

**STABILITY FIELD OF ENTHALPICALLY STABILIZED COMPOUNDS
OF VARIABLE COMPOSITION WITH PYROCHLORE STRUCTURE
IN THE $\text{Bi}_2\text{O}_3\text{--Fe}_2\text{O}_3\text{--WO}_3\text{--(H}_2\text{O)}$ SYSTEM**

Lomakin M.S.^(1,2), Proskurina O.V.^(1,3)

⁽¹⁾ Ioffe Institute

194021, Saint Petersburg, Politekhnikeskaya st., 26

⁽²⁾ Institute of Silicate Chemistry

199034, Saint Petersburg, Makarov emb., 2

⁽³⁾ St. Petersburg State Institute of Technology

190013, Saint Petersburg, Moskovsky ave., 26

When using the hydrothermal synthesis method, the stabilization of the crystalline phase occurs at low temperatures (100 – 200 °C), which means that it is primarily due to the enthalpic contribution to the change in Gibbs energy ($\Delta G = \Delta H - T\Delta S$), while the influence of the entropic term is minimized.

Compounds of variable composition with pyrochlore structure in the $\text{Bi}_2\text{O}_3\text{--Fe}_2\text{O}_3\text{--WO}_3$ system, obtained under hydrothermal conditions ($T = 90 - 200$ °C, $P \leq 7$ MPa), are enthalpically stabilized phases [1], since they are unstable at temperatures above ~725 °C [2]. The study of these compounds is of particular interest because their properties may reveal features that are not typical of compounds in which the entropy factor plays a significant role in the change in Gibbs free energy.

In this work, the concentration limits of the stability field of $(\text{Bi}_z\text{Vac}_{2-z})(\text{Fe}_{2-y}\text{W}_y)\text{O}_6\text{O}'_\delta$ compounds (where Vac is a cation vacancy) with pyrochlore structure ($T = 200$ °C and $P \sim 7$ MPa: $0.60 \leq z \leq 1.35$; $1.32 \leq y \leq 1.96$; $\delta \sim 1$) were determined and it was shown that they are several times higher than those for pyrochlore phases obtained in most other oxide systems using the solid-phase synthesis method.

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