Full Paper _____ *Thematic Section:* Preparative Research.
Reference Object Identifier – ROI: jbc-02/16-47-7-26 *Subsection:* Electrochemistry.
Publication is available for discussion in the framework of the on-line Internet conference "*Butlerov readings*".
http://butlerov.com/readings/
Submitted on August 25, 2016.

Synthesis and magnetic properties of ytterbium ferrite $YbFe_2O_{4\pm\delta}$

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Keyword: dynamic method of synthesis, heterogeneous equilibria, oxygen non-stoichiometry, magnetic characteristics.

Abstract

A new method is applied to synthesize $YbFe_2O_{4\pm\delta}$. It proposes using a gaseous mixture, which consists of a noble gas and oxygen, and partial oxygen pressure is regulated and upheld by an electrochemical method. It has been obtained that $YbFe_2O_{4\pm\delta}$ exists within the partial oxygen pressure interval of $lgPo_2 = 10^{-16.2}$-10^{-18} atm at 1090 °C. A correlation has been obtained between magnetic anomaly temperatures denotes essential changes taking place in magnetic sub-lattice of the ferrite.

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