

# The Secondary Steel Refining Processes Control Based on Equilibrium States Analysis in Heterogeneous System

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## *Abstract*

Determination of equilibrium states in the secondary steel refining processes is very important from the standpoint of intensification process possibility, better control and consequent economical effects. The objective of the work is an equilibrium states analysis in heterogeneous systems concerning the vacuum degassing process in the RH unit. The kinetic RH process model is based on the metal bath mixing model in which a gas – metal equilibrium is taken into consideration for boundary layer of the metal bath in the vacuum chamber.

The realization of the aforementioned objective is possible due to application of the fully integrated database computing systems in chemical thermodynamics. Computer programs used as tools to solve the set problem are FactSage and ChemSheet together with the FACT database.

Calculations are based on the industrial melt data derived from RH unit. Research results enable verification of the proposed model of vacuum refining of steel. The verification testifies that proposed theoretic model is correct. This research constitutes a big contribution since it provides very good explanation of some processes occurring during refining of steel in the RH unit.

