ABSTRACT

Silver has commonly known as an alternative material to make jewellery around the world. The price of silver is much cheaper compare to gold, a major material for jewellery product. One of the silver alloy that had been well known in the world si sterling silver, an alloy that compose of 92.5% silver and 7.5% copper. The common problem that mainly occur during casting of sterling silver are defining proper hardness and avoiding oxidation. Casting defects such as gas porosity, shrinkage porosity, surface roughness by erosion, and misrun sometime also detected.

In order to decrease casting defects and to increase its quality, zinc is added to replace copper in silver alloy. In this research, the effect of zinc addition with variation 2.5%; 5%; and 7.5% and melting temperature of 1000°C, 1100°C, dan 1200°C are investigated using centrifugal casting process. The quality of the casting product will be evaluated by metallographic observation and hardness test.

Based on the hardness test, it is known that lower zinc addition and higher casting temperature will increase its hardness value. The metal oxide, ZnO, at casting surface will formed thicker with lower zinc addition and lower casting temperature. Nevertheless, the use of zinc addition could decrease the risk of casting defects ocurreness such as shrinkage porosity and misrun, eventhough gas porosity and erosion roughness still detected in all specimens.

Key Words:

Centrifugal Casting, Mechanical Properties, Silver-Zinc Alloy