

Thermisches Verhalten von festem LaAlCl_6 und chemischer Transport von LaCl_3 mit AlCl_3

Thermal Behaviour of Solid LaAlCl_6 and Chemical Transport of LaCl_3 with AlCl_3

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The thermodynamical data of solid aluminium lanthanum chloride LaAlCl_6 have been obtained by determination of the decomposition equilibria from total pressure measurements. The melting diagram was determined by DTA. The chemical transport of LaCl_3 with AlCl_3 is suggesting the existence of the gaseous complex $\text{LaAl}_3\text{Cl}_{12}$. The data are:

$$\Delta H(\text{LaAlCl}_{6,\text{f},298}) = -427,1 \pm 2,5 \text{ kcal/mol}, \quad S^\circ(\text{LaAlCl}_{6,\text{f},298}) = 61 \pm 2,5 \text{ cal/K}\cdot\text{mol},$$

$$\Delta H(\text{LaAl}_3\text{Cl}_{12,\text{g},298}) = -712 \pm 7 \text{ kcal/mol}, \quad S^\circ(\text{LaAl}_3\text{Cl}_{12,\text{g},298}) = 205 \pm 3 \text{ cal/K}\cdot\text{mol}.$$