

ABSTRACT

The present disclosure relates to a silicon-based negative electrode material, a preparation method therefor, and an application thereof in a lithium ion battery, and also relates to a lithium ion battery comprising the silicon-based negative electrode material. The negative electrode material of the present disclosure comprises a silicon-containing material and a phosphorus-containing coating layer at the surface of the silicon-containing material, wherein the phosphorus-containing coating layer comprises a polymer that has polycyclic aromatic hydrocarbon structural segments. The negative electrode material of the present disclosure is simultaneously provided with improved initial coulombic efficiency, reversible charging specific capacity, cycle charging capacity retention and conductivity. When used for the lithium ion battery, the negative electrode material of the present disclosure may improve the energy density of the battery.

No Suitable Figure