CHEMICAL BATH COATING AND CHARACTERISATION OF ELECTROCHROMIC MANGANESE(II) CARBONATE THIN FILMS

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A chemical bath technique for manganese(II) carbonate thin films deposition on electroconductive FTO – layered glass substrates is described in this report. Homogeneous thin films were obtained from an aqueous solution containing H_2NCONH_2 and $MnCl_2$. The deposition is performed at temperature of 98 °C. The chemistry background of the process is the hydrolysis of urea [1,2]. Thin films were studied using X-ray diffraction, Profilometry, Cyclic Voltammetry (CV) and UV/VIS spectrophotometry. A combination of electrochemical and optical measurements has revealed electrochromic behaviour. By means of X-ray diffraction measurements the structure, crystallinity and the chemical composition, corresponding to manganese(II) carbonate, have been determined. Thin films thicknesses were determined using Profilometry.

Key words: manganese(II) carbonate, thin films, electrochromic materials, chemical bath deposition method.

References:

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