

± SEMINAR ANNOUNCEMENT ±

The Characterisation of Pharmaceutical Materials by Dynamic Sorption Techniques

Synopsis:

Many traditional surface characterisation methods are based on gas or vapour sorption phenomena. These measurements can be performed under static or dynamic conditions, either of which can provide information on equilibrium solid-gas sorption. The most common dynamic methods are Dynamic Gravimetric Vapour Sorption (DVS) and Inverse Gas Chromatography (IGC).

DVS is based on an ultra-sensitive micro-balance where the adsorption of a vapour can be detected as a gain of weight and the desorption as a loss. It was originally developed in collaboration with Pfizer for a fast study of water sorption isotherms in stability testing, hydration, hydrophilicity etc. Later organic vapours have also been utilised to investigate physico-chemical properties of drugs and excipients such as surface area, wetting behaviour or solvent interaction.

IGC involves the sorption of a known adsorbate (vapour) and an unknown adsorbent stationary phase (solid sample). This approach inverts the conventional relationship between mobile and stationary phases. The retention time is a measure for the strength of interaction between the surface and a vapour, which makes it an extremely sensitive tool in the determination of physico-chemical properties. IGC was developed in a consortium involving 4 major pharmaceutical companies. It has been particularly successful in batch-to-batch variation problems and other formulation or processing related issues.

In an overview presentation some of the following applications will be discussed:

- Determination of amorphous content and glass transition temperatures
- Batch-to-batch variability of drugs and excipients
- Surface energetics and formulation/processing issues

by

Dr. Frank Thielmann,
Surface Measurement Systems UK,
London, UK

on

Date: Friday, 30th July 2004
Time: 10.00 - 11.00 hrs
Venue: Pharmacy Tutorial Room
(S4-05-16)

Biography of Dr. Frank Thielmann

Dr. Frank Thielmann is the Manager of Scientific Applications at Surface Measurement Systems and based out of the SMS world headquarter in London, UK. He obtained his PhD in Physical Chemistry from the University of Duesseldorf, Germany. Frank's University work was focused on the characterisation of the porous materials and he continued his work in this area while he was working for a materials research institute in Hanover, Germany. In 1999 he came to SMS and is ever since involved in the characterisation of pharmaceuticals and other materials. In his current role Frank and his group are focused on the development of methodology for existing SMS products but also exploration of new techniques. He is a member of Dechema and AAPS.

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