Pilot Plant Design Initiation: NEO Battery's Cost-Effective, Mass-Producible Single-Step Silicon Coating Process

written by Raj Shah | June 23, 2021

June 23, 2021 (Source) – NEO Battery Materials Ltd. (**TSXV: NBM**) (**OTC: NBMFF**) ("**NEO**" or the "**Company**") is pleased to announce the initiation of a pilot plant project whereby NEO intends to use in house resources to design and test equipment that will use NEO's single-step silicon (Si) nanocoating process.

Pilot Plant Design Initiation

Spencer Huh, President and CEO of NEO, commented, "We are pleased to announce that Dr. J. H. Park, Director and Chief Scientific Advisor of NEO, and Mr. Suk Joong Hwang, Member of the Company's Scientific Advisory Board, have initiated the design of the pilot plant project. NEO's team of scientists have also started to test and validate an equipment that will be used in the project by attempting to apply NEO's all solution based one-pot nanocoating technology for commercial-level micron-sized Si materials. This research project has been launched at the request of several lithium-ion battery users." Dr. Park also added "The feasibility study and related preliminary works to optimize the design process will be updated shortly."

Mr. Sung Rock Hwang, Chief Operating Officer and Senior Vice President of NEO, said, "The goal of the project is to establish a basic pilot scale coating process design and to check the feasibility of NEO's nanocoating technology for metallurgical-grade silicon. Moreover, we are further focusing on a cost-

effective separation method since it will capture the largest portion of energy consumption during our nanocoating pilot process. The pilot plant project aims to prove the capacity of the Company to produce various sized Si materials ranging from ~50 nanometers to several micron-sized Si materials that are strategically important to conventional liquid-based Li-ion batteries and next generation all-solid-state batteries (ASSBs)."

Mr. Hwang added, "Based on my experience at Samsung SDI, NEO is on a fast-track to manufacture cost-effective silicon anode materials, concurrently providing the industry-required performance advantages. There are many more synergies to be realized within the team and externally, and NEO will provide updates on the progress pilot plant project on an ongoing basis."

NEO Process Advantage

The scalability and mass-producibility of NEO's silicon anode materials are enabled through a lean and efficient single-step process in which the Company can realize considerable cost-savings or economies of scale when manufacturing the proprietary Si material. NEO's single-step and one-pot solution process effectively removes the need for a multistage manufacturing process, granting the reduction of processing time and improving the throughput rate through the elimination of unnecessary treatment steps, hence, bottlenecks.

Economical manufacturing is additionally facilitated through NEO's single-step process that does not involve complex and expensive environments such as high temperature, high pressure, or a vacuum. Chemical vapor deposition (CVD), pyrolysis methods, or other high-cost engineering methods are not utilized when manufacturing NEO Si materials as these processes are not

compatible for scalability and inexpensively mass-producing the materials. NEO, moreover, uses low-cost coating feedstocks to manufacture the silicon materials which further lowers the cost of its end-product along with safe synthesis.

NEO is looking toward the possibility of integrating its single-step coating process into various kinds of Si materials to realize a universal and innovative process. The capability to coat Si at a desired particle size will lead to a major manufacturing and cost advantage – a substantial value proposition for NEO – enabling the Company to become an integrated silicon producer and anode material manufacturer.

About Dr. Jong Hyeok Park

Dr. Jong Hyeok Park is the Chief Scientific Advisor and Director of NEO Battery Materials Ltd. He has served as a Senior Researcher for LG Chem and is the co-developer of LG Chem's core innovative technology of the Safety-Reinforced Separator (SRS). Dr. Park owns a total of 92 patents and is currently a Professor of Chemical and Biomolecular Engineering at Yonsei University in Seoul.

About Mr. Sung Rock Hwang

Mr. Sung Rick Hwang has over 30 years of experience working for Samsung SDI, serving as an executive director, and chief of purchasing until 2018. His responsibilities included managing the supply chain, procurement planning, and advanced business development.

About NEO Battery Materials Ltd.

NEO Battery Materials Ltd. is a Vancouver-based resource company focused on battery metals exploration in North America. The Company is focusing on developing silicon anodes through

nanocoating an ion-conductive elastomer layer, which provides improvements in capacity and efficiency over lithium-ion batteries using graphite in their anode materials. The Company intends to become a silicon anode materials supplier to the electric vehicle industry. 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. 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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