

In-situ Electron Microscopy Studies on the Tensile Deformation Mechanisms in Aluminium 5083 Alloy

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Abstract

In this study tensile deformation mechanisms of aluminium alloy 5083 were investigated under observations made from SEM equipped with a tensile stage. Observations during tensile testing revealed a sequence of surface deformation events. These included micro-cracking of large intermetallic particles, decohesion of small intermetallic particles from the matrix producing micro-voids and slip bands distribution. The fracture surface was characterised with closely spaced dimples, typical for aluminium alloys.