

The effect of sintering on the properties of powder metallurgy (PM) F-75 alloy

Abstract

F-75 (Co-Cr-Mo) alloy are widely used in the production of medical implants because of their excellent strength properties, hardness and also one of the biocompatible materials that very suitable in human body environment. In this research, the effect of sintering in terms of sintering temperature and sintering time has been studied by focusing on the microstructure, physical and mechanical properties of F-75 alloy. The samples were prepared by blending the starting material at 160 rpm for 30 minutes, uniaxially pressing at 500 MPa and sintering in an argon atmosphere at two sintering temperatures (1300°C and 1350°C) for four sintering times (60, 90, 120 and 150 minutes). The results show that the grains and bulk density increased with the increasing of sintering temperature and sintering times. However, opposite results were obtained for apparent porosity, hardness and compressive strength.

Keywords

F-75; Physical and mechanical properties; Powder metallurgy; Sintering