سیویلیکا - ناشر تخصصی مقالات کنفرانس ها و ژورنال ها
گواهی ثبت مقاله در سیویلیکا
CIVILICA.com

عنوان مقاله:

Effect of changing filler rod on microstructure and corrosion behavior of Al/Mg2Si surface composite fabricated by TIG welding

محل انتشار:

هشتمین کنفرانس و نمایشگاه بین‌المللی مهندسی مواد و متالورژی و سیزدهمین همایش ملی مشترک انجمن مهندسی متالورژی و مواد ایران و انجمن ریخته گری ایران (سال: 1398)

تعداد صفحات اصل مقاله: 13

نویسندگان:

Hossein Hosseini Tayeb - *Master of Science, Daneshpajoohan Pishro Higher Education Institute, Isfahan, Iran*

Jalal Esmaeili - *Master of Science, Daneshpajoohan Pishro Higher Education Institute, Isfahan, Iran*

Majid Tavoosi - *Phd, Malek Ashtar University of Technology, Shahin-Shahr, Isfahan, Iran*

Seyed Mahdi Rafiaei - *Phd, Golpayegan University of Technology, Golpayegan, Isfahan, Iran*

خلاصه مقاله:

Al / Mg2Si surface composite was fabricated by tungsten inert gas (TIG) welding at a current intensity of 150 A using three types of filler rods including 1100, 4047 and a combination of 4047 and 5356 filler rods. The phases created were identified by the X-ray diffraction (XRD) method and the microstructures of the 3 samples were investigated by optical and scanning electron microscopes. Their corrosion behavior was also tested by a potentiostat instrument. The corresponding results showed that changing the filler rods used led to changes in the morphology of the resultant coatings. In addition, although sample 3 (coated with a combination of 4047 and 5356 filler rods with the maximum amounts of Si, Mg, Fe, and Cu) had the greatest gas porosities in the weld zone, it exhibited a good distribution of dissolved magnesium and silicon precipitates. The weld zone of this sample included the α-Al matrix, Al-Si eutectic .and Mg2Si precipitates. In this case, the corrosion resistance of the coatings also increased

کلمات کلیدی:

TIG welding, Aluminum, surface composite, Mg2Si

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/963823