

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

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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.

Potentiostatic (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.