

Dehydration of Theophylline Monohydrate – a Formalkinetic Approach

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The dehydration of water-saturated theophylline is investigated by three methods: dynamic thermogravimetry, isoperibolic differential scanning calorimetry (TAM) and isothermal microbalance measurements. The kinetic analysis, based on multiple measurements, indicates that the course of reaction consists in a branched path including a meta-stable intermediate. This model is valid for all tested methods. There exists no appropriate fit quality for various models consisting in an unbranched course of reaction.

Signal vs. Time

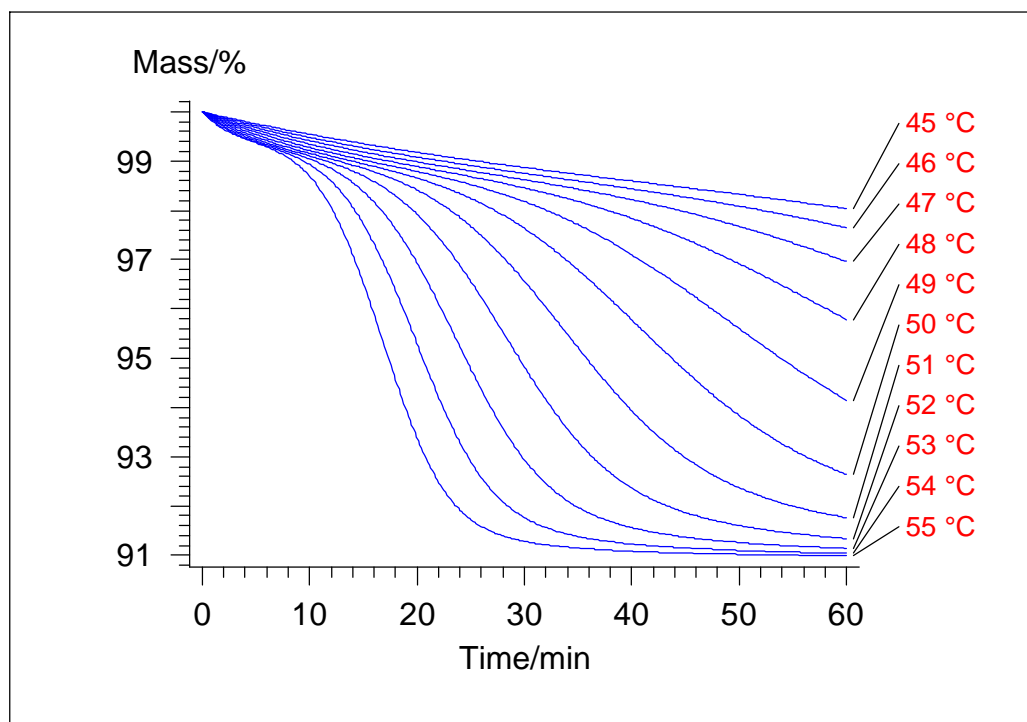


Figure 1: Isothermal prediction of mass versus time.

Isothermal predictions show that the weights of the both reaction paths are been changed relatively sharp, caused by an accelerated reaction..

In XRD studies we have seen the presence of two phases. This supports the results of kinetic analysis.