A REVIEW OF POWDER INTERLAYER BONDING

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Abstract -

Originally conceived of as a repair process for advanced engineering alloys Powder Interlayer Bonding (PIB) is a solid-state joining method. The process has been utilised for the joining of several alloy systems, including titanium and titanium aluminides, nickel, and molybdenum alloys amongst other advanced materials. The process has demonstrated that it can provide high integrity bonds at relatively low cost when compared to some more mature joining techniques. The technique typically uses a metallic powder interlayer positioned on either of the fraying surfaces. The process utilises a highly localised heating source in an inert gas atmosphere shielding the fusion zone from oxidation. It is believed that PIB has the potential to compete with more mature joining techniques, providing a method of joiningthat is time and cost effective and that is applicable to a wide variety of advanced and difficult to join alloys.

K**eywords** - Alloy Systems, Advanced Materials, Joining Techniques, Metallic Powder Interlayer