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Combustion Synthesis of Spinel $LiMn_2O_4$
연소 반응에 의한 스피넬 $LiMn_2O_4$의 합성

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In the present study, the combustion reaction, which is a simple, time- and cost effective process for the synthesis of ceramic powders, was used to synthesis $LiMn_2O_4$ powders as positive electrode materials for lithium-ion batteries. Spinel $LiMn_2O_4$ was successfully synthesized from the Mn-source, Li-source, and fuel mixtures by simply drying and, then, combusting for a minute. Thermogravimetric-, differential scanning calorimeteric-, and X-ray analysis of the mixtures showed that the combustion reaction occurs below 300℃ and the total amount of oxygen content in the mixtures is important to the formation of $LiMn_2O_4$. Without further heat-treatment, the electrochemical properties comparable to those of the $LiMn_2O_4$ synthesized by a conventional solid-state reaction were obtained from the $LiMn_2O_4$ synthesized by the combustion reaction.