

10th International Conference & Exhibition on

PHARMACEUTICS & NOVEL DRUG DELIVERY SYSTEMS

March 13-15, 2017 London, UK

Dynamic Vapour Sorption- A versatile technique for pharmaceutical materials characterization

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Dynamic Vapour Sorption (DVS) has been widely used for investigating the interaction of water vapour with active pharmaceutical ingredients (API's), excipients and pharmaceutical formulations. The moisture sorption properties of these materials are recognized as critical factors in determining their storage, stability, processing and application performance. A few pharmaceutical-related applications of DVS include hygroscopicity, moisture content, moisture-induced phase transitions, hydrate formation/loss, and amorphous content. DVS is a well-established method for the determination of vapour sorption isotherms. It is based on a highly sensitive gravimetric system, which measures the adsorption and desorption of extremely small amounts of probe molecule. The ability to use organic vapours besides water allows the DVS instrument to be used for some unique applications. The instrument also has the ability to couple in-situ video microscopy and spectroscopy (Raman and/or Near-IR) with the gravimetric sorption measurements which allows for the investigation of vapour-induced morphological and structural changes in the material. The presentation will describe the operation of the DVS and show some applications to illustrate how the DVS technology could be applied to a wide range of pharmaceutical materials and drug delivery.

Biography

Nachal Subramanian has a PhD in Chemical Engineering with major areas of specialization being catalysis, materials synthesis & characterization, surface science, and reaction kinetic studies. She has five years of postdoctoral experience and is currently the Scientist-Business Development for UK and Benelux regions at Surface Measurement Systems Ltd, UK. SMS develops and engineers innovative experimental techniques and instrumentation for physico-chemical characterization of complex solids, namely, Dynamic Vapor Sorption (DVS) and Inverse Gas Chromatography – Surface Energy Analyzer (IGC-SEA) techniques.

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