

عنوان مقاله:

The Effect of Diffusion Annealing Temperature on the Microstructure and Microhardness of Interface in Copper–Silver Bimetallic Strips

محل انتشار:

اولین کنفرانس بین المللی و هفتمین کنفرانس ملی مهندسی ساخت و تولید (سال: 1384)

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نویسندگان:

A Haghiri - *MSc Student of Metallurgical, Mining and Metallurgical Engineering Department, Amirkabir University of Technology (Poly Technic), Hafez Ave., Tehran, Iran*

M Ketabchi - *Assistant Professor of Metallurgical, Mining and Metallurgical Engineering Department, Amirkabir University of Technology (Poly Technic), Hafez Ave., Tehran, Iran*

N Parvin - *Assistant Professor of Metallurgical, Mining and Metallurgical Engineering Department, Amirkabir University of Technology (Poly Technic), Hafez Ave., Tehran, Iran*

M Zare - *BSc Student of Metallurgical, Mining and Metallurgical Engineering Department, Amirkabir University of Technology (Poly Technic), Hafez Ave., Tehran, Iran*

خلاصه مقاله:

Copper–Silver bimetallic strips were produced by cold roll welding process and were treated by diffusion annealing in the temperature range 250–800 °C. The interface bonding strength was determined by bending test and microhardness profile was determined and microstructure in the interface region was observed. Hardness in the interface depends on diffusion annealing temperature. Diffusion annealing above 600 °C produces fine-grained intermetallic phases in the interface region and silver matrix. The intermetallic formation and movement of intermetallic interface is a chemical–diffusion process. It is observed that the strength is greatly reduced by increasing the thickness of intermetallic compounds. These compounds have detrimental influence on physical and mechanical properties of interface. The results indicate that there is an optimum annealing temperature at which the sheet exhibits a satisfactory formability together with a high bonding strength.

کلمات کلیدی:

Copper–Silver Bimetallic Strip, Cold Roll Welding, Microhardness Test, Bending Test, Interface Bonding Strength

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