

水合氯化镧与二乙氨基荒酸二乙铵配合行为的热化学

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摘要 在干燥氮气气氛下,以无水乙醇为溶剂,制备了低水合氯化镧与二乙氨基荒酸二乙铵(D-DDC)的配合物,确定其组成为 $\text{Et}_2\text{NH}_2[\text{La}(\text{S}_2\text{CNEt}_2)_4]$ 。用微量热法测定了298.15 K下水合氯化镧和D-DDC在无水乙醇中的溶解焓和不同温度下二乙氨基荒酸镧液相生成反应的焓变。在实验和计算基础上,得到了液相生成反应的热力学参数(活化焓、活化熵和活化自由能)、速率常数和动力学参数(表现活化能、频率因子和反应基数),通过合理的热化学循环,求得了标题固相反应的焓变。

关键词 [氯化镧](#) [二乙氨基荒酸二乙铵](#) [乙醇](#) [热力学性质](#) [活化能](#)

分类号 [0642](#)

Thermochemistry on Coordination Behavior of Lanthanum Chloride Hydrate with Diethylammonium Diethyldithiocarbamate

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Abstract The complex of lanthanum chloride lower hydrate with diethylammonium diethyldithiocarbamate (D-DDC) has been synthesized in dry N_2 atmosphere and absolute alcohol. The composition of the complex $\text{Et}_2\text{NH}_2[\text{La}(\text{S}_2\text{CNEt}_2)_4]$ was determined by chemical and elemental analyses. The enthalpies of solution of lanthanum chloride hydrate and D-DDC in absolute alcohol at 298.15 K and the enthalpy change of liquid-phase reaction of foimation for $\text{Et}_2\text{NH}_2[\text{La}(\text{S}_2\text{CNEt}_2)_4]$ at different temperatures were determined by a microcalorimeter. On the basis of experimental and calculated results, three thermodynamic parameters (the activation enthalpy, the activation entropy and the activation free energy), the rate constant and three kinetic parameters (the apparent activation energy, the pre-exponential constant and the reaction order) of liquid-phase reaction of foimation were obtained. The enthalpy change of solid-phase title reaction was obtained by rational thermochemical cycle.

Key words [lanthanum chloride](#) [diethylammonium diethyldithiocarbamate](#) [ETHANOL](#) [THERMODYNAMIC PROPERTIES](#) [ACTIVATION ENERGY](#)

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