

Development of 7XXX Aluminum Alloys Having High Strength and High Resistance to Environmentally Assisted Cracking

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Abstract

High specific strength is a much desired property of metallic alloys structural applications and more so in transportation sector. However, environmentally assisted cracking (EAC) is an impediment to increase strength of metallic alloys, as EAC resistance and strength are often inversely related denying. Hence, the metals are denied these twin benefits. Studies have been carried out on high strength 7xxx series copper containing alloys to tackle this problem through understanding the underlying relation between the structure and EAC susceptibility. It has been shown that significant improvement in strength levels can be achieved even when these alloys display better EAC resistance, in relation to the so-called overaged alloys, through industrially implementable heat treatments.