

# Dehydration in Thiamin Hydrochloride (THCl) Hydrates

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NNIN Facility utilized: Characterization Facility

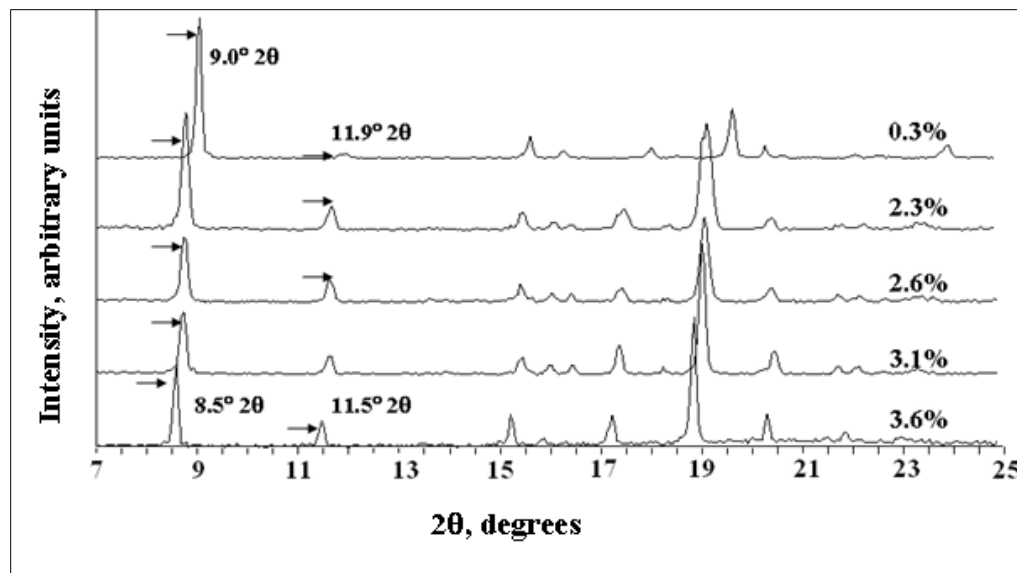


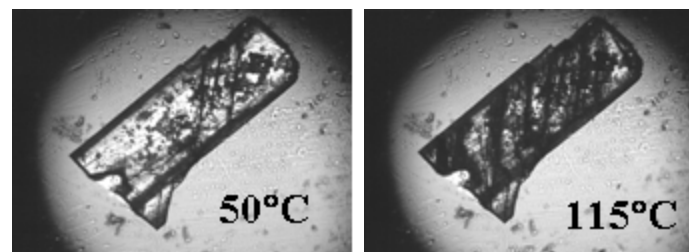
Figure 1 (XRPD)

## Research Description

- THCl comprises of multiple hydrate forms
- One of them is a nonstoichiometric hydrate/NSH (variable water content depending on external RH). The dehydration of NSH was investigated.

## Major observations

- NSH dehydrates to form isomorphous anhydrate (lattice packing is retained upon water loss). Peak shifts are observed in XRD pattern (Fig. 1)
- Water loss occurs anisotropically in the direction II to 10-1 and 10-2 planes. Dehydration leads to formation of micro-strains on the single crystal (Figs. 2 and 3)



Figures 2a and 2b (HSM)

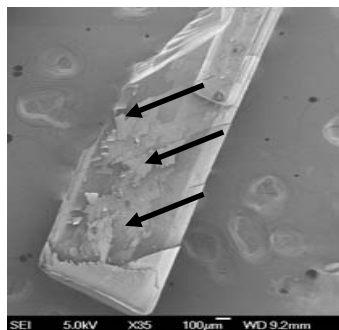


Figure 3 (SEM)