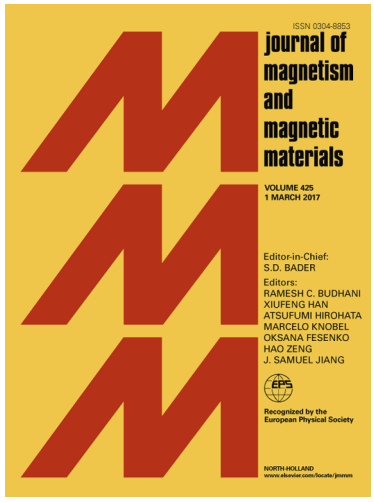

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E.N. Lysenko, A.L. Astafyev, V.A. Vlasov, A.P. Surzhikov

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Analysis of phase composition of LiZn and LiTi ferrites by XRD and thermomagnetometric analysis

E.N. Lysenko[1], A.L. Astafyev[1], V.A. Vlasov[*1], A.P. Surzhikov[1]

[1]Tomsk Polytechnic University, Lenina Avenue 30, 634050 Tomsk, Russia

Abstract

In this work, the method of quantitative ferrite phase control, which is based on thermomagnetometric analysis of the ferrite samples in magnetic field, was developed. The magneto-phase transitions in LiZn and LiTi ferrites with chemical formulas $Li_{0.5(1x)}Fe_{2.50.5x}Zn_xO_4$ and $Li_{0.5(1+x)}Fe_{2.51.5x}Ti_xO_4$ were studied, and their phase compositions were analyzed by both the developed method and X-ray diffraction analysis. It was shown that the thermomagnetometry method compared to X-ray diffraction analysis allows to examine more precisely the magnetic phases in synthesized ferrites with inhomogeneous phase composition. However, a complex analysis, using both X-ray and thermomagnetometry methods, will be the most optimal in case of the formation of non-magnetic and poor magnetic phases.

Keywords: LiZn ferrite, LiTi ferrite, magneto-phase transitions, thermomagnetometry, X-ray diffraction

* Corresponding author at:

E-mail address: vlvitan75@mail.ru (V.A. Vlasov)