Microstructural Analysis of Nickel Influence in Alsi10mgmn Alloy with Increased Iron Level

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Presence of iron in Al-Si-Mg based alloys is a common problem. Due to low solubility of iron in aluminium, most of the iron is present in the form of intermetallic phases, which decrease mechanical and foundry properties of the alloy. Addition of some chemical elements might be used to elimination of iron effects. In the article, influence of nickel to microstructure of AlSi10MgMn alloy with 1 wt. % of iron is described. Addition of nickel to elimination of iron influence is 0.1, 0.3 and 0.5 wt. %, respectively. Shape and chemical composition of the intermetallic phases is the main concern of the research as the main factor responsible for decrease of the properties of aluminium alloys with high amount of iron. It has been shown that nickel has a positive influence to iron-based intermetallics in higher levels.

Keywords: AlSi10MgMn alloy, Microstructural analysis, Iron intermetallics, Nickel addition, EDX analysis

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