리튬이온전도체의 두께와 열처리 조건에 따른 전위차 CO_2 가스 센서의 특성

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Characteristics of potentiometric CO_2 gas sensor with thickness and heat treatment of Li^+ ion conductor

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Abstract

Li+ ion conducting(Li_3PO_4) thin films with 300, 650, 1200nm thickness were deposited on Al_2O_3 substrate at room temperature by thermal evaporator. It were sintered at 700, 800℃ in air for 2h, respectively. The reference electrode and the sensing electrode were printed on Au-electrode by screen printer. The EMF and the ΔEMF/dec were increased with increasing of electrolyte thickness and sintering temperature. The samples sintered at 800℃ were shown good response and recovery more than it were sintered at 700℃.

The Nernst's slop of 75mV per decade for CO_2 concentrations from 250ppm to 5000ppm was obtained at operating temperature of 500℃.

Key Words : Potentiometric sensor, Li+ ion conductor, thin film