

Topic: Effect of precipitation on grain boundary diffusion in an Al-based alloy

Precipitation phenomena affect the kinetics of diffusion in the surrounding matrix. Our study is focused on the effect of Al_3Sc precipitates on grain boundary diffusion in an Al-based AA5420 alloy (Al-4.6Mg-0.64Mn-0.2Sc-0.09Zr-0.2Ti-0.08Fe-0.02Si). In this study different states are prepared by combination of ECAP processing and heat treatments and the radioisotope ^{57}Co is employed as a sensitive probe of a given grain boundary state. The ^{57}Co -diffusion profiles yield the coupling between the diffusion at room temperature and the precipitation behavior of Al_3Sc at elevated temperatures.

radiotracer technique:

