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Effect of some experimental conditions on the electroplated Mn-Bi film composition

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Abstract : In this study, the effect of some experimental parameters on the electrodeposition of Mn-Bi thin film from a mixed sulfate-nitrate bath was investigated under direct potentiostatic mode based on the previous published paper. The plating bath is characterized by the presence of some additives like boric acid and ammonium sulfate. Cyclic voltammetry is used to the electrochemical analysis, the chemical composition and the morphology of the films obtained at different experimental conditions were examined by scanning electron microscopy (SEM) and energy dispersive spectroscopy (EDS). The deposits have a cauliflower appearance with a heterogeneous distribution of manganese and bismuth. The Mn and Bi content in the deposit estimated by the EDS analysis revealed that the film composition depend strongly on the applied potential and the pH bath but no significant variation is obtained with varying the deposition time.

Keywords : Mn-Bi, electrodeposition, Cyclic voltammetry, EDS, MEB