

ABSTRACT

In Indonesia, oxide nickel ore in the form of lateritic ore resources occur at the amount of 16 % from total nickel lateritic ore resources in the world. This resource is very attractive not only from economically but also from technologically point of view. Therefore, some basic characteristics of Indonesian lateritic ore are investigated in this paper. The aim of this research is to understand some basic carbothermic reaction characteristics by using coal-A (anthracite) and charcoal (coconut shell) reductors. The reductors addition was 10, 13, 15, and 20 mass%. It was reduced at the temperature of 1250 °C for 2 hour. According the reaction, the recovery of Fe-Ni was comparable between coal-A and charcoal reductors at 80 and 75%, respectively. They tend to increase along with the increasing coal-A and charcoal reductor addition. The microstructure observation shows the presence of Fe-Ni alloy and slag, dominated by olivine and fayalite as products of the reaction.

Keywords: pyrometallurgical process, reduction reaction, saprolitic nickel ore, carbonaceous reductor, ferronickel