Phase Diagram of the TbBr$_3$-KBr Binary System

L. Rycerz and M. Gaune-Escard[a]

Institute of Inorganic Chemistry and Metallurgy of Rare Elements, Wroclaw University of
Technology, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland
[a] Ecole Polytechnique, Mecanique Energetique, Technopole de Chateau-Gombert,
  5 rue Enrico Fermi, 13453 Marseille Cedex 13, France

Reprint requests to M.G.-E.; Fax: +33 (0)4 91 11 74 39;
E-mail: Marcelle.Gaune-Escard@polytech.univ-mrs.fr

The phase equilibrium of the TbBr$_3$-KBr has been established by Differential Scanning Calorimetry. This system has the three compounds K$_3$TbBr$_6$, K$_2$TbBr$_5$, and KTb$_2$Br$_7$ and two eutectics located at ($x_{Tb} = 0.163$ (885 K) and ($x_{Tb} = 0.433$ (697 K). K$_3$TbBr$_6$ undergoes a solid-solid phase transition at 691 K and melts congruently at 983 K with the corresponding enthalpies 8.0 and 48.0 kJ mol^{-1}. K$_2$TbBr$_5$ melts incongruently at 725 K, and KTb$_2$Br$_7$ at 741 K. The latter forms at 694 K, a temperature very close to that (697 K) of one of the two eutectics also existing in the binary system.