Characterization and thermal analysis of some Al-Mg-Si sheets

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Abstract
The knowledge of the mechanical behaviour of Al-Mg-Si alloys during a heating cycle is very important. Metallographic investigation of samples of these alloys allows us to know the change in the grain size. X ray diffraction technique permits us to know the existing phases. Differential scanning calorimetry(DSC) study of the samples allows us to follow the phase transformations during heating with various heating rates. The exploitation of the DSC cures by different methods of calculi in order to obtain the corresponding activation energy to each of the transformation reactions, which permits the knowledge of the mechanism responsible for the reaction in question. The dilatomertric anomalous helps also to well understand the phase transformations which take place during heating and to get also the corresponding activation energy to each of the above anomalous.

Key words: Al-Mg-Si alloys, light alloys, automobile industry, aerospace industry, precipitation.

Electrochemical, morphological and structural properties of electrodeposited ZnS Thin films

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Abstract
Known as a n-type semiconductor, Zinc sulfide (ZnS) has the advantages of low consumption, nontoxic, andhigh exciton binding energy [1]. Therefore, it is widely used inSolar cells, infrared windows, light emitting and in optoelectronique [2]. It have a direct band gap (3.7eV) with two structure Cubic _Blende‘ and Hexagonal _wurtzite‘[3].
In this work, ZnS thin films have been deposited on indium tin oxide coated glass substrates by electrodeposition. The deposition was performed in acidic electrolyte containing $ZnSO_4$ and $N_2S_2O_3$ attwo different pH values. From the Mott-Schottky plot, the n type conductivity was confirmed. The morphological observation was carried out by scanning electron microscopy (SEM) and atomic force microscopy (AFM) and shows spherical grains. The Structural analysis realised by X-Ray diffraction XRD indicated that the simples have a zinc blende structure. The energy gap is of the order of 3.74 eV witch is in accord with literature.

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