

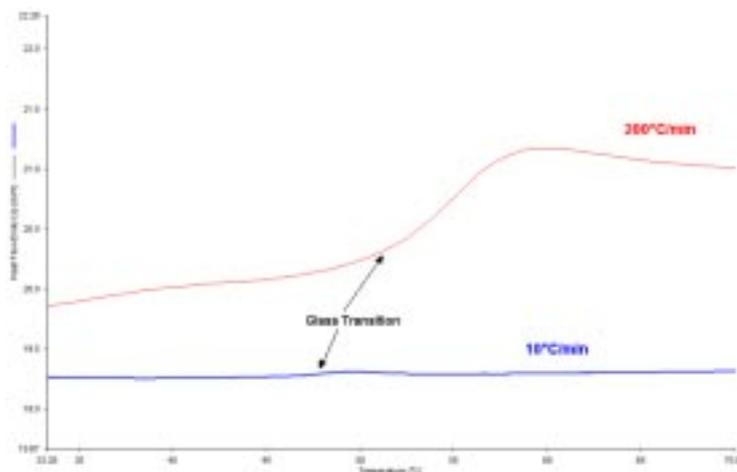
The use of HyperDSC in the study of glassy pharmaceuticals

Pharmaceutical materials are often glassy in structure or have some amorphous nature. As a consequence the measurement of the glass transition temperature of these type so materials is of great interest.

For some materials the energy associated with these glass transitions is very low, they are often therefore difficult to analyse.

HyperDSC has been shown to increase the sensitivity of the measurement of transitions and it is this increase in sensitivity that has been put to use in the study of the Tg

The following two examples show the power of HyperDSC in the study of the Tg of a sample of Nifedipine and a sample of amorphous lactose

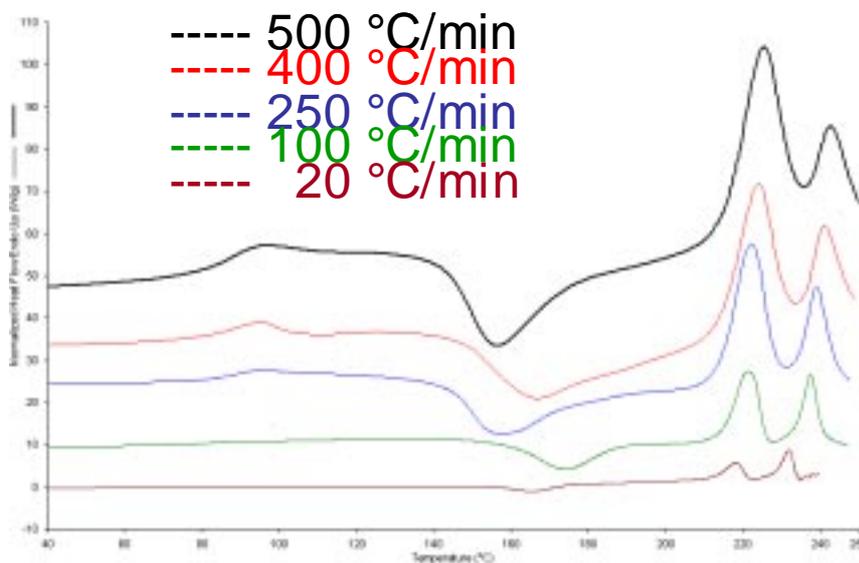


A thermogram showing the glass transition of nifedipine at two scan rates

The above thermogram shows the effect of running a HyperDSC scan on the measurement of the Tg of a glassy nifedipine sample. The Tg is clearly seen at the 200°C/min scan rate compared to a slow scan rate of 10°C/min

The following DSC thermogram shows the effect of HyperDSC on the measurement of the Tg of an spray dried sample of lactose

At the slow scan rates the Tg is almost undetectable, but at HyperDSC scan rates the Tg is very clearly seen.



A thermogram showing the effect of HyperDSC on the study of the glass transition of spray dried lactose

Conclusions

HyperDSC can be used in the study of the glass transition of materials. It has been shown the the measurement and identification of the Tg of a sample is made much easier using the higher scan rates used in HyperDSC.