UNDERSTANDING ELECTROCHROMIC SYSTEMS: DEVELOPMENT OF "ECO-FRIENDLY" AND LOW-POWER SMART MATERIALS

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Electrochromic materials are smart systems that can change colour upon the application of suitable external electric stimuli. The development of electrochromic devices (ECD) (such as ECD display panels, smart windows, antiglare car mirrors or sunglasses and reusable price tags) is a field of great importance nowadays [1]. Hence, an optimum choice of electrochrome and the electrolyte system is critical to ECD performance (Figure 1).

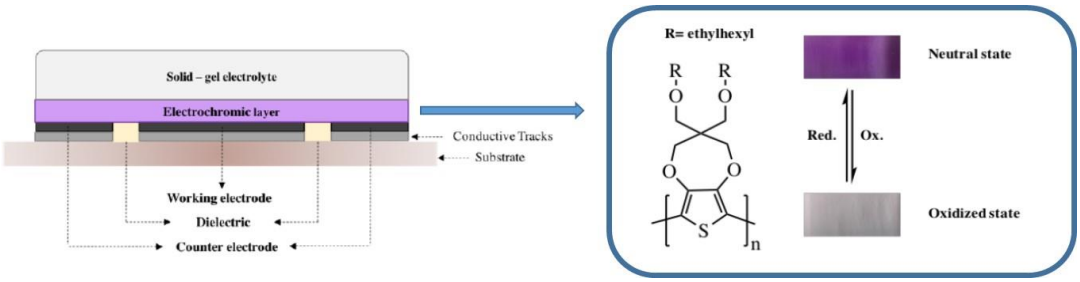

Figure 1. ECD architecture based on an interdigitated configuration using Poly(3,4-propylenedioxythiophene)bis(ethylhexyloxy).

In this sense, this communication focuses on the design of electrochromic systems for the fabrication of smart devices that will work at low potentials. Organic electrochromic materials enable the tuning of redox potentials by design, whereas different formulations of solid-gel "Eco-friendly" electrolytes based on ionic liquids result in higher ionic mobility. Last, especial attention will be paid to establishing the most adequate and cost-effective production method for the mass-manufacture of these electrochromic devices.

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