



Binder jetting additive manufacturing of biodegradable Zn

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ABSTRACT

Biodegradable materials avoid second surgeries and long-term associated risks of conventional inert implants. Zn arose as a potential candidate for bioresorbable implants due to its proper degradation behaviour and biocompatibility [1]. However, its low melting point induces uncontrolled porosity in LPBF, promoting the future cracking of the implant. Therefore, new fabrication techniques need to be explored. In this work, binder jetting 3d printing (BJ3P) was studied for Zn powders. The samples were printed and sintered under different conditions. It is concluded that, the increase the temperature almost up to melting point leads to higher densification, at the same time, the rise of temperature provokes the formation and growth of oxidized layer on the surface of the powders.

[1] D. Vojtech, J. Kubasek, J. Serak, et al. Acta Biomaterialia, 7(9) (2011).