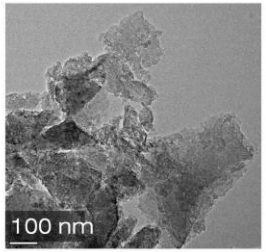
Tohoku Univ. Technology

Conductive material, porous material and their production method, electrode material and electrical storage device

A good balance between large specific surface area and high conductivity

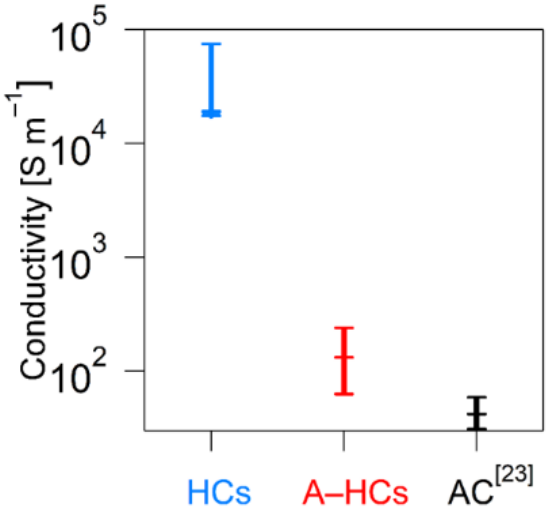


Possible to obtain conductive material having large specific surface area such as activated carbon and high inductive property such as hard carbon by using available wood species

Overview

In recent years, the development of rechargeable battery using organic material has been promoted due to environmental impact and safety. For such device, activated carbon and hard carbon having a large specific surface area and high conductivity, are used as electrode material. However, activated carbon has a relatively low conductivity although its large specific surface area. Moreover, since it is manufactured using petroleum coke, it has an important environmental impact. In addition, hard carbon is manufactured only from specific tree species, making it expensive to obtain.

This invention is able to provide a conductive material that can reduce manufacturing cost, a porous material having a good balance between large specific surface area and high conductivity, and their manufacturing method, as well as an electrode material and an electrical storage device using these conductive material or porous material. The conductive material consists of hard carbon derived from charcoal. The raw material can be made from easily available tree species, thus reducing production cost. Like hard carbon, this invention has graphite-structured nanodomain, so it has a large specific surface area and high electrical conductivity.



Sample	S_{BET}[m^2/g]
A-HCs	1126
HCs	10

Product Application

- Electrode material for electrical storage device, secondary battery and electrolysis
- Conductivity auxiliary agent for electrode

Related Works

[1]Y. Katsuyama, Y. Nakayasu, et al., Adv. Sustain. Syst. 3, 1900083, 2019.

IP Data

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