



November 24, 2016

NEWS RELEASE

## **High Performance Solid Electrolyte for Next-Generation Lithium Battery Developed**

**- Active Material for All-Solid-State Battery also Developed and High Energy Density Battery Prototyped and Demonstrated -**

Mitsui Mining & Smelting Co., Ltd. (hereafter “Mitsui Kinzoku”) (President: Keiji NISHIDA) has developed a new sulfide solid electrolyte which has high ionic conductivity and is electrochemically stable. All-Solid State Battery (ASSB) uses the developed electrolyte to exhibit higher energy density than a conventional Lithium ion battery system.

ASSBs are being developed as a safe battery system, because they do not use a flammable organic solvent. ASSBs are expected to achieve a high energy density battery and are the most promising candidates for the next-generation battery system for such things as electric vehicles. A sulfide-based solid electrolyte is superior from the viewpoint of ionic conductivity, but previously there had been technical difficulties, such as the limitations of usable positive electrode materials and negative electrode materials.

Mitsui Kinzoku has developed an Argyrodite-type sulfide solid electrolyte with lithium ion conductivity to a standard that is equal to the conventional liquid electrolytes and electrochemical stability using an original technique that is suited to mass production.

As a major battery materials manufacture Mitsui Kinzoku also developed battery active materials for ASSB. The ASSB that used the developed materials exhibited increased advantageous performance in both capacity and rate capability points of view. Mitsui Kinzoku aims to begin the commercialization of Solid Electrolyte in 2020, through partnerships with battery manufactures and auto manufactures as the battery users.

Under the slogan of *Taking full advantage of Material Intelligence*, Mitsui Kinzoku aims at product commercialization in the fields where safer and higher energy density is expected. By achieving high performance batteries, Mitsui Kinzoku will contribute to protect the global environment through zero emissions.

The technical details are reported in the 57th Battery Symposium in Japan, held from Tuesday, November 29 to Thursday, December 1.

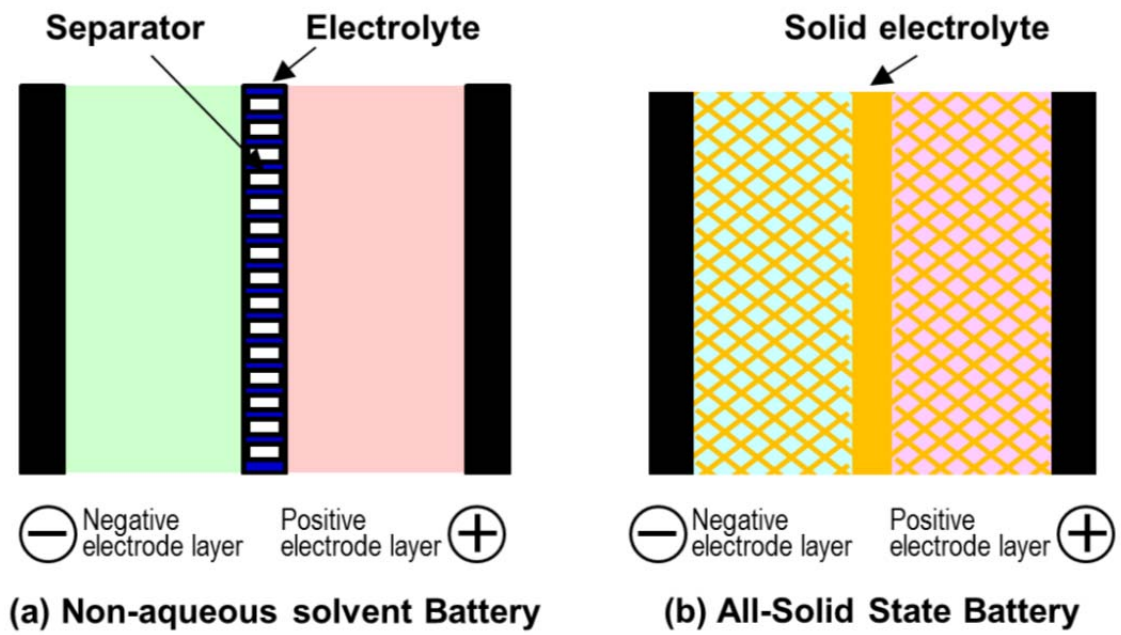
\*Presentation No. 2G09, on November 30, 2016.

[For further information]

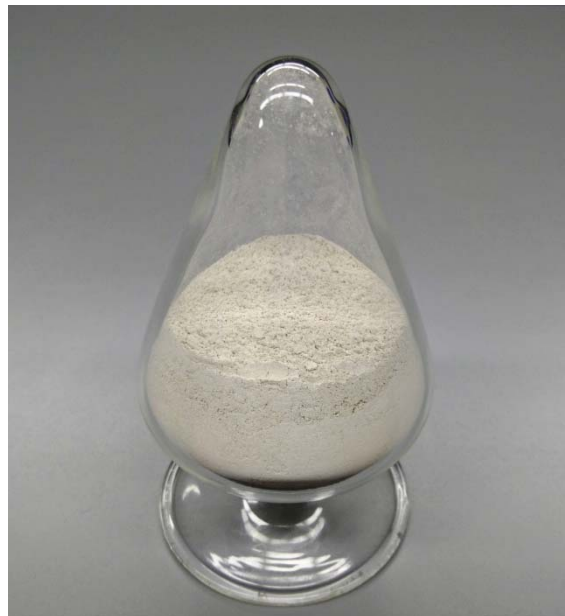
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Reference



Scheme. Structure of conventional LIB and ASSB



The Argyrodite-type sulfide solid electrolyte