

MoO₃ thin films prepared by the sol-gel process

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There is a considerable interest in the research and development of materials and devices that can be used for optical switching of large scale glazings. Several potential switching technologies are available for glazings, including those based on electrochromic, thermochromic and photochromic phenomena. One of the most promising technologies for optical switching devices is the electrochromism (EC) [1,2,3]. Molybdenum trioxide (MoO₃) is a good candidate to be use as electrochromic layer in an electrochromic smart windows. The MoO₃ thin films were deposited on ITO/Glass substrates by the sol-gel method using a spin-coating technique and heat treated at 350 °C in air atmosphere. Effects of the process parameters on the electrochromic properties of MoO₃ films were studied using cyclic voltammetry (CV) in a propylene carbonate (PC) non-aqueous solution containing 0,1 M lithium perchlorate (LiClO₄). Also electrochromic MoO₃ film on lithium intercalation was investigated by in-situ transmittance measurement. Experimental results revealed a transmittance variation ($\Delta T\%$) of 12 % and a charge density of 5 mC/cm².

Keywords: Thin films, electrochromism, sol-gel,

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