

ADVANCED XRPD SYSTEM FOR THE CHARACTERIZATION OF PHARMACEUTICAL COMPOUNDS

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The use of X-ray powder diffraction (XRPD) in the analysis of pharmaceutical materials has greatly increased over the last few years due to its unique capability to discern polymorphic crystalline phases in samples that are otherwise chemically identical. One of the common uses for XRPD in the analysis of pharmaceutical materials is quantifying the amount of a phase in a sample, from API content to detection of polymorphs and/or impurities. Also due to increasing regulatory requirements in recent years, there is an increasing need to reach extremely low detection limits without sacrificing the measurement speed.

We will describe a new type of diffraction system designed for the characterization of pharmaceuticals and bio-medical substances. The system is based on the combination of a graded multi-layer mirror with a fast position-sensitive detector. The set-up allows for improving both resolution and detection limits, but preserves all advantages of a PSD based detection system. The system was successfully applied for the quantification of polymorphic impurities and for characterization of APIs and excipients in oral dosage forms.