The Influence of Manganese on Elimination Harmful Effect of Iron with Different Level of Iron in the Alloy Based on Al-Si-Mg

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Manganese is the most widely used and it can modify the β-Fe platelet-like morphology to more compact and harmless forms (i.e. Chinese script, skeleton-like and/or polyhedral α-Fe phase) Furthermore, the Mn and Fe content can influence the type, the size and the ratio of different Fe intermetallic compounds. The present study investigates the effect of manganese concentration on the formation of iron compounds in an AlSi7Mg0.3 with levels of iron 0.3 and 0.7 wt. %. The manganese was ranking in amount of 0.1, 0.2, 0.6 wt. %. The morphology iron intermetallic phases has been investigated using cooling curve analysis, optical microscopy and scanning electron microscopy (SEM). Can be concluded, that increased amount of manganese lead to decrease the temperature of solidification iron rich phase (TAl$_5$FeSi) and reduction these particles.

Keywords: manganese, iron rich phases, AlSi7Mg0.3 alloy

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Paper number: M2017148