

ABSTRACT

Micro Metal Injection molding (μ MIM) is new manufacturing technologies that have great potential to produce products in micro size at mass production scale as well as having good persistence surface, complex shape and variety of functions. In this research, the feedstock which composed of stainless steel SS316L at 61.5% powder loading and mixture of binder composed of Polyethylene Glycol (PEG), Polymethyl Methacrylate (PMMA) and stearic acid are investigated. Key for successful in injection molding is also depending on injection parameters. Injection parameters consist of injection temperature, injection pressure, injection time and holding time. The main objective of this research is to investigate the additional acetone in the binders of the feedstock for produce high density brown compact which can prevent any defects. Result shows that 61.5% powder loading with 4 ml acetone has better rheology than 2ml acetone. The optimum parameter that has been used to produce high density of brown compact for injection molding is 12 bar injection pressure, 150oC injection temperature, 60oC template temperature, 5 sec injection time and 6 sec holding time. In conclusion, determination of optimize injection parameters is very important because the quality of brown compact will directly influence the quality and properties of component fabricate by micro metal injection molding (MIM).