

Quasi-solid redox electrolytes based on low-molecular weight gelator for efficient photo-electrochemical applications

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Quasi-solid redox electrolytes (QSREs) have been widely investigated and utilized in various electrochemical applications such as lithium secondary batteries and dye-sensitized solar cells because they possess moderate ion conductivity and high physical stability. Recently, they have also been developed for the application to electrochromic devices. In this study, we have developed new QSREs which are based on a low molecular weight gelator with high conductivity and stability through proper physical cross-linking for efficient photo-electrochemical applications. The use of LMWG for preparing QSREs has several advantages such as easy and fast gelation at low gelator content and relatively high ion conductivity etc. We have also investigated the additional physical and chemical cross-linking of the LMWG based electrolytes to optimize the physical characteristics. (Acknowledgement: ME No.2017000140002/ RE201702218)