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Sorptions  
Solution

SURFACE  
MEASUREMENT  
SYSTEMS



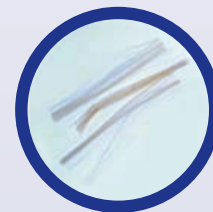
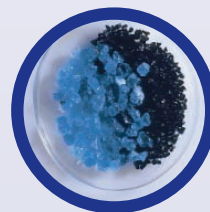
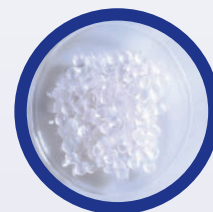
## DYNAMIC VAPOR SORPTION (DVS) VACUUM SYSTEM

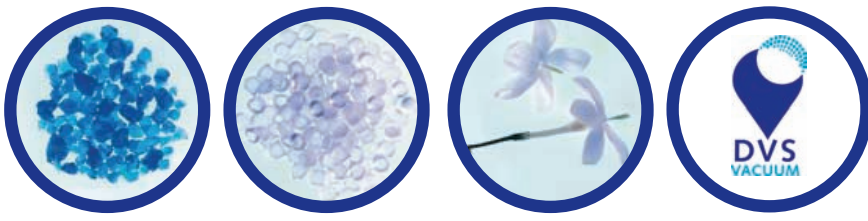


The DVS Vacuum system from SMS is specially designed for use in applications which require sub-atmospheric experimental conditions. This unique instrument is the only vapor sorption system which delivers precise adsorbate partial pressure using both upstream and downstream flow control. The DVS Vacuum also provides greater experimental flexibility by allowing the adsorbate residence time to be systematically varied.

### KEY MEASUREMENT CAPABILITES

- > Sorption isotherms and kinetics - down to  $10^{-6}$  Torr.
- > Micro/meso-pore size distributions.
- > BET surface area.
- > Vapor pressure and heats of sublimation of solids.
- > Diffusion and permeability constants.
- > Drying, out-gassing and dehydration phenomena.
- > Vapor/gas co-adsorption.
- > Simulation of industrial and commercial vacuum processes e.g. vacuum drying and vacuum coating.

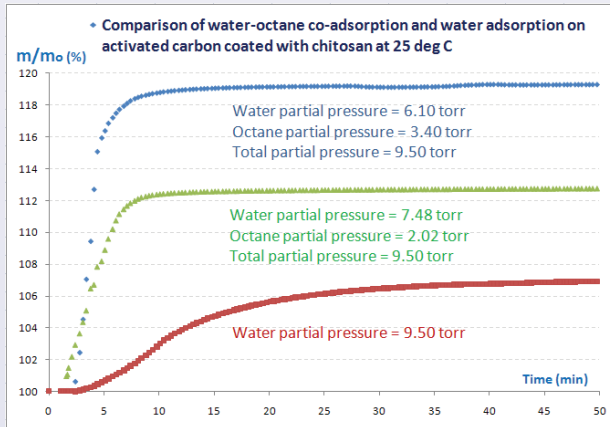




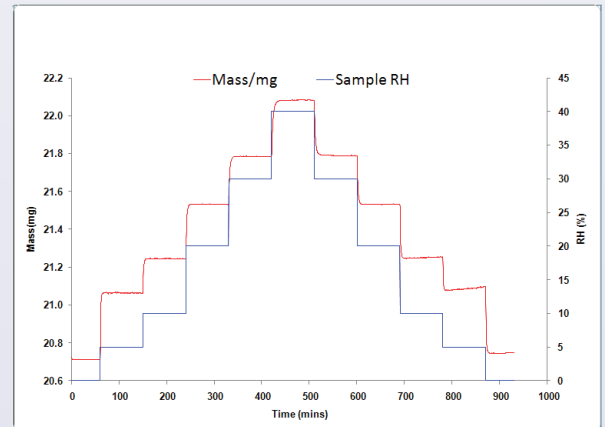
## KEY FEATURES AND OPTIONS

- > Balance: Sample size of up to 1g; resolution of 0.1µg; measures mass changes of up to 150mg. A high-mass option is also available.
- > Experimental temperature range: 20°C to 85°C.
- > A High-temperature sample pre-heater is available as a factory option.
- > Pressure transducers: 1000 and 10Torr (options: 100 & 1Torr or 10 & 0.1Torr).
- > Ultimate pressure: 10<sup>-3</sup> Torr via rotary pump (option: 10<sup>-6</sup> Torr via rotary & turbo pumps).
- > Stainless steel manifold with KF25 vacuum fittings.
- > Upstream and downstream flow control using a butterfly valve.
- > System can easily use gases or vapors, or gas/vapor mixtures.
- > Vapor/gas control and delivery: 2 mass flow controllers. Additional gas flow channels also available.

## EXAMPLE APPLICATION DATA



Co-adsorption of Water and Octane on Activated Carbon coated with Chitosan sample



Water adsorption on Zeolite at 25°C

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