

Synthesis and Characterization of an ionic phenothiazine derivative for solid state light-emitting electrochemical Cells

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Light-emitting electrochemical cells are the future generation of display and solid state lighting sources. Compared to conventional solid state lighting device such as organic light-emitting diode (OLED), light-emitting electrochemical cell (LECs) possess simple device architecture and air stable electrodes makes LECs more impressive. Mainly LECs are two types, p-LECS and Ir-ITMCs. Polymer light-emitting electrochemical cells are tri-component blend containing emitting polymer, an ion-conducting polymer and an inorganic salt. Recently non-ionic small molecule light-emitting electrochemical cell containing the device structure as same as the p-LEC were reported by Tang et al. We designed and synthesized an ionic phenothiazine derivative in multi-step synthetic procedure having strong luminescence and good charge transporting capabilities. A complete structural, photophysical, electrochemical and electroluminescent properties were investigated. Green light- emissions were achieved by applying the target compound in a LEC device configuration.