

Evaluation of Low-Reducible Sinter in Blast Furnace Technology by Mathematical Model Developed at Centre ENET, VSB: Technical University of Ostrava

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Abstract : The paper deals with possibilities of interpretation of iron ore reducibility tests. It presents a mathematical model developed at Centre ENET, VŠB-Technical University of Ostrava, Czech Republic for an evaluation of metallurgical material of blast furnace feedstock such as iron ore, sinter or pellets. According to the data from the test, the model predicts its usage in blast furnace technology and its effects on production parameters of shaft aggregate. At the beginning, the paper sums up the general concept and experience in mathematical modelling of iron ore reduction. It presents basic equation for the calculation and the main parts of the developed model. In the experimental part, there is an example of usage of the mathematical model. The paper describes the usage of data for some predictive calculation. There are presented material, method of carried test of iron ore reducibility. Then there are graphically interpreted effects of used material on carbon consumption, rate of direct reduction and the whole reduction process.

Keywords : blast furnace technology, iron ore reduction, mathematical model, prediction of iron ore reduction

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