

## RF 마그네트론 스퍼터링에 의한 p형 투명 반도체 $\text{SrCu}_2\text{O}_2$ 박막의 제조

김세기, 석혜원, 이미재, 최병현, 정원희\*

요업기술원 전자소재팀, LG마이크론(주) LG연구소 LG소재부품연구소\*

### Preparation of p-type transparent semiconductor $\text{SrCu}_2\text{O}_2$ thin film by RF magnetron sputtering

Kim Seiki , Seok Hyewon, Lee Mijae, Choi Byunghyun, Jeong Wonhee\*

Korea Institute of Ceramic Engineering & Technology, Electronic materials lab.

LG micron Co., Ltd., R&D Center\*

**Abstract** : P-type transparent semiconductor  $\text{SrCu}_2\text{O}_2$  thin films have been prepared by RF sputtering using low-alkali glass for LCD and quartz as substrates. Single phase of  $\text{SrCu}_2\text{O}_2$  powder was obtained by heating a stoichiometric mixture of CuO and  $\text{SrCO}_3$  at 1223K for 96h under  $\text{N}_2$  gas flow, and target was fabricated at 1243K for 24h. Room temperature conductivity of the sintered body was about 0.02S/cm, and the activation energy in the temperature range of  $-50^\circ\text{C}\sim\text{RT}$  and  $\text{RT}\sim 150^\circ\text{C}$  were 0.18eV, 0.07eV, respectively. Effects of deposition pressure and post-annealing temperature on the electrical and optical properties of the obtained thin film have been investigated.

**Key Words** :  $\text{SrCu}_2\text{O}_2$ , p-type, transparent semiconductor, thin film, RF sputtering