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VP-Capillary DSC System

Differential Scanning Calorimetry (DSC) is unsurpassed as a method to determine the stability of biological systems. DSC directly measures heat changes that occur in biomolecules during a controlled increase or decrease in temperature, making it possible to study materials in their native state.

The MicroCal VP-Capillary DSC System is the most advanced differential scanning calorimeter for screening multiple samples for thermal transition midpoints (T_m). A fully integrated autosampler enables the analysis of up to 50 samples per day with unattended operation, revolutionizing the study of liquid biopharmaceutical formulations by reducing the time and cost of stability testing.

Other applications include: rank order binding, antibody domain studies, characterization of membranes and lipids, and the study of the effects of structural change on a molecule's stability.

MicroCal instruments are found at major pharmaceutical, biotech, academic and government institutions worldwide.

Why Capillary DSC?

- High throughput: Up to 50 samples per day.
- Unattended operation: All filling, data collection and cell cleaning functions are fully automated.
- Save time and money in stability testing.
- Study molecules in their native state without labeling. Can be used with solutions that interfere with optical methods including turbid or colored solutions or particulate suspensions.
- Provides insights into mechanisms of unfolding and refolding.
- Determine ultra-tight binding constants that cannot be measured by other techniques (up to $10^{20}\ M^{-1}$).
- Complete system: No additional accessories to purchase. No additional reagents are required.

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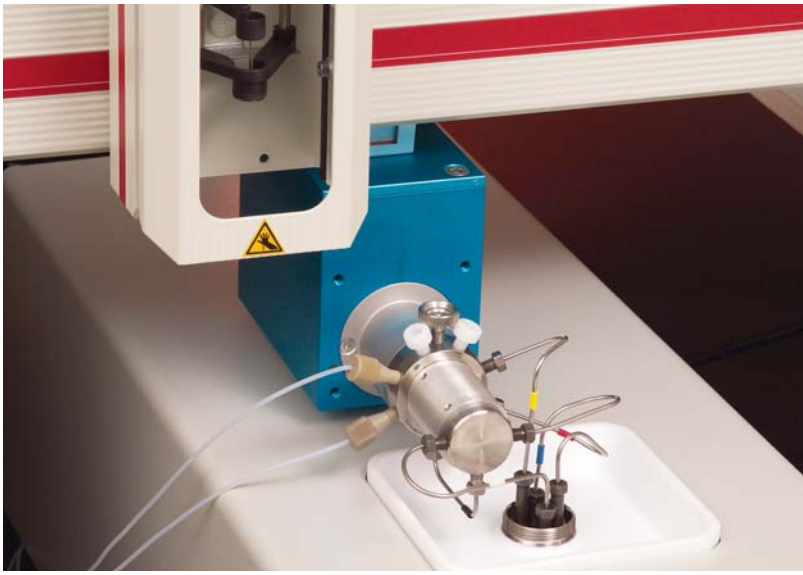
Differential Scanning Calorimetry (DSC) measures enthalpy (ΔH) of unfolding due to heat denaturation. A biomolecule in solution is in equilibrium between the native (folded) conformation and its denatured (unfolded) state. The higher the transition midpoint (T_m) when 50% of the biomolecules are unfolded, the more stable the molecule. DSC is also used to determine the change in heat capacity. DSC can elucidate the factors that contribute to the folding and stability of native biomolecules, including hydrophobic interactions, hydrogen bonding, conformational entropy, and the physical environment.

With higher throughput and unattended sample handling capabilities, the VP-Capillary DSC is a powerful tool in drug discovery programs, service laboratories and laboratories screening large numbers of samples. Whether used to screen multiple excipients for formulations or the binding activity of drug compounds against a target, the system can deliver reliable results quickly with minimal operator time.

The VP-Capillary DSC is controlled by an intelligent user-interface (VPViewer™ software) and data analysis is performed with Origin®, a market-leading data analysis package.

VP-Capillary DSC benefits:

- All filling, injection and cell cleaning functions fully automated and controlled for minimal operator involvement
- Non-reactive Tantalum™ cells for excellent chemical resistance
- Fixed-in-place cells for reproducible ultransensitive performance with low maintenance
- Standard 96-well plate format for higher capacity and loading ease
- Three user selectable response times (US Patent #5,967,659) for maximum performance
- User selectable temperature scan rates and range for application versatility
- Peltier element for precise temperature control
- Includes ThermoVac® sample preparation and cleaning device



SPECIFICATIONS

Operating Temperature Range		-10°C to 130°C
Cell Design		Capillary, fixed-in-place
Cell Material		Tantalum™
Cell Volume		130 µl
AC Power Requirements	Cell:	15A/110-240 VAC/50-60Hz
	Autosampler:	15A/110-240 VAC/50-60Hz
Weight	Cell:	10 kg / 23 lbs
	Autosampler:	10 kg / 22 lbs
Dimensions	Cell:	43 x 20 x 16.5 cm 17 x 8 x 6.5 inches
	Autosampler:	71 x 76 x 106 cm 28 x 30 x 42 inches

Full instrument specifications are available upon request.

For applications where higher throughput and unattended operation sample handling are not required, the VP-Capillary DSC is also available without the autosampler to provide the benefits of a capillary instrument without the expense of an autosampler. Please inquire for details and specifications.

Ultrasensitive Calorimetry for the Life Sciences™

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