Full Paper	Thematic Section: Research into New Materials.
Reference Object Identifier – ROI: jbc-02/15-43-9-116	Subsection: Silicon in Metallurgy.
The article is published as a material of correspondence participation	in International Scientific

Forum "Butlerov Heritage-2015". http://foundation.butlerov.com/bh-2015/ Submitted on September 10, 2015.

Recieving of Al-Si alloys in KF-AlF₃-SiO₂ melt

© Pavel S. Pershin,* Andrey V. Suzdaltsev, and Yury P. Zaikov

Laboratory of Electrode Processes. Institute of High Temperature Electrochemistry of the UB RAS. Akademicheskaya St., 20. Yekaterinburg, 620137. Russia.

Phone: +7 (343) 374-50-89. E-mail: paffka19@yandex.ru

Keywords: aluminum, silicon, silumins, voltammetry, electrolysis, KF-AlF₃.

Abstract

Kinetics of silicon and aluminum deposition on the graphite cathode in KF-AlF₃ melt with SiO₂ addition (0-1.5 mass. %) at the temperature of 720 °C was investigated with cyclic voltammetry method. Peaks of silicon and aluminum deposition at potentials -0.85 and -1.30 V relatively to gas CO/CO₂ electrode are noted.

Potentsiostatic (at potentials -0.9 and -1.5 V) and galvanostatic (at cathode current density 0.5 A/cm²) electrolysis of KF-AlF₃-SiO₂ is carried out and possibility of receiving silicon and silumins with the content of silicon 37 mass. % is shown.

^{*}Supervising author; *Corresponding author