308-045 Characterization of the Ti-45Nb alloy for biomedical applications
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Titanium and new titanium based alloys have been studied for biomedical applications due its properties and biocompatibility. In this study, mechanical and microstructural characterization of the Ti-45Nb alloy was carried out. Ingots of the Ti-45Nb alloy were produced from sheets of commercially pure titanium (99.9%) and niobium (99.9%). Samples were melted in an arc furnace under an argon atmosphere and re-melted ten times to improve their chemical homogeneity. The ingots were then homogenized under vacuum at 1100ºC for 86.4 ks to eliminate chemical segregation. Alloys were evaluated as-cast and after heat treatment. The phases formed were evaluated in optical microscope and by wide-angle XRD (X-Rays Diffraction Analysis). Mechanical properties were analyzed. Results shows beta phase and lower microhardness due to this microstructure.