

# Thermodynamic Evaluation of the Slag System CaO-MgO-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>

WAGNER VIANA BIELEFELDT, ANTÔNIO CEZAR FARIA VILELA, NESTOR CEZAR HECK

*Laboratório de Siderurgia, UFRGS, Porto Alegre, Brazil*

## ABSTRACT

Slag System CaO-MgO-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> - although plays an important role during the secondary refining of steel, such as adjustment of the sulfur level, capture of non-metallic inclusions and refractory protection - still has regions with little data or uncertain data in terms of phases present at equilibrium and isothermal profile heights.

It is also important to know the composition and proportion of liquid and solids formed, considering, for example, the basicity (%CaO / %SiO<sub>2</sub>) and the MgO content. With respect to physical properties the slag viscosity stands as the most important.

It influences both the reactions between metal / slag as well as slag / refractory interaction. This work, done with the help of computational thermodynamics, is continuing to study the phases present in certain compositions of the system CaO-MgO-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>, and to evaluate the viscosity values of this system, calculated via computational thermodynamics, with those of literature.