

Indian Institute of Technology - Kanpur
Department of Biological Sciences & Bioengineering

Enquiry Number: BSBE/IRG/2013- 2014/BP/NC 1, dated 11/09/2013

Sub.: Inquiry for the supply of Isothermal Titration Calorimeter

Opening date: September 11, 2013

Closing date: September 22, 2013

Sealed quotes (technical bid and price bid separately sealed) are invited for the supply of **ISOTHERMAL TITRATION CALORIMETER**, as per the specifications given below:

SPECIFICATIONS FOR ISOTHERMAL TITRATION CALORIMETER

The system must be complete with control unit, wash module, auto pipetteing syringe with tower filling & cleaning assemblies, injection syringes, other start-up accessories, necessary software/s for instrument control, operation analysis of data, viewing and printing enabling accurate determination of thermodynamic parameters such as binding constants, reaction stoichiometry, enthalpy, entropy etc. with the following applications and detailed specifications:

Applications: Characterization of molecular interactions of small molecules, proteins, antibodies, nucleic acids, lipids and other biomolecules, Lead optimization, Assessment of the effect of molecular structure changes on binding, Enzyme kinetics, Assessment of biological activity etc.

Determination of thermodynamic characteristics of interactions between any two molecules/ions in terms of binding parameters like K_d -Binding affinity in range of millimolar to nanomolar, n-Number of binding sites, Multiple and different binding sites, ΔH - Enthalpy and ΔS -entropy of binding.

Binding constants measurement range 10^2 to 10^9 M⁻¹

Tight binding constants measurement range greater than 10^9 M⁻¹ by displacement reactions.

Measuring principle: direct measurement of heat released or absorbed during a binding event with the heat compensation. Detection via power feedback.

Sensitivity: Baseline noise level measured (RMS average) at LESS THAN 0.5 nanocalories

Minimum Response Time (high gain): 10 seconds

Minimum detectable heat effect 0.1 μ J

Samples: in solution state including turbid samples

Sample injection: Semi-automated by accurate and reproducible injection syringe

Mixing speed: 1- 1400 RPM, user selectable.

The sample cell housing: in an adiabatic chamber

Material of Construction: Fixed in place non reactive cells to ensure chemical resistance. Cell should be made of Hastelloy such material that one can work with metals and inorganic compounds. Should be chemically inert material for 2 – 12 pH range of solvents.

Cell design: Coin-shape - providing large surface area for the peltier elements and makes it easier to attach them. Perfect Cell Geometry (coin shaped cell). Fast Equilibration Time. Fast Response Time

Temperature range: 2° C to 80° C

Temperature stability: ± 0.005° C

Heating/cooling: by a Peltier based device.

Total sample volume: 0.3 ml or lower. Vendors to specify the working volume and the dead volume for the offered cell.

Response Times: The System should have three user selectable modes of operation (Response Times) high gain, low gain and medium gain - allowing the fastest re-equilibration between injections, thereby providing the shortest experimental times.

Injection syringe and Wash module: Unique Injection Syringe Design. Should have Bubble Free Sample loading even with higher viscous solutions. Better and faster cleaning and drying (no dilution of next load). Should facilitate Quick Syringe and Cell Cleaning. Automated Cleaning Procedures with Wash Station.

The basic system should be upgradable with Auto sampler for automated analysis.

Sampling accessories

Bidders shall provide detailed information and quotation for sample accessories for both low and high binding constant measurements.

The automated wash module should come with the following accessories: Bottle Kits ,Bottling tubing – external ,Filling Port adaptor with needle, Extra Tubing sets, Drip Tube, Syringe, Wash Module, Drip Tube, Cleaning device and 005 O-Ring.

Software

Latest Windows based 32 bit software shall support full multitasking, setting of parameters for control (including add-on accessories, if any), acquisition of data, data processing of acquired or archived data, real time display of method and acquired data, calibration, data storage and reporting, method development, time scheduler for instrument, calibration and shutdown, macro programming for methods, system and report template, export of data in industry standard format, user management, system check, built in safety features.

The software should be capable of providing user selectable binding models and data merging like: Single Site, Two Site, Sequential Site, Competitive Site, Enzyme Kinetics, Displacement, and Dissociation.

The system software upgrades should be provided as and when they are available free of cost.

Spare Parts

Accessories: The offered instrument should comprise of following accessories:

Fuses, O-rings, Cell filling Syringes , Plastic Syringes – 1ml, Vials – 0.2ml (pack of 1000), Brushes, Cell port cap, Reference Plug Ring, Reference Plug Rod, Syringe clearing Wire, Tips 100µL with required tool kit.

Computer system and Software:

Required Computer to form an integral part of the supply. (Imported computer with controller and required software)

Users lists of similar equipment supplied in India should be provided (Enclose full list of users in India). Vendor should have 10 users available in last 5 years in India. Vendor should mention if similar equipment is installed and available in India.

Internationally published papers using the offered model should be provided. Enclose complete citations of the published papers.

Your quote should mention/include the following:

- Validity at least for 90 days.
- 1 year warranty.
- FOB (indicating port of shipment) and CIF (New Delhi) values separately if requires import.
- The quote should cover insurance for transport up to Kanpur.
- Indian agency commission if applicable (should be certified by the principal if no agency commission is applicable) in case of import.
- Authorization certificate from the principal if you are a local agent.
- Terms and conditions for the payment, including the banker's name of the principal and the account number, if any, for electronic transfer.
- Include proprietary item certificate if applicable.
- Technical literature to support your product.
- Users' list with contact address.

The quote should reach the undersigned on or before **September 22, 2013**. The envelope should be marked as “*Quote for the supply of ISOTHERMAL TITRATION CALORIMETER*”

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