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Apresentador - **Luzinete**

**The Influence Of Heat Treatment On The Corrosion Behavior Of Titanium (Cp) Obtained By The Hdh Process**

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**RESUMO**

Titanium and its alloys are widely used as implants in orthopedics, dentistry and cardiology due to their outstanding properties such as high strength, biocompatibility, good fatigue resistance and high level of hemocompatibility. The commercially pure (cp) titanium presents an allotropic transformation at 882.5 oC when its structure changes from the compact hexagonal type (phase  $\alpha$ ) to a body-centered cubic (phase  $\beta$ ) one. This transformation temperature is affected by the presence of alloying elements or impurities. The mechanical properties depend on the microstructure that can be changed by means of thermomechanical processing and subsequent heat treatment. Usually, commercially pure titanium with  $\alpha$  +  $\beta$  microstructure presents better mechanical properties than the other microstructures such as  $\alpha$  and  $\beta$ . The microstructure control depends mainly on the material chemical composition and heat treatment conditions, such as temperature and cooling rate. In this study, the effect of cp titanium microstructure on its corrosion resistance has been evaluated.  $\alpha$  and  $\alpha$  +  $\beta$  microstructures were obtained by various heat treatments and their corrosion resistance was investigated and compared in a phosphate buffer solution that simulates physiological fluids.