INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

2A & 2B RAJA S. C. MULLICK ROAD

JADAVPUR, KOLKATA – 700032

Tender Notice No.: IACS/SR/SI/IC-65/12/IC/RM/14/09 dated 03.02.2014

Sealed tender in two bids system (Technical Bid & Price bid) is invited from bonafide, resourceful and eligible manufacturer/exclusive distributor/vendors for **"Surface Area and Pore Size Analyzer".**

Part – I (Technical Bid) of the tender should contain technical details and commercial terms and conditions and **Part – II (Price Bid)** should indicate group-wise price as mentioned in the Technical Bid. The Technical Bid and Price bid are to be submitted in two separately sealed envelopes distinctly marked accordingly and both to be put inside another envelope, which should be sealed and super scribed with tender notice no. and due date. The bidders may submit bids duly signed in their own letterheads.

Complete tender bids should reach the **Office of the Department of Inorganic Chemistry, Indian Association for the Cultivation of Science, 2A & 2B Raja S. C. Mullick Road, Jadavpur, Kolkata – 700032** on or before the scheduled date & time specified below.

Tender Notice No.	IACS/SR/SI/IC-65/12/IC/RM/14/09 dated 03.02.2014
Last date and time of submitting tender	February 25, 2014 at 12.30 P.M.
Pre-bid meeting of the technical committee	February 11, 2014 at 3.00 P.M.
Date and time of opening tender	February 25, 2014 at 3.00 P.M.
Place of opening tender	J.C. Bose Hall, IACS
Contact	e-mail: icrm@iacs.res.in Tel. +91-33-2473 4971 (Extn. 1374)

The **technical bids** will be opened first to evaluate the technical specifications of the equipment thereafter the **Price bids** of only technically qualified bidders will be opened.

1. TECHNICAL BID:

The Technical Bid should contain technical specifications and kept in a separate envelope duly super scribed as "**Technical Bid**" on the outer side of the envelope as detailed above.

The Technical Specifications acceptable for the **"Surface Area and Pore Size Analyzer"** are as follows:-

	Product	Quantity
	Surface Area and Pore Size Analyzer.	**01**
	Parameter	**Specifications**
	PHYSISORPTION	
1	**Surface Area**	The unit should have the capability of carrying out physisorption of various gases and should have features to measure the adsorption / desorption isotherms, surface area (langmuir, BET), pore size, pore volume and micro pore distribution. It should have at least one sample simultaneous measurement. The system should be capable of measuring surface area in the range of 0.01 m^2/g to no known upper limit (nitrogen) and 0.0005 m^2/g to no known upper limit (krypton).
2	**Pore Diameter**	The system should be capable of measuring pore diameter in the range of 3.5-5000 Å and micropore volume detectable within the range of 0.0001cc/g or lesser.
3	**Analysis Station**	The system should have minimum one or more analysis station with micropore measurement facility.
4	**Adsorbates**	The system should be designed to use gases like, acetylene, CH_4, N_2 CO_2 H_2, CO, NH_3, NO etc. The quoted systems should have at least twelve gas inlet ports (in addition to helium and backfill gas ports) or more.
5	**Pressure Transducers**	The system should be equipped with pressure transducers in different ranges like 1000 mmHg, 10 mm Hg and 0.1 mmHg The system should enable full range adsorption measurement, including micropore measurement. The pressure transducers should have high resolution and accuracy with high stability. The offer should provide the resolution and accuracy data of these transducers. It should have dedicated Po transducer.

6	**Analysis Capability**	The system should have facility for, **Isotherms:** Up to 1000 data points (per station), adsorption and/or desorption. Hysteresis scanning. **Surface Area:** BET, Langmuir, STSA, DFT, BJH **Micropores:** NLDFT, QSDFT, Monte-Carlo, t-plot, alpha-s method, MP method, DR & DA methods. **Mesopores:** NLDFT, BJH, DH also it should have Total pore volume and average pore size. Automatic BET point selector for microporous materials. The analysis station should be served by a turbo-pump backed by a dry diaphragm pump.
7	**Degassing facility**	At least two or more vacuum degassing stations, each consisting of sample port, heating mantle with over-temperature protection, PC programmable ramp / hold / test protocols. Each degas ports should be served by separate vacuum system, and a dedicated cold trap. Temperature range ambient to 450º C. Temperature accuracy = ± 1% of set point at thermocouple. Ultimate degas vacuum should be 10^{-8} mm Hg or better and it should not be shared with analysis port. Analysis system should be equipped with a vacuum pump with capacity of 10^{-9} mmHg of vacuum or better.
8	**Other facility**	The system should have features for automated real time free space measurement. The design of unit should ensure isothermal conditions during the sample analysis. It should have Liquid Nitrogen level sensor and should be capable of atleast 90 hours of uninterrupted analysis without coolant refill. Dewar flask for liquid nitrogen (3 ltrs minimum) should be provided with the offer. Certified reference standards to be supplied for while making adsorption studies.
9	**Vapour adsorption**	The system manifold should be temperature monitored and designed with corrosive resistant material and should have option to do vapour adsorption at least at one port or more.

10	**Sample Tube**	Flow through sample tubes of appropriate design and associated accessories like quartz wool etc for handling powders and extradites should be provided.
11	**PC interface, Data analysis and software features**	The system should be controlled through windows based software. Calibration routines to be controlled by the software. Features for creation of methods for measuring the adsorption/desorption isotherms. The software should have built in features for automatic start up and shut down procedures, real time display of the sample analysis progress. The software should have all the data handling features like user defined report generation, data/figures export to spreadsheets, offline data processing etc. The software shall include no less than 16 DFT models.
12	**Standards**	Suitable performance evaluation standard for Surface Area should be included in the offer.
13	**Gas Cylinders and Regulators**	Gas cylinders must be 99.999% Ultra High Purity with two stage gas regulators. Nitrogen, Helium, Hydrogen, CO_2 and Argon**.**
14	**COMPUTER**	Latest Computer with minimum Windows 7 operating system, with 500GB HDD or more and minimum 4GB RAM should be supplied.
15	**Install Base**	Supplier must have supplied and installed 20 similar systems or more to any of the leading institutions in India such as IISC/IIT's /CSIR/DRDO/DAE *etc* provide the list of users.
16	**Warranty**	The Quoted should be under warranty for 36 Months or more from date of Installation including consumable materials.
17	**Others**	Down-time call attendance should be within 24 hours. Licenses for all the desired software for both data collection and analysis should be available. Installation, commission, training etc. should be provided by vendor. Supply of all the relevant manuals and documents in printed format. All the relevant technical details of function of the each device should be enclosed.

Technical compliance chart should be provided following the 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) price for the item (s) mentioned in the technical bid should be kept in a separate sealed envelope duly super scribed as "**PRICE BID**" on the outer cover of the envelope as already detailed above. The price bids of only technically qualified bidders will be opened and they will be intimated the date and time of opening at their email id-s. Rest of the bids will stand rejected.

PRICE: Price to be quoted both on FOB/CIF basis. Name of the particular Port from where our authorized forwarder will lift the consignment must be mentioned clearly with FOB price.

BID SECURITY:

1. An account Payee Demand Draft/Pay Order for Rs.64,000/- drawn in favour of "**Indian Association for the Cultivation of Science**" is to be furnished along with the Technical Bid Security (EMD).

2. The Demand Draft/Pay Order for the Bid-Security should have at least 45 (forty five) days validity period after opening of the Bid.

3. The Bid Security of unsuccessful bidders will be returned.

PERFORMANCE SECURITY

1. The successful bidder should deposit 10% of the tendered value as "Performance Security", by way of an account payee demand draft drawn in favour of **"Indian Association for the Cultivation of Science".**

2. Performance Security should remain valid for a period of 60 (sixty) days beyond the date of completion of all contractual obligations of the supplier including warranty obligations.

3. Bid Security (EMD) would be refunded to the successful bidder on receipt of the Performance Security.

C) GENERAL INSTURCTIONS:

1. Incomplete & conditional tenders and tenders received after the due date will be summarily rejected without assigning any reasons thereof.

2. 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 visit the website (www.iacs.res.in/tender) for any amendment.

3. **Payment:** 100% against delivery and successful installation.

4. **Warranty:** Minimum 3 year.

5. **Service facility:** Supplier should mention their details of service setup and Manpower in Kolkata who are responsible for after sales support.

6. **Validity of tender:** Tender submitted shall remain valid at least for three months from the date of opening the tender. Validity beyond three months from the date of opening of the tender shall be by mutual consent.

7. The tender should accompany a compliance chart.

8. The rate should be inclusive of all taxes, transportation etc. Nothing extra will be paid in addition to the quoted rate.

9. The model number, make, and a printed literature of the product shall submit positively.

10. Proposed delivery schedule should be mentioned clearly.

11. Manufacturers/exclusive distributors/vendors should have history of supplying this type of instrument to this or other Scientific Organizations.

12. Authorized Dealership Certificate is must in case of principal manufacturing company is not quoting directly.

13. Guarantee certificate, users manuals etc. are to be handed over to the user after successful commissioning of the system.

14. In the event of date being declared a closed holiday for purchaser's office, the due date for submission of bids and opening of technical bids will be the following working day at the appointed time.

15. In case of any dispute, the decision of the Institute authority shall be final and binding on the bidders.

16. For any clarification regarding technical specifications, etc. please send your queries to **Dr. Raju Mondal, Assistant Professor** (icrm@iacs.res.in).

17. The Institute reserves the right to reject any or all of the tenders received without assigning any reason thereof.

R E G I S T R A R