Thematic Section: Physicochemical Research. **Full Paper**
Subsection: Chemistry of Silicon and its Compounds. *Reference Object Identifier* – ROI: jbc-02/15-43-9-137
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 October 15, 2015.

Effect of boron on the oxidation of eutectic alloys Nb-Si

© **Alena G. Upolovnikova**,[+] **Svetlana V. Zhidovinova**, and **Vladimir M. Chumarev***
Laboratory of Pyrometallurgy of Non-ferrous Metals. Institute of Metallurgy of the UB of the RAS.
Amundsen St., 101. Yekaterinburg, 620016. Sverdlovsk Region. Russia.
Phone: +7 (343) 232-90-24. E-mail: tyushnyakov.sn@gmail.com

*Supervising author; [+]Corresponding author

Keywords*:* niobium, silicon, boron, alloys oxidation.

Abstract

Results of research on the oxidation of the eutectic alloy Nb-Si, doped with boron at a constant heating rate in air is shown. The base alloy is represented by a solid solution and two silicides Nbss – Nb_3Si and α-Nb_5Si_3. The presence of phases with boron was observed only in its maximum content 2 at %, in the form of phase T2 ($Nb_5(Si,B)_3$). It is shown that the microalloying boron of eutectic alloy has a positive effect on the oxidation resistance of the eutectic alloy Nb-Si only at low concentration of boron (less than 0.7% at).