An Explanation of the Removal of Metastability in Some Hydroacid Salts by Water Adsorption

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The metastability of some phases of $CsHSO_4$ and RbH_2PO_4 is due to the volume decrease at an endothermic phase transition which "locks in" the metastability in question. Water adsorption, which removes these metastabilities, probably exerts a "wedge-like" force which expands the lattice spacing in the surface layer, thus facilitating the start of the phase transition. The induction time and the zeroth order kinetics of the transition in RbH_2PO_4 are exponential functions of the water activity applied.

Key words: Phase Metastability; Adsorption of Water.