

The Influence of Polysulfide Electrolyte On CdSe QDs

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Polysulfide electrolyte is the most commonly utilized electrolyte in quantum dot sensitized solar cells (QDSSCs). To date, there have been relatively few investigations into the stability of CdSe QDs in polysulfide solution. Bulk CdSe crystals have long been known to undergo sulfur substitution reactions resulting in CdS layers of a few nanometres thickness at the surface of CdSe crystals. Here, post exposure to polysulfide a red-shift in the absorbance, and photocurrent onset of QDs is observed. Through structural, chemical and optical studies of QD only films, the shift in onset is attributed to a combination of change in both QD structure and film morphologies.