ABSTRAK

Penelitian ini bertujuan untuk mengetahui Pengaruh Variasi Waktu *Holding Sintering* Terhadap Kekuatan Tekan Dan Struktur Mikro Magnesium Sebagai Biomaterial Dengan Metode Metalurgi Serbuk Untuk Aplikasi Implan Tulang. Data diperoleh dari penelitian yang dilakukan di Laboratorium Teknik Mesin Universitas Muhammadiyah Metro. Hasil penelitian berdasarkan pengujian, pengamatan, dan analisa yang telah dilakukan di laboratorium rekayasa material di ITERA. Jenis penelitian yang digunakan adalah kuantitatif. Hasil penelitian menunjukan bahwa semakin meningkatnya waktu *holding sintering* maka akan semakin sedikit porositas yang dihasilkan sehingga nilai densitas semakin tinggi, pada waktu *holding sintering* 60 menit porositas tercatat paling tinggi yaitu 38,04%, pada waktu *holding sintering* 90 menit porositas yang tercatat 23,85% dan paling sedikit porositasnya pada waktu *holding sintering* 120 menit yaitu 19,13%.

Kata Kunci : Variasi Waktu *Holding Sintering*, Kekuatan Tekan, Struktur Mikro Magnesium, Biomaterial, Metode Metalurgi Serbuk, Implan Tulang.

ABSTRAC

This study aimed to determine the effect of holding sintering time variations on the compressive strength and microstructure of magnesium as a biomaterial by using the powder metallurgy method for bone implant applications. The undertaken research was quantitative. The data were obtained from the Mechanical Engineering Laboratory of Muhammadiyah Metro University. Furthermore, testing, observation, and analysis were gained from the materials engineering laboratory at ITERA. The results of the research showed that when the hold sintering time was increased, the less visible grain to produce, so that the density value was higher. At the holding sintering time of 60 minutes of unseen grain recorded the highest, namely 38.04%, at the holding sintering time of 90 minutes of invisible grain was recorded at 23.85% and the least visible grain at the holding sintering time of 120 minutes was 19.13%.

***keywords** : variation of holding sintering time, compressive strength, magnesium microstructure, biomaterials, powder metallurgy method, bone implants.*