

"High resolution powder diffraction studies of polymorphism in pharmaceutical compounds"

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Recent software developments in powder diffraction have enabled the rapid identification and solution of complex crystal structures of pharmaceutical compounds. At the same time, instrumentation developments in the laboratory and at synchrotron sources have transformed the rapidity with which data can be collected. It is now possible not simply to collect a single powder diffraction dataset of a pharmaceutical compound but to monitor the behaviour of a material under varying conditions such as humidity or temperature. Data can be collected sufficiently quickly to provide immediate feedback that can be used to direct the flow of an experiment in order to optimize a particular outcome such as the isolation of a new polymorph or the observation of a phase transition between polymorphs. Several examples of high resolution powder diffraction experiments will be discussed which highlight the breadth of possibilities in the detailed study of polymorphism in pharmaceutical compounds.