Phase Diagram and Electrical Conductivity of the $PrBr_3$-CsBr Binary System

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Z. Naturforsch. **65a,** 859 – 864 (2010); received October 27, 2009

Phase equilibrium in the $PrBr_3$-CsBr binary system was established from Differential Scanning Calorimetry (DSC). This system has two compounds, Cs_3PrBr_6 and $CsPr_2Br_7$, and three eutectics located at molar fraction of $PrBr_3$ ($x = 0.108$; 850 K), ($x = 0.453$; 767 K), and ($x = 0.757$, 870 K), respectively. Cs_3PrBr_6 undergoes a solid-solid phase transition at 726 K and melts congruently at 1051 K. $CsPr_2Br_7$ undergoes a solid-solid phase transition at 835 K, and melts congruently at 896 K. The electrical conductivity of $PrBr_3$-CsBr liquid mixtures was measured down to temperatures below solidification over the whole composition range. Results obtained are discussed in term of possible complex formation.

Key words: Phase Diagram; Praseodymium Bromide; Cesium Bromide; Electrical Conductivity.