

# Thermodynamic Properties of $\text{EuCl}_2$ and the $\text{NaCl-EuCl}_2$ System

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The temperature and enthalpy of the phase transition and fusion of  $\text{EuCl}_2$  were determined and found to be 1014 K, 11.5 kJ mol<sup>-1</sup> and 1125 K, 18.7 kJ mol<sup>-1</sup>, respectively. Additionally, the heat capacity of solid  $\text{EuCl}_2$  was measured by Differential Scanning Calorimetry in the temperature range 306 - 1085 K. The results were fitted to the linear equation  $C_{p,m}^\theta = (68.27 + 0.0255 \text{ T/K}) \text{ J mol}^{-1} \text{ K}^{-1}$  in the temperature range 306 - 900 K. Due to discrepancies in the literature on the temperature of fusion of  $\text{EuCl}_2$ , the determination of the  $\text{NaCl-EuCl}_2$  phase diagram was repeated. It consists of a simple eutectic equilibrium at  $T_{\text{eut}} = 847 \text{ K}$  with  $x(\text{EuCl}_2) = 0.49$ .

*Key words:* Europium Dichloride; Sodium Chloride; Phase Diagram; Enthalpy of Transition; Heat Capacity.