

Acceleration of Oxidation Reaction of Iron-bearing Materials by using Biomass char in Sintering Bed

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ABSTRACT

Iron ore sintering process occupies approximately 3% of carbon dioxide emission in Japan because a large amount of coke breeze is used as a main agglomeration agent. Therefore, its suppression has been required. One of the promising methods is to replace coke breeze with biomass char and iron-bearing materials. In this study, the effect of the utilization of metallic iron with coke or biomass char (PKS char) as an agglomeration agent on its oxidation behavior was examined by the series of experiments using a sintering simulator. The use of PKS char leads to a larger decrease in pressure drop difference of the sintering bed compared to the case using coke. The oxidation rate of metallic iron was larger in the case using PKS together than that using coke. It was considered that the oxidation of metallic iron was promoted because the bed-temperature was increased faster and higher in the former case.