

Abstract

A graphite powder has surface closed-end structures in which the graphite c-plane layers of the graphite layer crystal lattices have closed-ends on the surface of the graphite powder by linking the ends of one or more pairs of the c-plane layers, leaving interstices which are open on the surface of the graphite. The number of open interstices is at least 100 and at most 1500 per micrometer in a c-axis direction of the graphite. Preferably, the graphite powder has a specific surface area of 1.0 m²/g or less. Such a graphite powder can be prepared either by graphitizing a carbon material, which has been pulverized at a high speed under well-controlled conditions before and/or after the carbonization, or by subjecting a carbon material, which has been pulverized under well-controlled conditions before and/or after the carbonization, to graphitization and then to oxidative heat treatment at a temperature of 600 - 800°C and finally to heat treatment at a temperature of 800°C or higher in an inert gas. The graphite powder can be used to produce negative electrodes of lithium ion secondary batteries having a high discharge capacity of at least 320 mAh/g and a high charge/discharge coulombic efficiency of at least 90%.