

Corrosion and Mikrostructure of high-strength Aluminium alloys - Challenges and Approaches

Aluminum alloys of the 6000 series with Mg and Si as main alloying elements obtain their mechanical properties by heat treatments. However, also the resistance against intergranular corrosion (IGC) is essentially influenced by the precipitation condition. Investigations of an EN AW 6056 with a Cu-content of 0.91 wt.% showed that the resistance against IGC is highest in the solution annealed condition, whereas the peak-strength condition after artificial aging introduced IGC susceptibility. Using HAADF-TEM the IGC-susceptibility of the peak-strength condition could be attributed to an Cu-enrichment on the grain boundaries, which causes microgalvanic coupling.