

## Agreement for Mass Production of Resin Current Collector for All Polymer Battery

March 9, APB Corporation (APB), Sanyo Chemical Industries, Ltd. (Sanyo Chemical) and Gunze Limited (Gunze) announced to reach an agreement regarding collaboration on mass production of current collector of next-generation lithium ion batteries called "All Polymer Battery," being developed by APB and Sanyo Chemical. The three companies have signed a memorandum of understanding with the aim of building an optimal production and supply system.

### 1. About All Polymer Battery

The All Polymer Battery is the next generation lithium ion batteries. To achieve high quality batteries, a bipolar structure has been developed where the current flows across the cell interfaces perpendicular to the electrode plane. The electrode material of All Polymer Battery is wrapped with gel-like polymer containing an electrolytic solution. With the adoption of such technologies, All Polymer Battery is characterized by such features as high quality, high reliability under abnormal conditions, high density. At the same time, it features the revolutionary manufacturing process.

Batteries and power storage systems are becoming more important than ever as energy storage and stable power supplies of renewable energy, the enhancement of electric power infrastructure through IoT, and power generation in disaster. All Polymer Battery can contribute to create a sustainable society by enriching every aspect of our life through development in various applications such as stationary storage batteries and various mobility applications.

### 2. About Current Collector

A current collector is a terminal to take out electricity in lithium ion battery. Generally, metal such as copper or aluminum is used as current collector, though All Polymer Battery has been developed with aiming to use resin as current collector from its concept stage. Resin current collector is essential electrode component that enables All Polymer Battery to achieve high reliability under abnormal conditions. APB, Sanyo Chemical and Gunze have jointly developed this resin current collector based on Gunze's film manufacturing technology. So far, we have secured the basic characteristics of All Polymer Battery through various evaluations. Now, determining product specifications for production is underway.



All Polymer Battery Module



Resin current collector

### **3. Future Plan**

With this memorandum, APB, Sanyo Chemical and Gunze confirmed to continue and strengthen the partnership for mass production of resin current collector in addition to its development. And the three companies' collaboration will enter a new step. Going forward, the three companies commit to contribute to building a sustainable society through promotion of All Polymer Battery's mass production by building an optimal production and supply system for resin current collector.

### **4. APB Corporation**

Established : October 2018

CEO : Hideaki Horie

Business Area : R&D, production and sales of lithium ion batteries

Head Office : 1-3-9 Kanda Sudacho, Chiyoda-ku, Tokyo

### **5. Sanyo Chemical Industries, Ltd.**

Established : November 1949

President & CEO: Takao Ando

Business Area : R&D, production and sales of performance chemicals

Head Office : 11-1, Ikkyo Nomoto-cho, Hiashiyama-ku, Kyoto

### **6. Gunze Limited**

Established : August 1896

President : Atsushi Hirochi

Business Area : R&D, production and sales of plastic films, medical materials and apparel products, etc.

Head Office : Herbis Osaka Office Tower, 2-5-25, Umeda, Kita-ku, Osaka

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