

STRAIN-INDUCED TEXTURE DEVELOPMENT IN THE MAGNESIUM ALLOY AZ31

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Magnesium alloys are receiving increasing attention as a structural material in vehicles as a tool to reduce weight and increase fuel economy. Understanding the formability of lightweight alloys is one key to their successful introduction in vehicles. We present results of XRD and electron back-scatter diffraction texture measurements in as-cast and uniaxially compressed AZ31 for a variety of strains, strain rates and temperatures (-0.2 to -1.0, 0.01s^{-1} to 1.0s^{-1} , 623K to 673K, respectively). Pole figures show that all the samples are dominated by large grains, even those that have undergone very large deformations. In order to understand the trends in texture, it was necessary to average results from multiple sample sections to overcome the poor statistics of the coarse grained samples.