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SYNTHESIS, TRANSPORT PROPERTIES OF A SOLID ELECTROLYTE $(Na_2SO_4)_{1-x}(Ga_2(SO_4)_3)_x$ AND ALLOYING OF LEAD TELLURIDE WITH GALLIUM

© A.P. LEUSHINA *, E.V. MAMONTOVA **

*Vyatka State University,
36, Moskovskaya St., Kirov (Kirov region), 610000, Russian Federation.
**Vyatka state agricultural academy,
133, October Ave., Kirov (Kirov region), 610017, Russian Federation.

Conditions for obtaining of quasi-binary salt system $(Na_2SO_4)_{1-x}(Ga_2(SO_4)_3)_x$ are developed and the length of the region of its homogeneity is defined (x 0.00–0.07). The solid electrolyte $(Na_2SO_4)_{1-x}(Ga_2(SO_4)_3)_x$ is first synthesized, its conductivity by cations of gallium (III) is found. In the composition range 1.0–9.0 mol.% of $(Ga_2(SO_4)_3)_x$ and the temperature range 373–723 K transport properties are investigated: electric conductivity, numbers of the electron transport, the diffusion coefficients of gallium (III) cations. The possibility of using a solid electrolyte $(Na_2SO_4)_{0,95}(Ga_2(SO_4)_3)_{0,05}$ in the composition of an electrochemical cell for coulometric titration of lead telluride ($Pb_{1\pm\delta}Te$) is shown, temperature range 553–673 K of its operation is determined.
Keywords: solid electrolyte, transport characteristics, coulometric titration

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