

عنوان مقاله:

Effect of si content on mechanical properties of casting aluminum silicon alloys welded by friction stir welding

محل انتشار:

پانزدهمین کنفرانس ملی جوش و بازرسی و چهارمین کنفرانس ملی آزمایشهای غیرمخرب (سال: 1393)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Al-Si alloys are widely used in automotive and Aerospace applications because of their low Thermal Expansion coefficient, Good Wear Resistance, High Dimensional Stability and Corrosion Resistance. the friction stir welding (FSW) has become a highly recognized joining technique due to numerous advantages, including easier joining of the hard-to-weld materials such as aluminum alloys and a lower heat input compared to fusion welding. In this study, effect of the silicon content on the mechanical properties and microstructure aspects of different region of the weld in casting alloys aluminum silicon with various percentages of silicon, tested by friction stir welding (FSW) method. Mechanical tests were performed on the samples. Microstructure of the base metal and different region of the weld were examined by SEM light and electron microscope that were equipped to EDS system. The results show that Alloy A390 has the maximum hardness and minimum impact resistance however alloy A356 has a minimum hardness and maximum impact resistance. By increasing the silicon amount the hardness of materials was increasing and impact resistance was decreasing

کلمات کلیدی:

Casting aluminum silicon alloys, Friction stir welding, Mechanical property

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