

عنوان مقاله:

Study of the performance of Oxide- based flux on the TIG welding of AISI 4140 steel

محل انتشار:

اولین همایش ملی تکنیک های نوین در تجهیزات و مواد آزمایشگاهی صنعت نفت ایران (سال: 1394)

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خلاصه مقاله:

TIG welding is considered as one of the most common welding method because of high quality weld metal. For this reason, to increase the joint penetration during one-pass welding, activated-flux tungsten inert gas (A-TIG) welding on the 42CrMo4 steel type steel was studied. This paper presents effect of welding current and thickness of activating flux layer on the weld bead geometry. Two kinds of oxides Cu₂O and Cr₂O₃ were used to investigate effect of activating flux on the weld bead geometry, microstructure and hardness in AISI 4140 steel. The effect of activated flux on metallurgical properties of the welds was discussed using result of scanning electron images, and EDS graphs of the weld zone for welds with or without fluxes. Vickers hardness with 500g force was performed. Experimental results showed that maximum depth of weld was obtained by using Cr₂O₃ activated flux but this flux decreased the depth to .width ratio. All welds had martensite microstructure

کلمات کلیدی:

42CrMo4 heat treatable low alloy, TIG welding, Weld geometry, Activated oxide flux, ATIG Welding

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