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EFFECT OF HEAT TREATMENT AND IT'S BEHAVIOUR ON MECHANICAL PROPERTIES OF PURE TITANIUM

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Authors: Dr. Satyanarayan, Veerabhadrapa Algur, Kusammanavar Basavaraj

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Abstract:

Titanium (Ti) is widely used in many applications due to its compatibility with different environmental conditions. However, pure Ti has low-to-moderate strength. Heat treatment of Ti is one option to improve its mechanical properties. The current study aims to investigate the effect of heat treatment on microhardness (Vickers) and wear properties of pure Titanium (Ti □ Grade 2). The cylindrical shaped Ti was isothermally held in the tubular furnace at a temperature of 920°C for about 30 mins and cooled in different modes such as quenching in water, ice, oil (Servo 4T 20W40), air (Normalizing), and furnace cooling (Annealing). Further samples were kept in a freezer for 20 days (□20). The results of each specimen were compared and the best cooling medium was determined in terms of hardness and worn-out surfaces. Specimen cooled in water exhibited intermediate (fair) wear and hardness properties compared to specimen cooled in other media.

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