

## Slag cleaning in crossed electric and magnetic fields

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Slags from smelting of copper concentrate contains from 2% to 20% of copper and are directed to slag cleaning operation carry out in electric furnaces or other slag cleaning reactors with injection of carboneous reductant. Ionic structure of liquid slags points out the possibilities of utilization of slag electrolysis in reduction of magnetite and precipitation of dissolved copper as well as electrokinetic phenomena in acceleration of removal of metal or matte inclusions from the slag. Analysis of physico-chemical phenomena, mathematical and fluidodynamic modeling of slag reduction and cleaning allowed for development of a new concept of slag cleaning in crossed electric and magnetic fields. Results of slag cleaning in a large laboratory scale confirmed expectations, showing the possibilities of very intensive slag reduction and copper recovery. © 2006 Elsevier Ltd. All rights reserved.