

GS SiO type Electrode

Electrode Material for Lithium Ion Battery SiO type Electrode

The cell capacity of lithium ion battery is approximately 120 - 240 Wh/kg and rechargeable battery with higher energy density is desired. Development of new type of electrode material for lithium ion battery is one of the key factors and large number of researches have been aggressively carrying out in the world. So far, most of the electrodes are generally either oxides and carbon based materials.

This time, we have made SiO base electrode ink and prepared lithium ion battery. Below figure indicates the charge-discharge curve of prepared SiO based lithium ion battery. Capacity ranges approximately at 1620 – 1800 mAh/g, which means that the capacity is 4 - 5 times larger than that of normally used graphite anode. Capacity decay was within 10% after 15 times cell cycle which is quite stable.

The test battery was composed of SiO electrode prepared by Green Science Alliance, and lithium metal as counter electrode. Electrolyte was ordinate carbonate based electrolyte and measurement was performed at 0.1 – 0.2 C.

We will keep investigating the stability against higher current, and longer cell cycles. We will also combine with other materials such as LLZO solid electrolyte, ionic based electrolyte, in order to increase safety of the battery, as well as reaching for higher lithium ion battery capacity. Green Science Alliance is planning to manufacture lithium ion battery in the near future.

Electrolyte : 1M LiPF₆ in EC / DEC (1/2) Potential window : 0 ~ 1.5 V

