

ABSTRACT

Commercial pure titanium and titanium alloys are widely used as implant materials in the medical and dental applications due to their superior biocompatibility, corrosion resistance and specific strength compared with other metallic implant materials. Research on powder metallurgy technique for producing fracture fixation plates from pure titanium and Ti-6%Al-7%Nb alloy powders have been performed. This paper presents research outcomes of conventional press-and-sinter method. The powders were pressed at 355 to 1050 MPa and sintered at 1200, 1250, 1300, and/or 1500°C. The success of this method depends on the quality of the Ti, Al and Nb powders, correct processing technique, and the properties of the sintered samples. Relation between pressing pressure, density, hardness and sintering temperature will be discussed. Commercial pure titanium fracture fixation plate samples were purchased and used as reference for the expected properties.