



VP-ITC Isothermal Titration Calorimeter

Isothermal Titration Calorimetry (ITC) is the gold standard for measuring biomolecular interactions. ITC directly provides a full thermodynamic profile elucidating the mechanism of the interaction - *information that cannot be obtained from any other method.*

The MicroCal VP-ITC system is the most sensitive isothermal titration calorimeter available. Designed for ease-of-use, all functions are operated through software to facilitate fast and accurate analyses, without the need for expertise in thermodynamics.

Applications include: characterization of molecular interactions of proteins, antibodies, nucleic acids, lipids and other biomolecules; lead optimization, enzyme kinetics and the assessment of the effect of molecular structure changes on binding mechanisms.

MicroCal instruments are used at every major pharmaceutical, biotech, academic and government institution worldwide.

Why ITC?

- Beyond binding affinities: True affinity data via heat measurement offers a unique insight into the biology and recognition processes, unobtainable with more limited binding assays.
- Application versatility: Investigate any biomolecular interaction.
- True in-solution technique: No immobilization or labeling required. No molecular weight limitations or buffer restrictions. Easily handles turbid solutions.
- Easy to use: Unattended operation after sample loading.
- Complete system: No additional accessories to purchase. No reagents or consumables are required.



Isothermal Titration Calorimetry (ITC) is a thermodynamic technique for analyzing a reaction initiated by the addition of a binding component. It is the method of choice for characterizing biomolecular interactions. When substances bind, heat is either generated or absorbed. Measurement of this heat enables accurate determination of binding constants (K_D), reaction stoichiometry (n), enthalpy (ΔH) and entropy (ΔS), thereby providing a complete thermodynamic profile of the molecular interaction in a single experiment.

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



VP-ITC Features:

- Directly measures millimolar to nanomolar binding constants (10^2 to 10^9 M⁻¹)
- Measures nanomolar to picomolar binding constants using competitive binding techniques (10^9 to 10^{12} M⁻¹)
- Non-reactive Hastelloy™ cells for excellent chemical resistance
- Fixed-in-place cells for reproducible ultrasensitive performance with low maintenance
- Precision liquid delivery system for accurate and reproducible injections
- Three user selectable response times (US Patent #5,967,659) for application versatility
- User-selectable mixing speeds to match sample conditions
- Peltier controlled for rapid temperature equilibration
- Includes ThermoVac® sample preparation and cleaning device

SPECIFICATIONS

Operating Temperature Range	2°C to 80°C
Cell Design	Coin-shaped, fixed-in-place
Cell Material	Hastelloy®
Cell Volume	~1.4 ml
AC Power Requirements	Cell: 15A/110-240 VAC/50-60 Hz
Weight	Cell: 11.5 kg/25.5 lbs
Dimensions	Cell: 43 x 20 x 38 cm 17 x 8 x 15 inches

Full instrument specifications are available upon request.



Ultrasensitive Calorimetry for the Life Sciences™

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