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Effectiveness of boria welding flux in improving the wettability of ZrB_2 in contact with molten Cu

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Abstract

In this work boria based welding flux was used to remove the native oxide layer on ZrB_2 and promote bonding/wetting with copper. Without boria welding flux the Cu/ ZrB_2 system showed no wetting. When flux was used at the interface no dissolution or reaction was observed between Cu, ZrB_2 and the flux. The effectiveness of boria in dissolving zirconia oxide surface layer was further confirmed on wetting tests carried out on pre-oxidised ZrB_2 samples having an oxide scale of 15 μm thickness. A mock joint was made using copper with flux, and it

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