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RECHARGEABLE BATTERIES USING THE
SAME**

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ABSTRACT

When a lithium metal negative electrode having a capacity of 3,860 mAh/g is used instead of a graphite negative electrode having a capacity of 372 mAh/g to improve the energy density of a lithium secondary battery, the energy density can be improved approximately 10 times. However, the lithium metal negative electrode has a disadvantage in that dendrite is formed according to repeated cycles, the battery is short circuited, and as a result, the secondary battery explodes. The dendrite significantly reduces the capacity and lifespan of the secondary battery. The present invention effectively inhibits the growth of dendrites and improves the capacity and lifespan of the secondary battery by coating lithium metal with a polymer with a functional group having an oxygen atom in the molecular structure to which free radical is attached. The above polymer has a high rate of charge transfer during the electrochemical reaction and transfers lithium ions to lithium metal by ion exchange.

