

June 12, 2020
Nippon Electric Glass Co., Ltd.

Paper on all solid state secondary battery appears in Scientific Reports – Nature

On June 11, 2020, the results of the extensive long-term research conducted by Nippon Electric Glass Co., Ltd. (Head Office: Otsu, Shiga, Japan; President: Motoharu Matsumoto) on an all solid state sodium (Na)-ion secondary battery appeared in Scientific Reports published by Nature Research, an English scientific journal.

We developed an all solid state Na-ion secondary battery using a glass ceramic cathode, and succeeded in operating it at room temperature in 2017 (*1) for the first time in the world as an oxide-based all solid state battery (*2). Furthermore, the research results presented in Scientific Reports this year prove that we can ensure this battery achieves practical-level performance by greatly reducing the electrical resistance inside the battery.

Currently, Lithium (Li)-ion secondary batteries using organic electrolyte are the major secondary batteries in use in mobile terminals and vehicles. However, Li-ion batteries are subject to concerns about the unstable supply of lithium resources and safety risks such as inflammability. The all solid state Na-ion secondary battery we have developed uses sodium, which is an abundant resource, and does not use flammable electrolytes. Therefore, our new battery can solve the problems associated with conventional Li-ion batteries. Hereafter, we will continue to endeavor to accelerate realizing next-generation secondary batteries.

【URL of the webpage where our paper appears in Scientific Reports - Nature】

<https://www.nature.com/articles/s41598-020-66410-1>

- *1. "World's First Achievement: Development of all solid state sodium (Na)-ion secondary battery using glass ceramic cathode, and successful operation at room temperature"
(Published on November 8, 2017. https://www.neg.co.jp/uploads/sites/2/20171108_news_en.pdf)
- *2. Oxide-based all solid state battery can be expected to have good safety performance, but it still has challenges to overcome before achieving productization, such as the reduction of electrical resistance.