Technical Update: NEO Battery Achieves Exceptional Silicon Battery Performance with Improved Uniform Nanocoating Innovation

written by Raj Shah | August 16, 2023
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- Successfully Validated Performance Enhancement from Improved Uniform Nanocoating Innovation
    - New Chemical Additives Introduced to Further Strengthen Uniform Coating Ability & Reliability on Silicon Particles
    - Extends Silicon Battery Cycle Life by Effectively Controlling Volume Expansion
    - Demonstrates Over 70% Increase in Cycle Life Improvement

- No Material Modification Required to Realize Uniform Nanocoating Capability
    - Significant Cost Reductions to Be Realized with Optimized Manufacturing Process
    - 5 Battery Professionals Secured for Next Phase Advancement

- NBMSiDE® Trademark Registered with KIPO

NEO Battery Materials Ltd. ("**NEO**" or the "**Company**"), a low-cost

silicon anode materials developer that enables longer-running, rapid-charging lithium-ion batteries, is pleased to announce exceptional testing results in silicon battery performance from NEO's improved uniform nanocoating innovation.

As announced on April 18, 2023, NEO achieved a significant manufacturing innovation of uniformly nanocoating silicon with strong polymer layers. This milestone helped extend the battery cycle life or capacity retention by effectively controlling the silicon's volume expansion problem. Before this innovation, non-uniform coatings led to mechanical breakdowns, resulting in inadequate performance of silicon batteries.

Over the past months, the R&D engineering team further optimized the uniform nanocoating capability with chemical additives and rigorously performed battery charge/discharge (cycling) tests. Several iterations have successfully validated the performance enhancement from robust uniform nanocoating, proving a substantial difference in cycle life/capacity retention between non-uniformly and uniformly nanocoated silicon anodes. The best-manufactured samples have demonstrated over a 70% increase in cycle life improvement compared to the previous best batch.

Dr. S. G. Kim, CTO of NEO, commented, "NEO's uniform nanocoating technology used to produce silicon anodes significantly improves the battery performance by overcoming the critical volume expansion problem. For the improved uniform coating, no equipment or process modifications are required, but this was solely achieved by chemical additives: this maintains our ability to manufacture products at reduced costs of more than 70% compared to competitors."

Mr. Spencer Huh, President & CEO of NEO, added, "We are excited about the success of our uniform coating test results – a key milestone in the validation of our high-performance silicon

anode materials. I am proud of our highly experienced R&D team in this achievement as it underpins our capacity that both supports commercialization and solidifies our work towards advanced agreements in the EV battery supply chain. Most recently, we have secured top battery professionals that include 2 PhDs and 3 Masters, and this addition of qualified researchers will give us the next leg-up to achieve our milestones."

Trademark Registered with Korean Intellectual Property Office

The Company is pleased to announce that the Korean Intellectual Property Office ("**KIPO**") has duly registered the trademark application for NEO's silicon anode material, NBMSiDE®. After waiting for 18 months for approval, in accordance with the Trademark Act, a trademark has been registered at the KIPO under the classes of active negative polar substances for secondary cell batteries.

About NEO Battery Materials Ltd.

NEO Battery Materials is a Canadian battery materials technology company focused on developing silicon anode materials for lithium-ion batteries in electric vehicles, electronics, and energy storage systems. With a patent-protected, low-cost manufacturing process, NEO Battery enables longer-running and ultra-fasting charging batteries compared to existing state-of-the-art technologies. Building the first commercial plant in South Korea, the Company aims to be a globally-leading producer of silicon anode materials to the electric vehicle and energy storage industries. For more information, please visit the Company's website at: https://www.neobatterymaterials.com/.

On behalf of the Board of Directors

Spencer Huh
President and CEO
604-355-6463
shuh@neobatterymaterials.com

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