SEI formation, electrolyte formulations and additives, binders, conductive additives and various commercial cathode chemistries and their impact on battery performance is essential.
- Experience of electrode slurry formulations, mixing techniques and electrode fabrication.

- Demonstrate excellence in communication skills including technical writing and presentations.
- Understanding of post mortem analysis, SEI formation, electrolyte formulations and additives, binders, conductive additives and various commercial cathode/anode chemistries and their impact on battery performance is essential.
- Assist production team in testing and optimizing materials for scale-up processes.
- Demonstration of communication skills including technical writing, presentations and interpersonal interaction.
- Work with external prospects and customers to define, develop, and exceed specifications.

Qualifications and Desired Experience

- 2 Years working with silicon in Li ion batteries
- 2 Years building Li ion, silicon and graphite full and half Coin Cells
- 2 Years making graphite and silicon based negative electrode laminates with a variety of nickel and non-nickel-based cathodes
- 1 Year experience building pouch cells
- 1 Years' experience working with BioLogic battery analyzers and their EIS EC Lab software and reference cell
- 1 Year working with Novonix High Precision Battery Analyzers

Required Education and Abilities

- MS or Ph.D. degree in Electrochemistry, Materials Engineering or Science, Chemical Engineering Science or related science and engineering and 3+ years of experience in battery research.
- Expert level of knowledge and preferably hands-on experience in multiple characterization techniques, XRD, cross-sectional analyses, IR, SEM/EDS, XPS, Raman, solid state NMR and ICP.
- Strong background in electrochemistry and fluency in electrochemical techniques such as cyclic voltammetry, electrochemical impedance spectroscopy, and common potentiostatic and galvanostatic methods.
- Experience designing and making pouch cells with silicon containing anodes is a plus.
- Experience with developing technical specifications for components and assemblies.
- Ability to think creatively and analytically
- Strong verbal and written communication.
- Excellent cross-functional and teamwork skills.