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## NEI Corporation Introduces Three New Battery Materials to its Product Line

Somerset, New Jersey (USA) – NEI Corporation recently introduced three new products, further expanding its product line of [Battery Electrode Sheets](#). The new materials cater to the growing need in the industry for high performance cathode and anode electrodes for lithium and lithium-ion batteries.

**NANOMYTE® BE-70E** is a cast electrode sheet of Sublimed Sulfur powder. Sulfur cathodes offer a high theoretical capacity of 1,672 mAh/g in a Li-S cell, which is an order of magnitude higher than those of the transition-metal oxide cathodes. The high capacity is based on the conversion reaction of sulfur to form lithium sulfide (Li<sub>2</sub>S) by reversibly incorporating two electrons per sulfur atom. Li-S cell consists of a lithium metal anode, an organic electrolyte, and a sulfur composite cathode, which leads to a theoretical cell capacity of 1,167 mAh/g. BE-70E has a practical capacity of at least 800 mAh/g. The discharge reaction has an average cell voltage of 2.15 V, resulting in a high theoretical gravimetric energy density of 2,509 Wh/kg at the cell level.

**NANOMYTE® BE-150E** is a cast electrode sheet of Silicon-Graphite composite powder. Silicon (Si) has attracted great attention due to its remarkably high theoretical specific capacity of ~4200 mAh/g, making it one of the most potential anode materials for advancing high-energy lithium-ion batteries. Si-Graphite composite (Si-C) offers the leverage to improve the electrochemical properties of Si with excellent stability attributed to the surrounding carbon-based matrix and improved electric conductivity network. Si-C tapes showed a nominal capacity of 750 mAh/g at 0.05C (electrode loading, 4 mAh/cm<sup>2</sup>) and demonstrated excellent cycling stability at 0.2C rate.

**NANOMYTE® BE-400E** is a cast electrode sheet of Niobium Oxide powder (Nb<sub>2</sub>O<sub>5</sub>), which is a new electrode material with pseudocapacitive charge storage being introduced to the market for the first time as a potential anode material. It is capable of exceptionally high rate charge as well as discharge (6 – 10C), with good cycling stability (1,000 – 3,000 cycles) and minimal heat generation during high-rate charge-discharge. The unique architecture of the oxide material enables rapid lithium diffusion on a macro and micro-scale enabling enhanced rate performance.

NEI offers a variety of cathode and anode electrode sheets, suitable for a wide range of Lithium-ion battery applications. Standard electrode sheets are cast single-side on 5" x 10" foil current collectors, and are available in ready-to-ship packages of 2, 5, and 10 sheets (per material). For customers with specific needs, tape specifications such as the active material loading, coating thickness, binder type (aqueous/non-aqueous), binder content, or current collector can be modified.

**Additional Information:** [Specification Sheets](#) | [Safety Data Sheets](#)

**About NEI Corporation:** NEI is an application driven company that utilizes nanotechnology to develop and produce advanced materials. The company's core competencies are in synthesizing nanoscale materials and prototyping products that incorporate advanced materials. NEI Corporation offers cathode and anode materials (both powders and coated electrodes), and solid-state electrolytes for use in lithium-ion batteries. We produce battery materials through our scalable and economical solid-state synthesis process, which is adaptable to different materials compositions and particle morphologies.

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