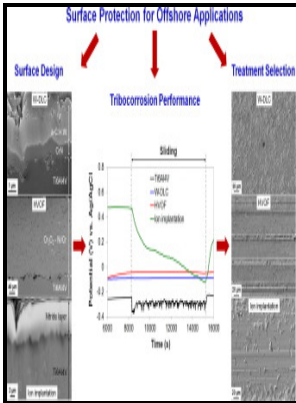


# Application of surface engineering technologies to Ti 6AL 4V treatment

University of Birmingham - Surface engineering to improve the durability and lubricity of Ti



Description: -

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## Effect of Surface Treatment on Tribological Behavior of Ti

Therefore, antibacterial and osseointegration-accelerating properties are important in implant surface design. Surface morphology after corrosion test The micrographs of the investigated polished samples after potentiodynamic polarization tests until 6 V in 0.

## Surface Cracking of Laser Melted Ti

The geometrical and metallurgical of produced parts are analyzed.

## Effects of surface treatment of Ti

Steps 4 and 5 of THT were a vacuum annealing hydrogen degassing followed by aging treatment. Here we show that applying a nanodiamond ND coating onto SLM-Ti scaffolds provides an improved surface for mammalian cell growth while inhibiting colonization of Staphylococcus aureus S. It has poor abrasive wear resistance due to high coefficient of friction and low thermal conductivity.

## Gaseous surface hardening of Ti

The corrosion resistance of different samples was evaluated by an electrochem.

## Effects of surface treatment of Ti

The contact angles of group P, group AE, and group AMH are shown in. It allows realizing heterophase process during the manufacturing, in which the process of partial melting of the used powder is realized.

## Laser Ablative Surface Treatment for Enhanced Bonding of Ti

Natural structural materials are built at ambient temp. The length of  $\alpha$  grains has a range of 3 to 120  $\mu\text{m}$ . By first choosing the best set of process parameters to make the construction of thin walls composed of stacked layers, and then the research the optimal horizontal step of deposition overlapping for thicker constructions, results obtained made it possible to validate transition from single deposits 1D to thick walls 3D without any weld pool collapse or lack of fusion.

### **Influence of Heat Treatment and Surface Finishing on the Corrosion Behavior of Additive Manufactured Ti**

Without an obvious  $\beta$  characteristic peak in SLM-produced sample, it suggests that the phase transformation from  $\alpha'$  to  $\beta$ -phase was not detectable by XRD, as shown in microscopy. In this paper, we prepared Ti-6Al-4V alloy samples using different smoothing and polishing materials as well the air plasma treatment, on which contact angles of water, formamide and diiodomethane were measured. This can be related to the different microstructure of the samples after heat treatment.

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