

# Phase Polymorphism of $[\text{Cd}(\text{DMSO})_6](\text{ClO}_4)_2$ Studied by Differential Scanning Calorimetry

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Five phase transitions of  $[\text{Cd}(\text{DMSO})_6](\text{ClO}_4)_2$  have been detected by differential scanning calorimetry, namely the three reversible transitions: stable KIa  $\leftrightarrow$  stable KIb at  $T_{\text{C}4} = 242$  K, due to a change of the crystal structure, metastable KII  $\leftrightarrow$  metastable KIII at  $T_{\text{C}3} = 318$  K, and metastable KII  $\leftrightarrow$  overcooled K0 at  $T_{\text{C}2} = 347$  K, one irreversible transition: KIa  $\rightarrow$  K0 at  $T_{\text{C}1} = 376$  K, and melting at  $T_{\text{t}} = 465$  K. From the enthalpy changes of these transitions it can be concluded that K0 is a solid rotational phase and KII and KIII are most probably solid phases with a high degree of orientational disorder. The phases K0, KII, and KIII form an enantiotropic system, but they are metastable in relation to the phases KIa and KIb in the whole temperature range, so they form the monotropic system with them.

*Key words:* Hexadimethylsulphoxidecadmium(II) chlorate(VII); Phase Transitions;  
Molecular Motions; DSC.