

MATHEMATICAL MODELING OF NICKEL ORES PRE-REDUCTION SIMULATIONS IN LABORATORY ROTARY KILN “LINDER”

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ABSTRACT

In the context of this paper are presented the results of the research dependence of mineralogical and metallurgical parameters determining the degree of pre-reduction of nickel ores, during simulation laboratory furnace “Linder”, according to the planning and the analysis of experiments with orthogonal plans of the first order 2^k with more factors. Such plans are referred to experimentation so as to reflect the dependence according to the equations in exponential form, for each parameter separately, graphic interpretation "3D" and "2D" in MATLAB package. Such planning can be applied in the process of increasing research of pre-reduction degree of nickel ores used in New Smelter of Ferronickel Drenas, in laboratory rotary kiln (Kavadarc). This research presents a methodology relatively new in this field, in order to study the relationship between technological parameters and composition of the ore, with the possibility of increasing the pre-reduction degree of the ores in Smelters, creating the opportunity of gaining a number greater than scientific arguments.

KEYWORDS: Furnace, Simulation, Pre-Reduction Degree, Humidity etc