

ABSTRACT

NON-AQUEOUS ELECTROLYTE SECONDARY BATTERY

A non-aqueous electrolyte secondary battery of low-cost and good cycling performance. The cathode has spinel-frame manganese oxide as the main active material, while the anode consists of two layers, a layer of lithium-intercalated carbon and a layer of metallic lithium. After the charging voltage has reached 4.2 V, as the anode potential is constantly at the potential (0 V vs Li^+/Li or lower) at which lithium metal deposits, the cathode potential in the battery is constantly at 4.2 V (vs Li^+/Li) or lower. Accordingly, there is no dissolving out of manganese from the cathode, hence capacity deterioration, which accompanies the charge-discharge cycling, is minimised to a significantly low level.

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