INDIAN ASSOCITION FOR THE CULTIVATION OF SCIENCE

2A & 2B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032

Tender Notice

NIT No. : IACS / PSU / Prof. S. Ghosh / 2016-17 / 29 **Date: 01/ 08 / 2016**

Sealed tender in two bids system (technical bid and price bid) are invited from bonafide, resourceful, and eligible manufacturer/exclusive distributor/vendors for a **Isothermal Calorimeter (ITC)**

Part-I (Technical Bid) of the tender should contain technical specifications in detail as well as commercial terms and conditions. Part-II (Price Bid) should clearly indicate group-wise price, if needed, as mentioned in the technical bid. The Technical Bid and Price Bid are to be submitted in separately sealed envelopes, distinctly marked accordingly and both to be put inside another envelop, that should be sealed and superscribed with tender notice no. and due date. The bidders may submit bids duly signed in their own letterheads.

Completed tender bids should reach the office of **Polymer Science Unit, Indian Association for the Cultivation of Science (IACS), 2A & 2B Raja S. C. Mullick Road, Jadavpur, Kolkata-700032** on or before the scheduled date and timeA specified below:

Tender Notice No.	
Last date and time of submitting tender	01/09/16, 12 noon
Pre-bid meeting to discuss technical specification	26/08/16, 3 PM (A. K. Roychaudhuri Hall, IACS)
Date and time of opening tender	01/09/16, 4 PM
Place of opening tender	A. K. Roychaudhuri Hall, IACS
Date and time of opening of Price Bid	The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.
Contact	Email: psusg2@iacs.res.in Tel.+91 33 2473 4971 [Ext. 1563]

The technical bids will be opened first to judge/evaluate the technical specifications of the said instrument and thereafter the price bids of only technically qualified bidders will be opened.

Technical Bid Evaluation: The Technical Bids will be evaluated in the presence of the representatives of intending bidders who will be able to clarify technical aspects of their bids, if any, required by the Technical Evaluation Team.

Opening of price-bid: The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.

Please note that IACS will not provide any accommodation or reimburse any expenses to any of the bidders for attending opening of technical bid.

1. TECHNICAL BID

The technical bid should contain technical specifications and should be kept in a separate sealed envelope duly super scribed as 'TECHNICAL BID' on the outer cover of the envelop as already detailed above. It should be clearly mentioned on the envelope as **"Technical Specification for Isothermal Calorimeter (ITC)".**

DST/SJF/CSA-01/2-14-15 (Bio-inspired Supramolecular Approach for Macromolecular Assembly)

PI: Dr. Suhrit Ghosh, Polymer Science Unit, Indian Association for the Cultivation of Science, Kolkata-700032

Technical Specification for Isothermal Calorimeter (ITC)

Desired Specifications for Isothermal Titration Calorimeter system

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

Applications: Characterization of molecular interactions of small molecules and polymers with proteins, antibodies, nucleic acids, lipids and other biomolecules, Lead optimization, Assessment of the effect of molecular structure on binding, Enzyme kinetics, Assessment of biological activity etc. Determination of thermodynamic characteristics of interactions between any two molecules/ions/macromolecules in terms of binding parameters like Kd- Binding affinity in range of millimolar to nano-molar, n- Number of binding sites, Multiple and different binding sites, ΔH- Enthalpy and ΔS- Entropy of binding.

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

Cell configuration: Coin-shaped non-capillary cells which provide large and symmetric surface area that maximizes cell contact with attached peltier elements so as to provide faster equilibration, faster response time, and better sensitivity.

Cell type: Fixed cell with reaction volume of ~200 µL (less is preferred) and a maximum sample loading volume, not exceeding ~ ± 20 % of reaction volume (290 µL) in non-automated mode. Cells must be enclosed in an adiabatic chamber, with ~200 µL cell volume.

Cell material : Should be made with nickel-molybdenum-chromium superalloy with an addition of tungsten which should be inert and should not react with non-metal and metal ions such as carboxylates, phosphate ions, silver, gold, and magnesium etc and also should not react with thiol compounds. Further, the material should not adsorb biomolecules such as oligomeric and aggregated proteins, large nucleic acids etc. Cell material should also be highly resistance to extreme pH (2-12) conditions, organic solvents, resistant to acid, base, and detergent based cleaning materials.

Samples : In solution state including turbid samples.
Detectable heat range: ~ 50 ncal to ~ 10.0 µcal
Injection syringe capacity: ≤ 40µL
Equilibration time: ≤ 6 min (lesser will be preferred) between 25°C to 5°C
User selectable Feedback Mode: Multiple feedback mode option should be available to cover boarder range of binding reactions.
Sensitivity: Base line noise level measured (RMS average) at LESS THAN 0.25 nano calories.
Response time: The system should be capable to provide user selectable response times with a minimum response time ~ ≤ 10 seconds.
Mixing or stirring speed: The system should have multiple mixing speed options (rotations per minutes, rpm) with maximum stirring speed of 1500 rpm.
Operating temperature range: Should be able to operate in the range 2°C to 80°C with temperature stability ~ ± 0.00015°C at 25°C.
Equilibration option : Fast equilibration and auto injection options should be available.
Binding constants detectable range: Should be able to detect interactions with binding constants in the range of sub-milimolar (10^2 M^{-1}) to nano-molar range (10^9 M^{-1}) [for normal binding] and 10^2 to 10^{12} M^{-1}[for competitive binding].
Pipette assembly: Automated and controlled by instrument control software to minimize sample loss or introduction of air bubbles encountered during manual filling.

Temperature control system : Peltier controlled system.

Injection syringe and wash module: Purging options to remove air bubbles during loading on to injection syringe and

compatible with cleaning accessories. Washing and cleaning of cell and syringe should be automated. The injection volume precision is <1% @ 2.0 μL.

Service and Maintenance: (a) There should be at least one service engineer and one application scientist based in India trained on the same quoted instrument. (b) Instrument should have a guarantee of at least one year and should have frequent visits from both service engineer and application scientist. (c) An user's list should be provided highlighting instalment of similar equipments in other research institutes in India in the recent past. (d) A good record in supply and service to other research institutes will be considered as a positive point for a particular company.

Software: Should be capable of running instrument, injector control, sample loading the injector, providing user- selectable binding models, and data merging like: single site, two site, sequential site, competitive site, and enzyme kinetics. Non-linear least square analysis of the data should include calculations to correct for the excluded concentrations of the macromolecules and ligands during each injection. It should be easy to export and use data in other formats. Preferably the software should be interlinked with commonly used programmes like Origin.

Computer: a. Computer and necessary software for operation, data collection and analysis, viewing and printing should be provided. b. Analysis software: should provide copies of offline analysis software and should not require a separate software supporting license.

Warranty : Two years warranty for the entire system including the cell and pipette assembly, control unit and all machinery part therein.

Necessary Accessories : All necessary accessories should be supplied with the instrument, as per standard package offered, including user manuals. Bottle kits, Bottling tubing-external, Filling port adapter with needle, extra tubing sets, drip tube, syringe, wash module, drip tube, cleaning device and O-ring. Also additional injection syringe and an additional pipette assembly must be provided.

Optional:

In-built barometer

Warranty: 2 years.

Service Facility: Supplier should mention the details of their service setup and man powers in India, preferably Kolkata.

Technical compliance chart should be provided following format,

Sr. No	Tender specification	Your offered instrument specification	Extent of compliance

Tender will not be accepted if the technical compliance chart is not provided following the above format.

2. PRICE BID

The financial bid indicating (item-wise, if required) price for the item(s) mentioned in the technical bid should be kept in a separate sealed envelope duly superscribed as 'PRICE BID' on the outer cover of the envelop as already detailed above. Price bids of only technically qualified bidders will be opened and the corresponding manufacturer/exclusive distributor/vendors will be intimated the date and time of the opening of price bid at their e-mail ids. Rest of the bidders will stand rejected.

PRICE: Price to be quoted on CIF Kolkata and also FOB basis.

3. BID SECURITY:

a. An Account payee Demand Draft/Pay Order for 5% of equipment value drawn in favour of "Indian Association for the Cultivation of Science (State Bank of India, Jadavpur University Branch, A/C No. 11079699211, IFSC: SBIN000093, MICR Code: 700002048)" is to be furnished by the bidders except those who are registered with the Central Purchase Organizations, National Small Industries Corporation or the concerned Ministry or Department, as Bid Security money or Earnest Money Deposit (EMD).

b. The Demand Draft for the Bid-Security should have at least 90 (ninety) days validity period of opening of the bids.
c. In case of non-award of the work the Bid Security money would be returned to the unsuccessful Bidders.

4. PERFORMANCE SECURITY:

An Account Payee Demand Draft of 10% of the order value in the name of "Indian Association for the Cultivation of Science" is to be furnished by the successful bidder as Performance security. Performance security money should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. Bid security money or EMD will be refunded to successful bidder on receipt of the Performance security money.

GENERAL INSTRUCTIONS

1. Validity of tender: Tender submitted should remain valid for at least six months from the date of opening the tender. Validity beyond six months from the date of opening of the tender shall be lapsed by mutual consent.
2. The tender should accompany a compliance chart.
3. Incomplete and conditional tenders as well as tenders received after the due date will be summarily rejected without assigning any reasons thereof.
4. At any time prior to the bid due date, IACS may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder during pre-bid meeting, modify the bidding documents. The amendment(s) will be notified on the institute website. Prospective bidders are advised to occasionally to visit the website (www.iacs.res.in/tender) for any amendment.
5. **Payments: 90% against delivery and rest 10% payment against successful installation & performance certificate or 100% Letter of Credit.**
6. Installation/Demonstration/Application training at site: Installation & user training at IACS, free of cost by the supplier.
7. Service facility: In India, preferably Kolkata, supplier should mention their details of service setup and man powers who are responsible for after sales support. Response time should be within 24 hrs.
8. The model number, make and a printed literature of the product should be submitted positively.
9. Proposed delivery schedule should be mentioned clearly.
10. Manufacturers / exclusive distributors / vendors should have history of supplying this type of instruments to this or other scientific organizations. Availability of a list in this regard would be preferred.
11. Authorized dealership certificate should be provided in case of principal manufacturing company is not quoting directly.
12. Guarantee certificate, users manuals etc. are to be handed over to the user after successful commissioning of the system.
13. In the event of date being declared a closed holiday for purchaser's office, the due date for submission of bids and opening of the technical bids will be the following working day at the appointed time.
14. In case of any dispute, the decision of IACS authority shall be final and bidding on the bidders.
15. For any clarification regarding technical specifications, information etc., please send your queries to Dr. Suhrit Ghosh (psusg2@iacs.res.in).
16. The authority of IACS reserves the right to reject any or all of the tenders received without assigning any reason thereof.

Registrar (Acting)