

Accepted Manuscript

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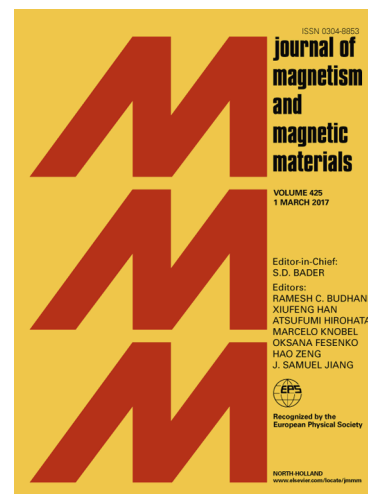
PII: S0304-8853(18)30772-8
DOI: <https://doi.org/10.1016/j.jmmm.2018.06.010>
Reference: MAGMA 64030

To appear in: *Journal of Magnetism and Magnetic Materials*

Received Date: 16 March 2018
Revised Date: 22 May 2018
Accepted Date: 4 June 2018

Please cite this article as: E.N. Lysenko, A.L. Astafyev, V.A. Vlasov, A.P. Surzhikov, Analysis of phase composition of LiZn and LiTi ferrites by XRD and thermomagnetometric analysis, *Journal of Magnetism and Magnetic Materials* (2018), doi: <https://doi.org/10.1016/j.jmmm.2018.06.010>

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

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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 $\text{Li}_{0.5(1-x)}\text{Fe}_{2.50.5x}\text{Zn}_x\text{O}_4$ and $\text{Li}_{0.5(1+x)}\text{Fe}_{2.51.5x}\text{Ti}_x\text{O}_4$ 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

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