



## S7-1.8

# Investigation of the Effect of Adding Tantalum on the Microstructure and Mechanical Properties of Biomedical Ti-15Mo Alloy

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Titanium alloys have great applications as biomaterials due to their high mechanical strength and density ratio, good corrosion resistance, and biocompatibility. Type  $\beta$  alloys have aroused enormous interest in the development of biomaterials due to their low elastic modulus. This new class of alloys has been formed mainly by adding tantalum, molybdenum, proven not to have biocompatibility. Tantalum is an alloy hardening element, which can increase the mechanical strength of the material. At the same time, molybdenum is a strong  $\beta$ -stabilizer, stabilizing the  $\beta$  phase with 10% quickly. In this work, Ti-15Mo-xTa system alloys were produced by the powder metallurgy method. The result shows the prepared alloy presented the  $\beta$ -phase grain structure, showing more excellent mechanical properties than pure titanium due to hardening in solid solution.