

## **Characterization of Co-Cr-Mo (F-75) alloy produced by solid state sintering**

### **Abstract**

This research was carried out to fabricate and characterize Co-Cr-Mo (F-75) alloy. The samples have been prepared via solid state sintering. The lab work comprises the mixing of F-75 alloy powder with 2 wt. % of binder. The mixture was cold compacted using uniaxially press at 500 MPa. The samples were sintered at three different temperatures (1250 °C, 1300 °C and 1350 °C) in inert environment for 90 minutes of sintering time. The sintered samples were characterized by using Scanning Electron Microscope (SEM), Energy Dispersive X-ray Spectroscopy (EDS) and optical microscope (OM) Olympus BX41M. Bulk density, apparent porosity, percentage of linear shrinkage, and microhardness of the samples were also characterized. The average of the grain sizes were measured by line intercepts method. The optical micrographs showed the difference grain size in all sintered samples after etching with Marble reagent. The result shows the percentage of linear shrinkage, bulk density value and porosity increase with increasing the sintering temperature. Beside that, higher sintering temperature yields coarser grain structure.