태양광 모듈용 Glass의 투과율 향상을 위한 Coating 기술 개발

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Solar Module Glass Coating Technology for Improvement of the transmittance

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Increase the efficiency of PV modules for high-efficiency solar cells, light transmittance improvements, increasing the module, and much more research and development. Dual we light transmittance for photovoltaic module materials in low iron tempered glass in SiO2 using liquid AR implementation, light transmittance to solar modules to increase the efficiency of research.

Key words : Photovoltaic(태양광), PV module(태양전지 모듈), Anti-reflection coating(반사방지막 코팅), SiO2(이산화규소)

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신규 유기염료를 적용한 염료감응 태양전지의 광전변환거동

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Synthesis and photovoltaic performance of novel ionic dyes for the dye-sensitized solar cells.

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The improvement of solar energy-to-electricity conversion efficiency has continued to be an important research area of dye-sensitized solar cells (DSSCs). The mechanism of DSSCs is based on the injection of electrons from the photoexcited dye into the conduction band of nanocrystalline TiO2 or ZnO. Thus, the electronic structures, such as HOMO, LUMO, and HOMO-LUMO band gaps of dye moleculed in DSSC are deeply related to the electron transfer by photoexcitation and redox potential.

Organic dyes, because of their many advantages, such as high molar extinction coefficients, convenience of customized molecular design for desired photophysical and photochemical properties, inexpensiveness with no transition metals contained, and environment-friendliness, are suitable as photosensitizers for DSSC. We believe that practically useful organic dye photosensitizers can be produced by exploiting electron donor/acceptor system with proper length of π-conjugation in a chromophore to control the absorption wavelength and enhance the photovoltaic performance. In this research, We designed and synthesized organic dyes also investigated the photoelectrochemical properties of a series of ionic dyes in DSSCs.

Key words : dye-sensitized solar cell(염료감응 태양전지), ionic dye(이온 염료), photovoltaic(태양광)

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