MODELING DYNAMICS OF DISPERSED GAS PHASE IN FLOW REGION OF ALUMINIA REDUCTION CELL

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Three-dimensional two-phase magneto-hydrodynamic model of aluminia reduction cell introduced by authors earlier [1] which is capable of simulation of liquid viscous media (aluminia and cryolite) flow behavior in case of continuous "anode effect" implemented by reduction of local electric current conductivity of cryolite – was extended by introduction of third phase – dispersed gas (CO_2); which resulted in better and more accurate simulation of such effect.

Introduction of dispersed bubbles of CO_2 also allows to estimate more precisely one of the most important parameters of reduction cell – "current efficiency", which is defined as ratio between real and theoretical productivities of reduction cell. It is considered that one of the main reasons for reduced current efficiency – is oxidation of alimunia by gases in pre-anode region.

Литература.
1. *Savenkova N.P., Anpilov S.V., Kuzmin R.N., Provorova O.G., Piskazhova T.V.* Reduction cell multiphase 3D model // Applied Physics Issue 3, 2012, Pp. 111-115