

Thematic course: The metal reduction thermodynamic simulate of sulfides. Part 2.

## Silicathermy

© Denis A. Toloknov,<sup>1\*+</sup> Evgeniy N. Selivanov,<sup>2\*</sup> and Roza I. Gulyaeva<sup>3</sup>

<sup>1</sup> Russian Academy Establishment of Sciences Institute of Metallurgy. Ural Branch of RAS.  
Amundsen St., 101. Yekaterinburg, 620 016. Sverdlovsk region. Russia.

Phone: +7 (343) 232-91-66. Fax: +7 (343) 267-91-86. E-mail: [toloknovda@mail.ru](mailto:toloknovda@mail.ru)

<sup>2</sup> Russian Academy Establishment of Sciences Institute of Metallurgy. Ural Branch of RAS.  
Amundsen St., 101. Yekaterinburg, 620 016. Sverdlovsk region. Russia.

Phone: +7 (343) 232-91-01. E-mail: [pcmlab@mail.ru](mailto:pcmlab@mail.ru)

<sup>3</sup> Russian Academy Establishment of Sciences Institute of Metallurgy. Ural Branch of RAS.  
Amundsen St., 101. Yekaterinburg, 620 016. Sverdlovsk region. Russia.

Phone: +7 (343) 232-91-63. E-mail: [gulroza@mail](mailto:gulroza@mail)

\*Supervising author; +Corresponding author

**Keywords:** thermodynamic simulate, the model system, copper sulfide, nickel sulfide, zinc sulfide, iron sulfide, silicon.

### Abstract

A thermodynamic estimate of interactions in the system MexS–Si, where Me is Cu, Ni, Zn and Fe has been carried out. The isobaric-isothermal potentials of the reduction reaction of sulfides with aluminum have been calculated. According to thermodynamic modeling probable phase composition of the model system is determined and the degree of sulfides conversion is computed in the temperature range 1800-1400 K.