Successful Results in Integrating NEO's Silicon into Graphite-Based Anodes for Improved Longevity, Stability, and Capacity Retention

written by Raj Shah | June 19, 2021

June 18, 2021 (Source) – Dr. Jong Hyeok Park, Chief Scientific Advisor and Director of NEO Battery Materials Ltd. (**TSXV: NBM**) (**OTC Pink**: **NBMFF**) ("**NEO**" or the "**Company**"), is pleased to announce that NEO's silicon (Si) nanocoating technology is highly effective in conventional graphite/Si mixture anodes, overcoming a major barrier to the commercialization of Si anodes in graphite anode systems. For this past week, this test was conducted and validated by a well-established third-party laboratory in South Korea. More detailed experiment conditions are as below.

1. Loading mass: 6.5mg/cm^2
2. Electrode density: 1.1g/ cm^3
3. Natural graphite/Si ratio: 9:1
4. Charging condition: 0.5C with CC/CV mode (NOT CC mode)
5. Voltage: 0.01V ~ 1.5V

NEO's previous 100% Si nanoparticle-based durability test results had confirmed that NEO's proprietary nanocoating technology stabilizes the Si material at long-term operating times required for electric vehicles (EV) and various energy storage applications. These new results further demonstrate the longevity and stability of NEO's Si anode when it is mixed with

a conventional graphite-based anode. Introducing 10% of NEO's nanocoated silicon in a natural graphite anode allows a more uniform solid-electrolyte interface (SEI) layer formation with minimal volume expansion during cycling, and thus, more than two-times higher capacity retention is obtained.

Dr. Park added, *"NEO's Si anode innovation breaks through the barriers that have hindered the commercialization of Si anode materials in conventional graphite-based batteries. Initially, we questioned if the nanocoating layer on Si nanoparticles could be sustainable in conventional graphite powder, but this test provides us a highly positive signal for the commercialization of our patented nanocoating technology in silicon-graphite anodes. This indicates that we may increase the Si contents in graphite systems without serious performance degradation."*

Strategic Developments & Activities

Additionally, for the past two weeks, NEO has signed several non-disclosure agreements with some established players in the battery metals and materials industry. Discussions pertain to the advancement of NEO's silicon production and proprietary nanocoating technology for silicon anodes. Due to reasons of confidentiality and the competitive nature of the industry, all parties will remain unidentified at this point in time.

Spencer Huh, President and CEO, commented, *"This is extremely welcome news as we are on an accelerated process to push our corporate initiatives. NEO's robust portfolio of properties, patents, and personnel are currently producing considerable synergy, and we look forward and are enthusiastic to advance to the next stage of our plans."*

At this time, no further deal terms have been reached, nor has the Company entered into any letters of intent, partnerships, advisory agreements, or any other form of definitive agreement

with these parties. As the Company's discussions remain at preliminary stages, there can be no assurance or guarantee that the Company will enter into binding agreements.

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About NEO Battery Materials Ltd.

NEO Battery Materials Ltd. is a Vancouver-based resource company focused on battery metals exploration. The Company has staked new mining claims in Golden, BC, along a strike with a quartzite bed, targeting silica in the quartzites for a total of 467 hectares. NEO is also focusing on developing silicon anodes, which provide improvements in capacity and efficiency over lithium-ion batteries using graphite in their anode materials. The Company intends to become an integrated silicon producer and anode materials supplier to the electric vehicle industry. For more information, please visit the Company's website at: https://www.neobatterymaterials.com/.

On behalf of the Board of Directors

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by such words as “may”, “will”, “plan”, “expect”, “anticipate”, “estimate”, “intend” and similar words referring to future events and results. Forward-looking statements are based on the current opinions and expectations of management. All forward-looking information is inherently uncertain and subject to a variety of assumptions, risks and uncertainties, including the speculative nature of mineral exploration and development, fluctuating commodity prices, the effectiveness and feasibility of technologies which have not yet been tested or proven on a commercial scale, competitive risks and the availability of financing, as described in more detail in our recent securities filings available at www.sedar.com. Actual events or results may differ materially from those projected in the forward-looking statements and we caution against placing undue reliance thereon. We assume no obligation to revise or update these forward-looking statements except as required by applicable law.

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