

The result of the study of eutectics in the system $Sm_2O_2S-Sm_3S_4$

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Abstract

The preparation process is divided into two main groups depending on the phase composition of the polycrystalline reaction product: the formation of Ln_2O_2S as the only polycrystalline phase and the preparation of several polycrystalline Ln_2O_2S phases. Based on the established chemistry of the interaction of metallic samarium with sulfur in a sealed ampoule, phase equilibria in the $Sm - Sm_2S_3 - Sm_2O_3$ system, the synthesis parameters of a mixture containing more than 98.5 mol.% Solid solution are determined $Sm_{1+x}S_{1-x}([Sm]_{1-y}[x]_{2x})$ ($x = 0-0,035$, $y = 0-1$), saturated with excess samarium. According to the results of MSA, the composition of the eutectic was 65 mol% Sm_3S_4 . The composition of the double eutectic has coordinates 0.65 Sm_3S_4 , - 0.35 Sm_2O_2S and a calculated melting point of 1700K. As a result, the goal of the work was achieved.

Keywords: REE, X-ray diffraction patterns, Van Laar equation, diffractometer, kinetic properties, oxysulfide, double eutectic, phases, phase equilibria, polycrystalline.



Biography:

Andreev O.V is working as a professor at Tyumen state university, Institute of chemistry, Department of Inorganic and Physical Chemistry. He published his research work in many journals.

Speaker Publications:

1. Andreev O.V. "Phase diagram of the $Sm_2S_3 - Sm_2O_3$ system" // O.V. Andreev., A.S. Vysokikh., V.G. Vaulin // Journal of Inorganic Chemistry. - 2008. - No. 8. - T.53. - S. 1414 - 1418.
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