

염료감응형 태양전지에서 Ag grid 위의 절연후막 특성

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Characterization of Passivating Thick Films on Ag Grids in Dye Sensitized Solar Cells

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Abstract : Passivating thick films screen-printed onto silver grids were investigated to prevent the grids from unwanted reactions between Ag and electrolyte in the dye sensitized solar cells (DSSC). The silver grids were designed to enhance the fill-factor of a large area DSSC. Passivation thick films used in this study were based on low softening glasses. Two types of glass frit, i.e., zinc borosilicate glass and bismuth borosilicate glass were prepared by using the typical glass melting/milling procedure. As a result of evaluation focusing on the reaction between Ag and glass, the bismuth borosilicate glass was regarded more promising after firing at 500°C. In the case of zinc borosilicate, severe reaction with Ag was observed even though well-densified microstructure was obtained. The successful utilization of the optimized glass passivation to a large area Ag grid-DSSC is the major goal of this work by showing experimental evidence of the improved cell efficiency.

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