

عنوان مقاله:

Evaluation of microstructure and mechanical properties of friction stir welded copper / ۳۱۶L stainless steel dissimilar metals

محل انتشار:

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خلاصه مقاله:

In the present research, friction stir welding (FSW) process was used for butt joining of pure copper plate to ۳۱۶L stainless steel plate. Mechanical properties and microstructural characteristics of the joint were evaluated by microhardness and tensile tests as well as optical and scanning electron microscope (SEM). It was found that microstructure of the weld nugget (WN) has fine grains whereas the elongated grains are located in the thermo mechanically affected zone (TMAZ) into ۳۱۶L stainless steel. Also, coarse grains are observed in the heat affected zone (HAZ) into pure copper. The microhardness values of the WN are much higher than the base metals. The HAZ zone shows minimum hardness values. The butt joint has ۸۵% weld efficiency compared to the copper base metal.

کلمات کلیدی:

۳۱۶L stainless steel, pure copper, FSW process, Dissimilar joint

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