

CHAPTER VI

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The conclusions obtained from this research study are as follows:

1. The first step to make domestic welding electrode is conduct a spectrometer analysis to identify the chemical material in Japan made welding electrode. The result of spectrometer test is 98.37% Cu and 1.17% Cr. After literature study and consultation with supervisor, domestic welding electrode will be made of 98.9% of Cu, 1% of Cr and 0.1% of Zr. The process in alloying the electrode started by melting Cu rod at 1200°C. When all Cu rods melted completely, add Cr powder and mix the powder in the Cu alloy until all Cr powder dissolve in Cu liquid. After the Cu-Cr alloy reach homogeneous state, insert Zr powder and mix the alloy until all Zr powder dissolve in the Cu-Cr liquid and reach their homogeneous state. The homogeneous state of the alloy will depend on temperature, mixing time and the grains size of the elements. When Cu-Cr-Zr alloy liquid reach its homogeneous state, pour the liquid alloy into sand cast and wait until the alloy fully solidified. Next, take the alloy from sand cast, cut, machining, grinding and shape the Cu-Cr-Zr alloy like Japan made welding electrode and the domestic welding electrode is ready to be use.

2. The quality and performance of domestic welding electrode are lower than the Japan made electrode, but the difference is not high. The welding quality that performed by domestic welding electrode is still safe and fulfills the quality requirement to be processed in CGL machine. Therefore, domestic welding electrode is safe to be use and can substitute Japan made welding electrode.
3. The total cost to purchase the original welding electrode from Japan is Rp. 110.000.000 whether the cost to produce domestic welding electrode is only Rp. 7.000.000. Therefore, domestic welding electrode is very beneficial to PT XYZ because of its lower price and good quality performance.

6.2 Recommendation

The recommendations from this research study are as follow:

1. For company, it is better to find a way to substitute fast moving import product that have a high cost with a domestic product that cost less. This approach will benefit the company rather that depending on import products.
2. For further research study, it is better to find other chemical elements that will increase the alloy properties and quality.