

Electrode for supercapacitor

High specific capacity property (approx. 580F/g) and good cycle property (over 3000 cycles)

Overview

For conventional electrode such as MnO_2 , the repeated life of metal oxide electrode is limited by the mechanical degradation of electrode due to volumetric change in the active oxide layer caused by cycle, due to fast redox reaction effect. Therefore, electrode with thick MnO_2 layer, etc. that has both high capacity and long life cannot be obtained.

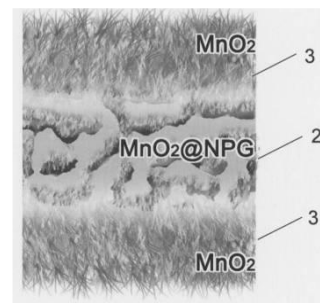
This invention is able to provide oxide structure with active material that can improve conductivity and increase specific capacity of capacitor. This invention is made of one of Au/Ag/Cu metal alloy and has a porous metal layer of 0.5-40 μm thickness, and a MnO_2 layer consisting of multiple thin sheets of few nm thickness, arranged on both sides of the porous metal layer and having a rock salt structure of 0.1-5 μm thickness. The MnO_2 layer conductivity can be enhanced by forming oxide on both sides of the porous metal layer, such as Au/Ag/Cu. This invention can improve the capacitance property of oxide composed of transition metal for supercapacitor or lithium-ion battery.

Product Application

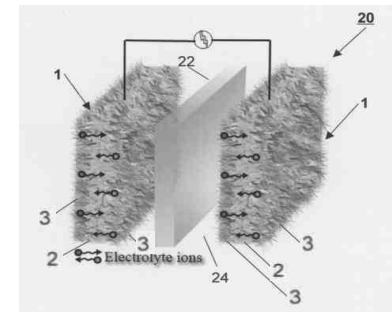
- Supercapacitor
- Lithium ion battery

IP Data

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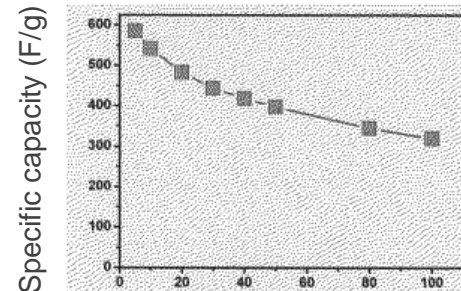
- 1: Oxide structure
- 2: Porous metal layer
- 3: Oxide layer



- 20: Supercapacitor
- 22: Separator
- 24: Electrolyte

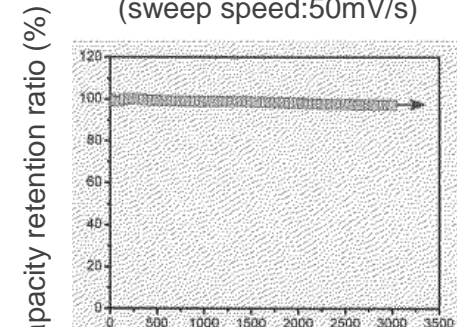
Supercapacitor performance

High specific capacity property



Sweep speed (mV/s)

Cycle property (sweep speed:50mV/s)



Cycle

Contact

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