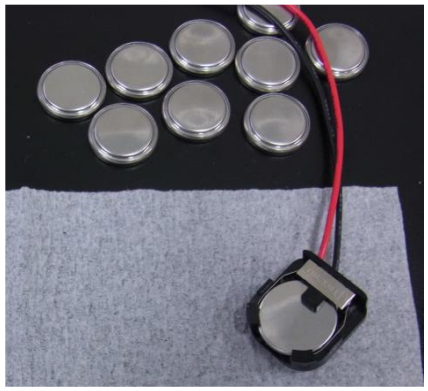
Tohoku Univ. Technology

Solid-state lithium rechargeable battery

Succeed to improve cycle life by using metal free low cost organic active material (cathode)!



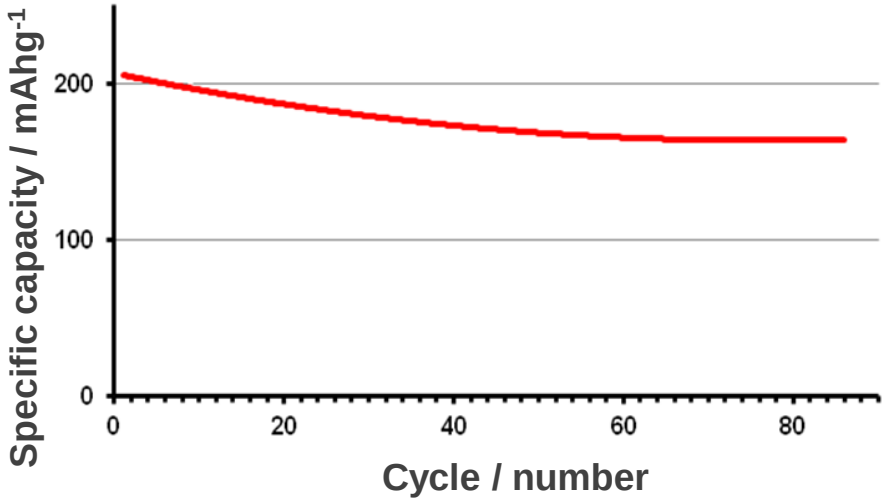
Actual fabricated button type battery

Overview

Lithium-ion battery is used in laptop and digital camera because of its light weight and high capacity. The cathode material is said to be one of the most expensive material used in lithium-ion battery. $LiCoO_2$ is commonly used as cathode material, which is not only expensive but also a rare metal with few reserve, and there is concern about its stable supply. Therefore, the development of new electrode material that is low cost and that can be stably supplied from a resource is actively pursued.

This invention is about a new cathode material that is low cost and that can be stably supplied from a resource. The organic active material doesn't contain Ni or Co. Nevertheless the capacity of the new cathode material is over 180 (mAh/g), which is equal to or higher than that of the conventional cathode material. Moreover, this material has the property of being resistant to deterioration due to charging and discharging.

Cycle life



Product Application

- Li battery

Related Works

[1]Yuki Hanyu, Toyonari Sugimoto, Yoshiyuki Ganbe, Asuna Masuda, Itaru Honma J. Electrochem. Soc. 161 (1), A6-A9 (2014).
[2] Yuki Hanyu, Yoshiyuki Ganbe, Itaru Honma J. Power Sources 221, 186-190 (2013).

IP Data

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