

AutoITC System

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.*

MicroCal's AutoITC system combines the performance of a proven ultra-sensitive isothermal titration calorimeter with a fully integrated autosampler, to provide a system capable of running over 100 samples per week with unattended operation.

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 AutoITC?

- Higher throughput: Up to 100 samples per week
- Unattended operation: All filling, data collection and cell cleaning functions are full automated
- 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 multi-sample data analysis and push-button routines
- Complete system: No additional accessories to purchase. No reagents are required.

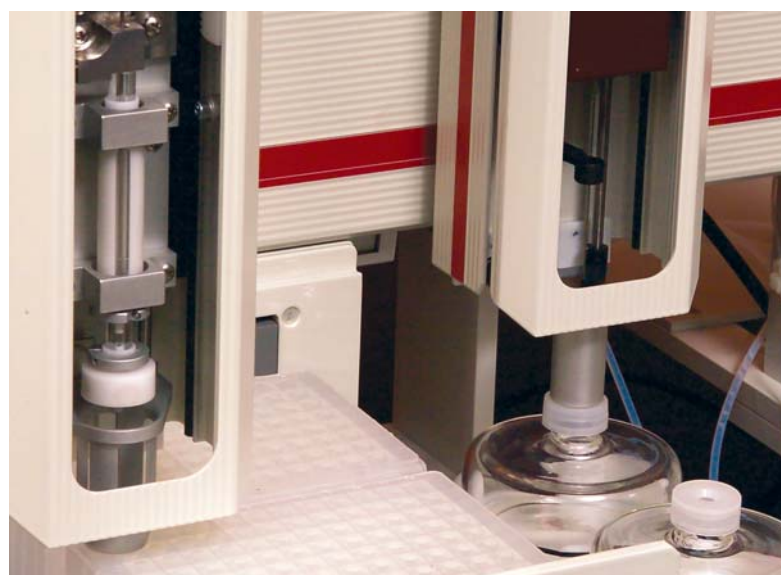


Isothermal Titration Calorimetry (ITC) is a thermodynamic technique for analyzing a reaction initiated by the addition of a binding component. It is the method of choice for characterizing biomolecular interactions. When substances bind, heat is either generated or absorbed. Measurement of this heat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

Integrated with a reliable liquid handling and injection system, the AutoITC easily handles over 100 samples a week with unattended operation. The AutoITC is controlled by an intelligent user-interface (VPViewer™ software) and data analysis is performed with Origin®, a market-leading data analysis package.

AutoITC features:

- All filling, injection and cell washing functions fully automated and controlled for minimal operator involvement
- 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)
- Programmable sample recovery
- Non-reactive Hastelloy™ cells for excellent chemical resistance
- Fixed-in-place cells for reproducible ultrasensitive 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 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 60°C
Cell Design	Coin-shaped, fixed-in-place
Cell Material	Hastelloy™
Cell Volume	~1.4 ml
AC Power Requirements	Cell: 15A/110-240 VAC/50-60Hz Autosampler: 20A/110-240 VAC/50-60Hz
Weight	Cell: 11.5 kg / 25.5 lbs Autosampler: 37 kg / 82 lbs
Dimensions	Cell: 43 x 20 x 38 cm Autosampler: 76 x 71 x 150 cm 30 x 28 x 59 inches

Full instrument specifications are available upon request.



Ultrasensitive Calorimetry for the Life Sciences™

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