ABSTRAK

PENGARUH PENAMBAHAN SERBUK Cu PADA PENGECORAN ALUMINIUM PADUAN TERHADAP KETANGGUHAN DAN TINGKAT KEKERASAN

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Sektor perindustrian menjadi sumber pendapatan utama bagi mayoritas penduduk Indonesia. Semakin berkembangnya teknologi membuat industri semakin pesat berkembang. Perindustrian di bidang otomotif seperti komponen kendaraan bermotor yang berbahan baku paduan aluminium yang memiliki manfaat sebagai komponen kendaraan bermotor karena paduan aluminium mempunyai sifat yang ringan, tahan karatt, tahan suhu tinggi, kuat, dan keras. tujuan yang ingin dicapai dalam penelitian ini, yakni sebagai berikut: 1. Mengetahui pengaruh penambahan unsur serbuk tembaga (Cu) pada pengecoran aluminium paduan terhadap nilai ketangguhan (impak). 2. Mengetahui pengaruh penambahan unsur serbuk tembaga (Cu) pada pengecoran aluminium terhadap tingkat nilai kekerasan. 3. Mengetahui hasil analisa struktur mikro akibat ketangguhan impak penambahan serbuk tembaga (Cu). Berdasrkan hasil penelitian dan pembahasan yang telah dipaparkan di atas. Berikut temuan penelitian pada serbuk aluminium paduan. 1.Dari variasi paduan Cu 9%, 12% & dan 15% pada aluminium paduan Al-Cu setelah pengujian impak tidak ada perubahan peningkatan pada nilai ketangguhan spesimen tersebut, yang terjadi adalah penurunan nilai ketangguhan. 2.Dari hasil pengujian kekerasan pada spesimen Al Paduan dan spesimen paduan Cu 9%, 12% dan 15% adanya peningkatan nilai kekerasan akibat dari penambahan serbuk Cu, semakin besar nilai serbuk Cu yang ditambahkan maka semakin besar nilai kekerasan tersebut. 3.Dari analisis struktur mikro bahwa semakin tinggi nilai paduan Cu maka akan mempermudah terbentuknya batas butir.

Kata kunci: Penambahan serbuk CU, Pengecoran, Tingkat Kekerasan

ABSTRACT

THE EFFECT OF THE ADDITION OF Cu POWDER ON CASTING ALUMINUM ALLOYS ON TOUGHNESS AND THE LEVEL OF VIOLENCE

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The industrial sector is the main source of income for the majority of Indonesia's population. With the development of technology, the industry is growing rapidly. The automotive industry, such as motor vehicle components, are made from aluminum alloys which have benefits as motor vehicle components because aluminum alloys are lightweight, rust resistant, high temperature resistant, strong and hard. The objectives to be achieved in this study are as follows: 1. To determine the effect of adding copper powder (Cu) to casting aluminum alloys on the toughness value (impact). 2. Knowing the effect of adding copper powder (Cu) to aluminum casting on the level of hardness. 3. Knowing the results of microstructural analysis due to the impact toughness of the addition of copper (Cu) powder. Based on the results of the research and discussion described above. The following are research findings on aluminum alloy powder. 1. From variations of Cu alloys 9%, 12% & and 15% in aluminum Al-Cu alloy after impact testing there was no change in the increase in the toughness value of the specimen, what happened was a decrease in the toughness value. 2. From the results of hardness testing on Al Alloy specimens and 9%, 12% and 15% Cu alloy specimens, there was an increase in the hardness value due to the addition of Cu powder, the greater the value of Cu powder added, the greater the hardness value. 3. From the microstructure analysis, the higher the value of the Cu alloy, the easier the formation of grain boundaries will be.

Keywords*: Addition of CU powder, Casting Hardness Lev*