

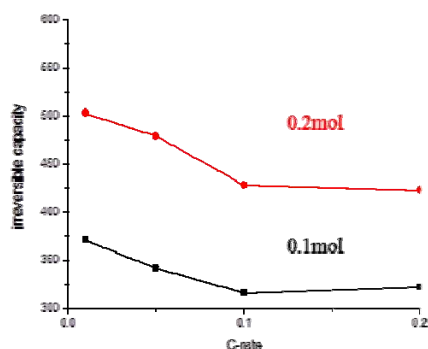
Irreversible behaviors of silicon monoxide with controlling the amount of inserting Li ion at various current densities

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Although Silicon monoxide has high capacity, it has a large irreversible initial capacity. This study focus on irreversible behaviors with controlling the amount of inserting Li ion at various C-rate to understand kinetics of lithiated products (Li_2O , Li_4SiO_4) and a relationship between irreversible reaction and structure of SiO_x . SiO_x is discharged while varying the amount of Li contents inserted into SiO_x (0.1mol and 0.2mol per mol SiO_x , so called 'mol rate') and is charged to 1.5V at various current density. The structure of SiO_x after lithiation is observed by TEM and EELS. It is identified that irreversible capacity of SiO_x increase at higher mol-rate but that of SiO_x decrease at higher C-rate. And also the order of lithiated product is detected at various cycles and C-rate by XPS, meaning that the irreversible capacity is related to structure. As a result of, these facts help to control the irreversible capacity of SiO_x



Reference to a journal publication

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