



Experimental study of the migration and electro-capillarity effects on silicate, metal and sulfide phases segregation in centrifugal fields

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Simulation of the migration and accumulation of iron-sulfide phases under gravity, with the partial fusion of a model substance was carried out in a high-temperature centrifuge at 1400-1450°C under normal pressure*. The goal of this investigation was to study the influence of the electro-capillarity effects on the segregation of metal. The drop of metal begins to move when the electric potential is applied across the system. The using of high-temperature centrifuge and electro-capillarity methodic permit us to compare the influence of gravity and electro-capillarity effects on the segregation of melts. Experimental results show, that mixture consisting of olivine crystals, silicate and iron-sulfide melts, after being separated in a centrifuge, is differentiated in density at $\lg f_{O_2}$, some low IW at 1450°C. It was showed the influence of electro-capillarity effects on the segregation of metal at 1450°C and it was showed the feeble iron separation at 1400°C. by a 1,5-2 V/cm potential on the simple. The study was supported by the RFBR No 07-05-00630 and PBR of Pr. RAS No 18.

*E.B.Lebedev, A.A.Kadik, E.M.Galimov. Segregation of molten metal through partially molten silicate: simulation using a high temperature centrifuge. 32nd IGC - Florence, 2004; "T06.02