

## Structural characterization of Ti6Al4V/TiC thin films produced by RF Magnetron Sputtering.

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TiC thin film has many industrial and scientific applications due to its favourable properties. In this study, TiC thin film was deposited on Ti6Al4V alloy substrate to improve the surface properties. Structural characterization of the evolving properties was carried out. Grazing incidence X-ray diffractometer GIXRD was used to determine the crystallographic structure of the film. Structural defects and the stoichiometric ratio of the film was studied using Raman Spectroscopy. Field emission scanning electron microscope FESEM was used to understand the distribution of the TiC thin film morphology and the surface topography analysis was done on an optical profilometer. The results show that the TiC thin-film properties evolved with change in the process parameters of the RF magnetron sputtering. Crystalline TiC thin film was noticed on the XRD spectra and the Raman results confirm the presence of both stoichiometric and non-stoichiometric TiC thin film. Homogenous distribution of the TiC thin film was also observed.

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