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四氯合金属(II)酸烷铵在280-500K间的热力学性质和相变:III.四氯合镉(II)酸n-十二烷铵

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摘要 在280-500K温度范围内用自动绝热量热计测量了(n-C~1~2H~2~5NH~3)~2CdCl~4的热容。在所研究的温度范围内发现一个固-固相转变, 其相变温度, 相变焓和相变熵分别为(332.4±0.1)K, (48.35±0.33)kJ.mol^-^1和(145.5±1.0)J.K^-^1.mol^-^1。结合已发表的(n-C~1~2H~2~5NH~3)~2MCl~4(M=Mn, Zn)的相变参数讨论了此类配合物的中心原子对其相变的影响。[MCl~4]^2^-配位方式的不同被认为是该类配合物的相变热参数产生差异的主要原因。

关键词 热力学性质 相变 熵 焓 比热 十二碳化合物 氯化镉 铵

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Thermodynamic properties and phase transition of alkylammonium tetrachlorometallates(II) between 280 and 500K:III. Dodecylammonium tetrachlorocadmate

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Abstract The heat capacity of (n-C12H25NH3)2CdCl4 was measured from 280 to 500 K by using a automated adiabatic calorimeter. A solid-solid phase transition was found with the max. temperature at 332.4 ?0.1 K. The enthalpy and entropy of the transition were determine to be 48.35 kJ/mol and 145.5 J/K.mol, resp. G. F. Needham (1984) reported two solid-solid phase transitions for the virgin sample of the compound, a minor transition at 332 K preceding the main transition at 334 K; the minor transition disappeared in the DSC experiment for the reheated sample. By combining with the data for the corresponding Mn and Zn compounds, the influence of central atoms on the phase transitions of series of compounds (n-CnH2n+1NH3)2MCl4 was discussed on the basis of the different structures of [MCl4]2- (M = Mn, Zn Cd).

Key words THERMODYNAMIC PROPERTIES PHASE TRANSFORMATION ENTROPY ENTHALPY SPECIFIC HEAT C12 COMPOUNDS CADMIUM CHLORIDE AMMONIUM

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