

September 24, 2013  
DENKI KAGAKU KOGYO KABUSHIKI KAISHA  
(DENKA)

## **DENKA to strengthen Capital Alliance with SEI Corporation in the Field of Lithium-ion Secondary Battery Technology**

DENKA (president: Shinsuke Yoshitaka) and SEI Corporation (headquarters: Tsu, Mie; representative director: Takehiko Sawai; hereafter “SEI”) have reached an agreement to accelerate the development of electrode material technologies, with a focus on high conductivity (low resistance) materials indispensable to improving the performance of lithium-ion secondary batteries (LiBs). To this end, DENKA has increased its SEI stockholdings from 4.5% to 15%, giving it the second largest stake (after Mr. Takehiko Sawai, who holds 39%) and further strengthening the two companies’ alliance.

SEI possesses high conductivity electrode material design technology and is engaged in joint development with Canada-based Hydro-Québec, which holds basic patents related to lithium iron phosphate (LFP). Through its capital alliance with SEI, DENKA has previously created specialty composites combining LFP with carbon nanofiber and DENKA BLACK (acetylene black), realizing tremendous increases in LFP conductivity and improvements in the discharge rate and charge-discharge cycle.

Looking ahead, demand for automobile-use LiBs is expected to show a particular increase, and high-capacity, high-output materials, such as nickel-manganese-cobalt ternary materials and manganese spinel materials, are expected to become the mainstream cathode materials used in such batteries. New, highly conductive materials for use in anodes are also being investigated. Increasing conductivity will be one of the most important challenges to address in implementing these technologies going forward.

With the construction of a new, dedicated production facility at DENKA’s Chiba Plant (Ichihara, Chiba) for ultrahigh purity acetylene black for use in LiBs, DENKA is working to significantly improve product quality and build a robust supply system. At the same time, through our capital alliance with SEI, we are speeding up the development of technology to increase the conductivity of various electrode materials. Furthermore, we aim to provide comprehensive solutions related to LiB parts and materials.

As we approach the centennial anniversary of our founding in 2015, we are promoting the DENKA 100 management plan (for details, please see the April 10, 2013 news release on our corporate website). One of the growth strategies of this plan is to focus management resources on new growth drivers and develop next-generation products. The development of LiB materials relates to such growth drivers as the environment and energy.

We have included an outline of SEI Corporation below, for reference.

For more information about DENKA BLACK, please visit our website:

[http://www.denka.co.jp/eng/organic/product/organic/detail\\_002721.html](http://www.denka.co.jp/eng/organic/product/organic/detail_002721.html)

**For inquiries:**

Corporate Planning Department

TEL: +81-3-5290-5510

**Outline of SEI Corporation**

Established: November 11, 1999 (November 11 is designated as Battery Day by the Battery Association of Japan)

Capital: ¥197,975 thousand

Business: A venture enterprise operating in three business fields under the motto “**Achieve:** Setting business goals and helping make technologies and products a reality by leveraging all five senses.”

Business fields and activities:

(1) LiB R&D

Continuous development of long-life, low-resistance, low-cost battery materials; solving technical challenges in producing slurry for lithium-ion batteries; supplying prototype lithium-ion battery cells

(2) System Solutions

External battery packs for smartphones, contactless chargers for tablet computers

(3) Electronic Components

Engaged in the joint development of LEDs, memory, semiconductor chips, diodes, and, particularly, LiBs with leading overseas companies, including Canada-based Hydro-Québec, which holds patents related to LFP