

Characteristics of 450 $\mu$ m Pitch Ni Screen Mask Sheet for OLED Surface Light Source by Electroplating

허광선<sup>†</sup>, 배영한<sup>1</sup>

경남정보대학교; <sup>1</sup>한성이즈텍(주)

(kwangsun@kit.ac.kr<sup>†</sup>)

In this study, it was used as a drum type electroplating device to develop a pitch 450 $\mu$ m Ni Screen Mask Sheet for OLED surface light source. In electroplating, the composition of the plating solution was made of nickel sulfamate, nickel chloride, boric acid, primary and secondary brighteners, pit inhibitors, and degreasing liquid, and the PH, cathode current density, plating time, and plating bath temperature were changed. Pitch, line width, thickness, sheet resistance, thermal expansion coefficient, and hardness were measured for a 450  $\mu$ m pitch Ni Screen Mask Sheet for OLED surface light source manufactured by electroplating. The optimum conditions for electroplating were pH 4.0, cathode current density 5V (A/dm<sup>2</sup>), plating time 50 minutes, and plating bath temperature 50°C. Nickel metal sheet for OLED surface light source manufactured by electroplating under optimal conditions has a pitch of 458.77 $\mu$ m, line width of 25.52 $\mu$ m, thickness of 12.34 $\mu$ m, sheet resistance of 0.411  $\Omega$ /sq, coefficient of thermal expansion -89.61  $\mu$ m/m°C), hardness of 372 Hv.