Optimization of the Solution Annealing Treatment of the AlSi10Mg(Cu) Alloy

Marko Grzinčič[1], Ivan Lukáč[2]
[1]Nemak Slovakia s.r.o. (Ltd.), Ladomerská Vieska 394, Žiar nad Hronom, Slovakia, marko.grzincic@nemak.com
[2]Technical University of Košice, Department of Materials Science, Košice, Slovakia, ivan.lukac@tuke.sk

This paper presents an analysis of phase compositions and micro-hardness of AlSi10Mg(Cu) alloy. The EDX analysis was used for determination of various intermetallic phases in separately prepared cast samples with different solution annealing treatment. It was found that copper does not take part in precipitation strengthening process of the matrix. Furthermore, the theoretical and practical experiments confirmed that the solution annealing 60-minute holding time at 530 °C is sufficient to dissolve the intermetallic phases via the hardening element - magnesium. Industrial practice is very far from this fact.

Keywords: AlSi10Mg(Cu) alloy, anneling, optimizationReferences

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