

THE RESULT OF THE STUDY OF EUTECTICS IN THE SYSTEM $\text{Sm}_2\text{O}_2\text{S}-\text{Sm}_3\text{S}_4$.

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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 $\text{Ln}_2\text{O}_2\text{S}$ as the only polycrystalline phase and the preparation of several polycrystalline $\text{Ln}_2\text{O}_2\text{S}$ phases. Based on the established chemistry of the interaction of metallic samarium with sulfur in a sealed ampoule, phase equilibria in the $\text{Sm} - \text{Sm}_2\text{S}_3 - \text{Sm}_2\text{O}_3$ system, the synthesis parameters of a mixture containing more than 98.5 mol.% Solid solution are determined $\text{Sm}_{1+x}\text{S}_{1-x}([\text{Sm}]_{1-y}[\text{S}]_{2x})$ ($x = 0-0,035$, $y = 0-1$), 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 $\text{Sm}_2\text{O}_2\text{S}$ 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.



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