

Dynamic Vapor Sorption (DVS) is a gravimetric technique that measures how quickly and how much of a vapor/solvent/gas is sorbed by a solid sample. This is done by varying the concentration surrounding the sample and recording the resultant change in mass. Employed in a range of industries, SMS instrumentation offers water, organic solvents, and gas sorption capabilities across a wide range of temperatures and sub to atmospheric pressures.

DVS Intrinsic Plus



DVS Adventure



DVS Resolution



DVS Endeavour



DVS Discovery



DVS Carbon



DVS Vacuum



Available Features

	DVS Intrinsic+	DVS Adventure	DVS Resolution	DVS Endeavour	DVS Discovery	DVS Carbon	DVS Vacuum
Temperature range (°C)	20-40	5-85	5-85	10-70	10-70	5-85	10-70
Optional in-situ sample preheater (°C)		200	200	200	200	200	400
Simultaneous sample measurement	1	1	1	5	2	1	1, 2
Co-adsorption of two molecules			2 vapors	2 vapors		H ₂ O/CO ₂	2 gases/vapors
Water vapor sorption kinetics & isotherms	✓	✓	✓	✓	✓	✓	✓
Carrier gas – atmosphere flow based	✓	✓	✓	✓	✓	✓	
200x color video/microscopy accessory		✓	✓	✓	✓		
Fiber optic/Raman spectroscopy accessory		✓	✓	✓	✓		
Organic vapor sorption kinetics & isotherm			✓	✓	✓		✓
Speed of sound organic vapor sensor			✓	✓	✓		
CO ₂ gas sorption						✓	✓
Compatible with NH ₃ , SO ₂ , H ₂ S							✓
High vacuum capabilities							✓

Inverse Gas Chromatography Surface Energy Analyzer (iGC-SEA)



Inverse Gas Chromatography (iGC) is a gas-solid technique for characterizing surface properties of powders, particulates, fibers, films and semi-solids. A series of known vapor pulses are injected through a packed sample column or over a free-standing film. A detector placed at the end of the sample measures the retention time of these vapors as they probe the sample. Varying the vapor probe molecule, flow rate, temperature, or column conditions elucidates a wide range of surface and bulk properties of the sample.

- ✓ Most versatile equipment to measure surface energy of powders, fibers, films & particulate materials
- ✓ Different column sizes to accommodate various samples
- ✓ Compatible with a wide range of solvents
- ✓ Optional humidity control & high temperature oven
- ✓ Wide range of temperature from 20 - 150 °C (High temp oven up to 500 °C)
- ✓ Dual column positioning

Vapor Pressure Analyzer Knudsen Diffusion Method



Vapor Pressure can be accurately measured using the **Knudsen Effusion Method**, a dynamic gravimetric technique based on the rate of escape of vapor molecules through an orifice of known dimensions in a Knudsen cell into a vacuum at a known temperature. This method is approved by the Organization for Economic Cooperation and Development and outlined in its Vapor Pressure OECD/OCDE guidelines.

- ✓ Dedicated control & analysis software
- ✓ Broad temperature range from 10 - 400 °C
- ✓ Designed to measure vapor pressure of solids & viscous liquids
- ✓ Method based on OECD 104 guidelines

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