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# Effect of heat treatment on microstructure and corrosion behavior of Az91d magnesium alloy


## Abstract

An AZ91D ingot in the as-cast condition was homogenized by heat treatment process. Then, the microstructures produced and corrosion behaviour after heat treatment was studied in detail. As-castAZ91D was recrystallize by solution treatment at 415°C and then aged at 175°C for various period of time. The corrosion resistance of all the different microstructures was studied in NaCl solution through weight loss measurement in immersion testing. The β phase was found to have a significant influence on the corrosion behaviour. In solution treatment, β phase dissolution decreased the cathode area leading to accelerated corrosion rate. After aging treatment, fine β phase precipitates between grain and microstructure recrystallize causing an increase in the corrosion resistances.



## Keywords

Aging treatment; Corrosion resistance; Magnesium alloy; Solution treatment