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Research on Improving the wettability of CFC by Using Multi-Arc Ion Plating

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Abstract: This article adopts multi-Arc ion plating to deposit Ti interlayer on the surface of CFC, in order to achieve surface metallization. Subsequently, CFC was joined to copper by vacuum brazing. The microstructures and strength of the joints were also investigated by means of SEM，XRD and shearing test. The experimental results show that Ti interlayer could significantly increase the wettability of CFC; By the diffusion of Ti into the CFC together with a reaction, good metallurgical bonding can be obtained between the Ti interlayer and CFC base, the TiC reaction layer could improve the bonding strength of Ti interlayer on CFC; Ti gradient layer can prevent or slow down the crack propagation, which is favorable for the joint strength; And the resulted brazing parts possess good bonding strength, the brazed specimens fractures occurred at the CFC near the interface between CFC and Ti interlayer.

Keyword：CFC; multi-arc ion plating,; wettability; interfacial microstructure; shearing strength;

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