

Influence of zirconium on microstructural and textural changes of severely deformed aluminum alloys

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The work focuses on the development of microstructure and texture after deformation and during recrystallization of aluminium alloys: AA1050, AA3004, Al-Zr, Al-Mg-Zr. The samples were processed by equal channel angular pressing (ECAP) along route A up to six passes and then annealed for 1 hour at selected temperatures to obtain different states of recrystallization. The nucleation of new grains and the changes in 'density' of low- and high- angle grain boundaries are analyzed using scanning electron microscopy equipped with high resolution EBSD system. After deformation materials are contained a structure of flat grains. On annealing, microstructures are coarsened and transformed into nearly equiaxed grains (spheroidization process). A particular role in the rise of nuclei, the texture transformation and microstructure spheroidization is attributed to migration of low-angle grain boundaries. of the ready solar cells.