

# **Investigation of pharmaceutically relevant properties of amorphous drug systems with differential scanning calorimetry**

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Amorphous drugs and drug delivery systems offer an important solution to the pressing problem of poor water solubility of most low molecular weight drugs. Without a sufficient aqueous solubility, oral drug delivery, the most important route of administration, will not be possible or at least remain suboptimal. In an amorphous form the solid drug will have a much improved apparent solubility, but this advantage comes with a risk of recrystallization of the drug during manufacturing, storage and administration. This makes the development of amorphous drugs and drug delivery systems challenging. In this talk we will discuss investigations on use of thermal techniques (in combination of diffractometric and spectroscopic techniques) in the structure elucidation and stability of amorphous drugs and drug delivery systems, such as amorphous solid dispersions (drug polymer systems) and co-amorphous systems (drug low molecular weight co-former combinations).