

Karakterisasi terak yang dihasilkan oleh pig iron nugget menggunakan bijih besi kadar rendah dari Indonesia = Slag characterization of pig iron nugget using low grade iron ore produced from Indonesia

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Abstrak

ABSTRAK

Baja adalah salah satu aspek yang paling penting dalam kehidupan manusia. Baja digunakan dalam berbagai aplikasi seperti, otomotif, gadget elektronik, bahan struktural, dll. Dengan demikian, dibutuhkan bijih besi dalam jumlah yang besar untuk diolah demi kebutuhan-kebutuhan tersebut. Bijih besi kadar tinggi menjadi langka karena produk mereka menghasilkan produk besi bermutu tinggi. Salah satu solusi untuk masalah ini adalah dengan memanfaatkan bijih besi kadar rendah.

ABSTRACT

Steel is one of the most important aspects in the human lives. Steel is used in many applications such as, automotive, electronic gadgets, structural materials, etc. Thus, needing large amounts of iron ores to be processed for that demands. High grade iron ores has become scarce due to its high grade iron products. One of the solution for this problem is by utilizing low grade iron ores total Fe 60 mass . In this research, a low grade iron ore from Lampung, Indonesia was reduced using a subbituminous coal from Kalimantan, Indonesia. By utilizing direct reduction, pig iron nugget was successfully produced. The pig iron nuggets slag was then further examined using XRD, XRF, and SEM EDAX. In this research, the controlled variables which are used consists of two elements, temperature and time. The variables mentioned are 1450 1400 C for the temperature variable and 40 30 minutes for the holding time variable. From this research, it was found that the slags which has been produced are quite similar in morphology and microstructure, besides the 1400 C 30 minutes which has pores in it and has the highest amount of carbon and Fe wt in it. The phases in the resulted slags are also mostly amorphous except the 1450 C 30 minutes which states that the slag has a SiO₂ phase and also has carbon reside in it.