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Thermodynamic simulation of phase formation during cooling of zinc-containing cooper-smelting slag

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Abstract

Thermodynamic simulation of phase formation during cooling of the model system from 3500 °C appropriate of the composition of the slag from autogenous smelting of copper-zinc concentrates has been conducted. The thermodynamic simulation results is pointed out on that distillation of zinc from slag simultaneously with a conversion of a portion of iron (up to 24.4%) in the metallic state at high temperatures typical for arc discharge in electric furnace is possible. High polyvalent iron ion content in slag and a low thermal stability of copper and iron oxides provide to the reduction and the pass of zinc (higher 1250 °C) and copper (higher 2200 °C) into a gas.

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