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(57) Abstract :

Abstract Title: Reinforced zinc-based composite and its fabrication method The present invention involves to making a strong Zn-Ti64 composite which is produced by reinforcing the pure zinc with Ti6Al4V (Ti64) scaffold through the casting route, without the formation of any intermetallic compounds. The pure zinc was melted in a muffle furnace at around 500°C. Then the molten zinc was poured into the Ti64 scaffold which was followed by air cooling. The compressive strength of the Zn-Ti64 composites thus obtained is ranging from 160-175 MPa which is about 300 to 350% higher compared to pure zinc at 40 MPa. Similarly, the flexural strength of the Zn-Ti64 composites is found to range from 140 to 180 MPa, which is 300 to 400% higher compared to pure zinc at 35 MPa. These values are higher than the strongest human bone at 130 MPa, making the Zn-Ti64 composite an ideal candidate for load-bearing medical implants. Figure 1(c)

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