

## KC6

### **The effect of relative humidity on the glass transition temperature of sugars determined by IGC**

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Phase transitions in pharmaceutical materials vary as a function of the relative humidity (RH). However, measuring these transitions under controlled conditions is difficult with most techniques and the available RH is often limited to those of saturated salt solutions. As a dynamic technique, inverse gas chromatography offers a rapid and simple method to study the phase changes in materials induced by 'in-column' humidity and temperature changes. The SMS ;GC has been used to measure glass transition temperatures (T<sub>g</sub>) of sugars and celluloses as a function of the relative humidity of the carrier gas. The T<sub>g</sub> was found to fall rapidly with increasing humidity due to the plasticizing effect of water in the material. The sensitivity of the technique to different probe vapours, amorphous content and the kinetics of diffusion and crystallization will be discussed.