INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH-THIRUVANANTHAPURAM [IISER-TVM]

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KERALA, INDIA.

IISER/PUR/PT/14/10 Date: 3rd November 2010

INVITATION TO TENDER

Dear Sirs,

SUB: LABORATORY EQUIPMENTS

We invite Sealed Tenders for Equipments as per 'Schedule' attached.

Please quote your lowest rate and shortest delivery period. "Instructions to Tenderers" [Imports & Indigenous] attached are to be followed strictly.

YOUR OFFER IN SEALED COVER SUPERSCRIBING TENDER NUMBER AND DUE DATE SHALL REACH US ON OR BEFORE 30TH NOVEMBER 2010 (3 PM). LATE AND DELAYED OFFERS WILL NOT BE CONSIDERED UNDER ANY CIRCUMSTANCES.

Thanking You,

Yours Faithfully

CONSULTANT
(PURCHASE & STORES)

IISER-TVM
PUBLIC TENDER NO. IISER/PUR/PT/14/10
SCHEDULE

1. TENDER NO. IISER/PUR/918/10

FULLY AUTOMATED VOLUMETRIC GAS ANALYZER

Supply of complete setup for a fully automated dual channel volumetric gas storage analyzer (Sievert's type gas sorption analyzer) for precise gas sorption measurement/analysis of materials, especially for hydrogen storage materials at pressure range from 1 mbar to 200 bars and temperature range from -195°C to 500°C.

Features:

1. System should be capable of determining (a) Pressure-Composition-Temperature (PCT) isotherm characteristics (b) Kinetics measurements (c) Temperature programmed desorption of materials for a variety of gases such as Hydrogen, Carbon dioxide, Methane, Nitrogen, Argon by Sievert's method in the (i) pressure range from 1 mbar to 200 bars and (ii) temperature range from -195°C to 500°C. The system should also be capable of carrying out surface area, pore volume, pore size distribution analysis and bulk density of the sample.

2. System should be supplied complete with two channels independently operational each having (i) full range of operation (pressure: 1 mbar to 200 bars; temperature: -195°C to 500°C including liquid nitrogen recirculation cryo-cooling unit), (ii) High vacuum turbo molecular dry pump station (for operation up to 10^{-8} mbar) with dual range vacuum gauge, and (iii) integrated inert-gas chamber for handing/loading air-sensitive sample, (iv) high precision electronic balance for precise sample weighing, (v) a mobile-cart for smooth movement, (vi) software & communication interfaces with computer having latest configuration and other accessories including colour laser printer (to be arranged and supplied by the party free of cost).
3. System should perform fully automated Temperature programmed desorption and absorption measurements over the entire temperature range and up-gradation facilities for coupling with Mass spectrometer in later stage, should be provided.

4. Main Instrument and allied components should be designed for operation with line voltage of 220-240 V AC (50/60 Hz).

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Components

1) Stainless steel construction with all-metal seals and automated valves to provide the helium leak rate of <5 x 10-^{9} std cm^{3}/s. (please give detailed description of the valves).
2) Computer controlled gas delivery system using mass flow controllers (MFCs), with min. flow accuracy of ± 0.5 % of full scale to control the pressurization of gas dosing. (detail description of MFC may please be provided)
3) System must be capable of determining sorption isotherms at pressure ranges from 1 mbar to 200 bars using separate pressure transducers with a minimal pressure measurement accuracy of ±0.05% of full scale of each range. At least two pressure transducers must be provided to cover different pressure ranges for experimental pressure measurement very precisely (description of pressure transducers and their ranges may please be provided).
4) Sample temperature control should be in full range from *-195°C* to *500°* C including all intermediate temperatures with accuracy better than ±1 °C throughout the full range.
5) The instrument should be capable of performing measurement for full temperature range (-195°C to 500°C) in one single sample cell up to maximum measurement pressure (200 bars), without having to move the sample chamber.
6) The temperature of the main system (containing control valves, calibrated volumes, pressure transducers and MFCs) must be resistant to ambient temperature fluctuation, by regulating the cabinet/system temperature with proper regulations.
7) System should have the ability to set equilibrium time period for each isotherm point and dosing pressure values during hydrogen sorption measurement.
8) System should be provided with all necessary safety features: high pressure safety protection, high pressure relief valves and software operated over-pressure protection.
9) Additional accessories such as UPS should be quoted as optional item.
10) Installation, commissioning and on-site training to be provided.

2. TENDER NO. IISER/PUR/919/10

THERMAL GRAVIMETRIC ANALYZER

Thermal Gravimetric Analyzer should measure the change in mass of a sample as a function of time or temperature (ambient to 1500°C) in inert (N_2), oxidative (O_2), reductive, static-dynamic-evacuated atmosphere. TGA should have automatic microbalance, which is sensitive to measure micrograms range (1µG)to 1.0 G of weight loss with a maximum sample capacity of 1000 mG and weight precision of ± 0.05 %. Instrument should also have computer-controlled

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possibility to regulate furnace conditions. Variable heating and cooling rates from 0.1°C/min to 50°C/min with an accuracy of at least ± 0.2°C. Temperature difference between set temperature and actual sample temperature should be ± 1°C through the whole temperature range. The entire instrument should be vacuum-tight up to 10^{-4} mbar. Modifiability of the progressing run is desirable. Consumables such as crucibles and spare thermocouples should be quoted separately. Instrument should be upgradable with mass spectrometer facility. Mass spectrometer (200/300 a. m. u.) for evolved gas detection along with accessories to integrate with thermal analyzer should be separately quoted.

Compatible computer with necessary software should be provided mentioning the specifications. Additional accessories such as UPS should be quoted as optional item. Indicate other essential accessories that need to be acquired from other sources for the complete functioning of the instrument. Better specifications, if any, may be quoted separately but not along the requirement.

3. TENDER NO. IISER/PUR/920/10

DIFFERENTIAL SCANNING CALORIMETER

SPECIFICATIONS:

Differential scanning calorimeter (DSC) should measure the change in heat flow of a sample as a function of temperature (-180 °C to 700 °C) in inert (N^2), oxidative (0_2), reductive, static, dynamic and evacuated atmosphere. Precision for the temperature should be ±0.1 °C. DSC should have a sensitivity of 1 µW. Specific heat capacity, enthalpy and transition temperature should be measurable. Sample weight should be 1-50 mG. Instrument should also have computer-controlled possibility to regulate furnace conditions. Variable heating and cooling rates from 0.1°C/min to 50°C/min with an accuracy of at least ± 0.2°C. Temperature difference between set temperature and actual sample temperature should be ± 5 °C through the whole temperature range. The entire instrument should be vacuum-tight up to 10^{-4} mbar. Consumables such as crucibles and thermocouples should be quoted separately.

Compatible computer with necessary software should be provided mentioning the specifications. Additional accessories such as chiller, UPS etc. should be quoted as optional item. Indicate other essential accessories that need to be acquired from other sources.

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NOTE:

1. **LEAFLET/CATALOGUE OF THE ITEMS QUOTED SHALL ACCOMPANY THE QUOTATION WITHOUT FAIL.**
2. **ALONG WITH THE TECHNICAL DETAILS PROVIDE A TABULAR COLUMN INDICATING WHETHER THE MODEL OF THE EQUIPMENT OFFERED BY YOU MEETS THE SPECIFICATIONS BY INDICATING 'YES' OR 'NO'. IF 'YES' SUPPORT THE CLAIM WITH PROOF.**
3. **NAMES OF INSTITUTES WITH CONTACT PERSON AND TELEPHONE/ EMAIL WHERE SIMILAR EQUIPMENT SUPPLIED BY YOU IN INDIA [PREFERABLY SOUTH] SHALL BE MENTIONED IN THE BID.**

CONSULTANT
[PURCHASE & STORES]

P.S: FOR TENDER AT SL NO.1 ALONE [IISER/PUR/918/10 – FULLY AUTOMATED VOLUMETRIC GAS ANALYZER] OFFER SHALL BE IN TWO-PART.

PART I – TECHNICAL BID:

Consisting of all Technical details alongwith commercial terms and conditions.

PART II – PRICE BID:

Showing item-wise prices for the items mentioned in the Technical Bid.

The technical bid and the Price bid should be in separate sealed and superscribed covers. Both these covers are to be put in a sealed bigger cover superscribing Tender No and due date. Technical bids will be opened first and after evaluation, price bids of only the shortlisted bidders will be opened.

Consultant
(Purchase & Stores)
IISER - TVM

IISER – TVM
INSTRUCTIONS TO TENDERERS [INDIGENOUS].

1. Tenders should be sent in sealed envelopes superscribing the relevant tender no. and the due date of opening. Only one tender should be sent in each envelope.
2. Late tender and Delayed Tenders will not be considered under any circumstances.
3. Sales Tax and /or other duties/levies where legally levies and intended to be claimed should be distinctly shown separately in the tender.
4. (a). Your quotation should be valid for a minimum period of 60 days from the date of opening of the Tender. Quotation with firm prices will be preferred.
   (b). Prices are required to be quoted according to the units indicated in the Invitation to Tender. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.
5. (a) Preference will be given to those tenders offering supplies from ready stocks and on the basis of delivery at IISER site.
   (b) Preference will also be given to those who agree our payment terms of within 30 days of receipt and acceptance of the item at our site.
6. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.
   (b) Samples, if called for, should be submitted free of all charges by the tenderer and the IISER shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of non-acceptance of tender, the tenderer will have to take back the samples at his own expense.
   (c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.
   (d) **Specifications:** Stores offered should strictly conform to our specifications. Deviations, if any should be clearly indicated by the tenderer in their quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary along with the quotations. Test Certificates wherever necessary should be forwarded along with supplies. Whenever specifically mentioned by us the tenderer could suggest changes to specifications with appropriate reasons for the same.
7. IISER shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portion of the quantity offered and the tenderers shall supply the same at the rates quoted.
8. Corrections, if any, in the Quotation must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quote d in words shall prevail.
9. The tenderer should mention the name of his bankers, Sales Tax Registration, PAN number etc in the tender.
10. The authority of the person signing the tender, if called for, should be produced.
11. The purchaser reserve the right to accept or reject the lowest or any other offer in whole or in part without assigning any reason.
12. IISER being a Govt of India Educational and Research Institute, is exempted from payment of Excise Duty and Customs Duty under Notification No. 51/96- Customs dated 23rd July 2009. Also, we can issue Form16 as per VAT Rules.
13. There is no EMD or Tender Cost.

CONSULTANT
(PURCHASE & STORES)

IISER-TVM

INSTRUCTION TO TENDERERS [IMPORTS]:

1. **PRICE:** The price quoted shall be firm. The terms of FOB/EXW/FCA/CIF/CIP etc shall be clearly mentioned.
2. **AGENT & AGENCY COMMISSION:** In case Tenderer is represented by any agent in India, their name and address shall be furnished. The amount of commission included in the price shall be clearly shown in the offer; which will be paid directly to the Indian Agents by purchaser in equivalent Indian Rupees. Incase Indian agents existing and their agency commission is not shown in the Tender, reasons for the same shall be clearly mentioned in Tender. Details of Indian agent's statutory registration shall be stated. If Agency Commission is paid by Principals in foreign currency, the reasons for the same and exemption from Enforcement Directorate in India shall also be provided.
3. **LEAFLET/CATALOGUE:** Tenderer should furnish all necessary leaflet/catalogue etc., of the stores offered by him to enable the Purchaser to evaluate his offer correctly.
4. **MODE OF DESPATCH:** Tenderer shall indicate the mode of dispatch (*i.e.,* Sea/Air-freight/Parcel Post, etc.) depending upon the normal mode of dispatch adopted by him for the type of stores offered for consideration of the Purchaser.
5. **COUNTRY OF ORGIN:** Tenderer shall indicate in his offer the country of origin of goods offered and the name and address of the manufacture.
6. **INSURANCE:** If insurance of the goods is felt necessary, the same shall be advised by the Tenderer in the offer.
7. **DELIVERY/SHIPMENT:** The time for and date of delivery quoted shall be reasonable/realistic and shall strictly be adhered to incase of placing order on the Tenderer.
8. **MODE AND TERMS OF PAYMENT:** Payment in full (excluding the amount of Agency Commission included in the price payable directly by the Purchaser to the Indian Agents in Indian Rupees) will be made immediately on presentation of the prescribed documents against SIGHT DRAFT or LETTER OF CREDIT.
9. **WARRANTY:** Period of warranty and conditions shall be clearly mentioned in the Tender.
10. **GENERAL:** The Tenderer shall also be complied with the following:
    a. Mention your Banker's name and address.
    b. Show approximate net and gross weight and dimensions of packages/ cases.
    c. Furnish list of recommended spares for satisfactory operation for a minimum period of one year if the quote is for Plant & Machinery, Equipments etc.
    d. Details of any technical service, if required for erection assembly, commissioning and demonstration.
    e. Conform that the prices quoted are inclusive of all taxes, levies, duties arising in the tenderer's country.
    f. The offer is valid for a minimum period of 90 days from the due date of opening of the tender.
    g. Samples, if called for, will be sent free of all charges.
    h. Late tenders and Delayed will not be considered.
    i. Offers made by Indian Agents on behalf of their Principals, should be supported by the Proforma Invoice of their Principals.
    j. The authority of person signing the tender, if called for, shall be produced.
    k. The purchaser reserves the right to accept or reject the lowest or any other offer in whole or in part without assigning any reason.

CONSULTANT
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