عنوان مقاله:

The study of Zn effect on the microstructure and tensile properties of cast Al-15% Mg2Si-3% Cu composite

محل انتشار:

سومین کنفرانس بین‌المللی آلومینیوم ایران IIAC2014 (سال: 1393)

تعداد صفحات اصل مقاله: 5

نویسندگان:

f samadi - *Faculty of Metallurgical and Materials Engineering, Semnan University, Iran*

m emamy - *School of Metallurgy and Materials, College of Engineering, University of Tehran, Tehran, Iran*

a honarbakhsh raouf - *Faculty of Metallurgical and Materials Engineering, Semnan University, Iran*

navid ataee - *School of Metallurgy and Materials, College of Engineering, University of Tehran, Tehran, Iran*

خلاصه مقاله:

The Al-Mg2Si composite is a typical example of an ultra light material appropriate for weight critical applications especially in aerospace and automotive industries. Unfortunately, in its original as-cast condition, the presence of coarse Mg2Si particles in the composite leads to poor tensile properties. Therefore, it seems desirable to modify the structure of the composite to improve its mechanical properties. In present research, an attempt was made to investigate the influence of different concentrations of Zn (1, 3, 5, 10 and 15 wt.%) on the microstructure and tensile properties of Al-15% Mg2Si-3% Cu metal matrix composite. The composite ingots were made by casting process. In this work, the matrix composite were characterized by optical microscopy, scanning electron microscopy (SEM). Microstructural observations showed that with the addition of Zn, the size or morphology of the primary Mg2Si phase does not change significantly but, tensile testing results revealed that the optimum Zn level for improving both UTS .%.and elongation values is 10 wt

کلمات کلیدی:

Al-Mg2Si composite; Casting; Microstructure; Tensile properties