

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

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IISER/PUR/PT/16/10

Date: 24th November 2010

INVITATION TO TENDER

Dear Sirs,

SUB: POWDER X-RAY DIFFRACTOMETER

Sealed **TWO - PART** Tenders are invited for above item as per **SCHEDULE** attached. **Instructions to Tenderers [Indigenous & Imports]** are also attached.

The due date for receipt of Tenders is 20TH DECEMBER 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/16/10
SCHEDULE

I. TENDER NO. IISER/PUR/946/10

POWDER X RAY DIFFRACTOMETER

Basic powder x-ray diffractometer fully software controlled with the following specifications.

A. Basic unit

1. X-RAY GENERATOR:

- i. Maximum output power : 3.0kW
- ii. Maximum Voltage : 60kV
- iii. Maximum Anode Current : 80mA
- iv. Minimum voltage and current steps: 1kV and 1mA
- v. Stability <0.01% at 10% power fluctuation.
- vi. Control Fully controlled through software

2. X-RAY TUBE:

Cu-tube with ceramic insulation with line focus and point focus facilities. The arrangement should be such that the tube can be rotated from line to point focus without disconnecting the water utilities and without realignment. Cu tube power: 2.2 kW.

3. GONIOMETER: The goniometer with θ - 2θ geometry. The goniometer should have the following features

- i) Scan speed 0.001 -1.250/sec or better
- ii) Measurable 2θ range :0.5 -160° or better (The vendors are requested to provide Ag-Behante or any other reference sample with data showing the low angle (<1°) performance.)
- iii) Minimum step size: 0.0001 ° or better
- iv) Angular reproducibility : $\pm 0.0001^\circ$ or better
- v) Angular accuracy : $\pm 0.0025^\circ$ or better
- vi) Slew speed : 12° /sec or better.

There should be provision for both transmission and reflection geometries with sample position horizontal. The mounting and demounting of other accessories should not require any realignment of the goniometer.

4. OPTICS:

- i. Fixed and programmable variable slits with symmetric and asymmetric illumination and other utilities required to facilitate low angle measurements as specified above.
- ii. Primary monochromator for rietveld refinement should be quoted for mounting in the incident beam side preferably with no loss of intensity.
- iii. Focusing mirror geometry is preferred to increase the flux at the sample.
- iv. Secondary monochromator should be quoted for mounting on the diffracted beam side to avoid fluorescence.
- v. Ni-filter to get pure Cu-K α . line.

5. DETECTOR:

- i) A state of the art solid-state detector with no requirements for gas filling and constant recalibration.
- ii) Detector must be capable to work in both scanning and fixed modes.
- iii) It should work both in zero and one-dimension modes.
- iv) It should have a high resolution, lower dead time, and higher precession
- v) It should be capable of working with a secondary monochromator.

6. LOW TEMPERATURE ATTACHMENT:

- a) Close cycle refrigerator to achieve temperature range from 10 K to +310 K or wider preferably with automatic height compensation.
 - b) Temperature stability: < 0.1 K
 - c) This should include all accessories like compressor, temperature controller, other control units, vacuum system, connecting hoses, sample holders etc.
7. High temperature attachment which can go upto 1200 C.
8. ICDD PDF4 database with 3-user license for at least 5-years of free updates.
9. SAMPLE HOLDERS: Standard sample holders (10 numbers), zero background sample holders to deal with small powder samples (3 numbers) and Silicon or any other high resolution reference sample.
10. An Indian make chiller of adequate capacity for the XRD should be quoted.
11. COMPUTER CONTROL: A 21 inch desk top and window based PC should be provided for all operations of the XRD with latest configuration (500 GB hard drive, 4GB RAM, 1-7 processor). A LaserJet color printer should also be provided.

12. SOFTWARE:

- i) The software should be capable of simultaneous diffractometer control, data collection and analysis, peak search, search-match, profile fitting and elaborate pattern treatment such as data smoothening, background subtraction, $k\alpha_2$ stripping, etc.
 - ii) Software for profile analysis (Rietveld refinement), abinitio structure solution, quantitative phase analysis, estimation of lattice constants etc should be part of the basic unit.
 - iii) All software should be provided with minimum of 5 user licenses to be loaded on separate PCs.
13. Warranty -Minimum 3 years warranty should be provided for a continuous operation of the machine.

B. OPTIONAL UPGRADABLE ACCESSORIES: The diffractometer should have the provision to take on various attachments as outlined below and should be quoted separately

- a) Attachments for carrying out thin film measurements, evaluation of epitaxial growth, provision for stress/strain analysis etc
- b) Two dimensional detector with no gas filling.
- c) Attachments for carrying out measurements on nano sized samples.
- d) ACCESSORIES FOR POWER SUPPLY: The vendor should quote for UPS of adequate capacity to hold the power for minimum one hour including the chiller so that one can collect data for one hour without interruption.
- e) Capillary mode data collection attachment
- f) Multiple sample changer where more than 15 samples can be loaded at a time and the sample changer should work with the quoted reflection cum transmission sample stage.
- g) Spare X-Ray tube (Cu)

C. CONDITIONS:

- ⇒ Should confirm to Indian and international safety standards and regulations pertaining to X-ray Radiation and other hazards. Vendors to provide certificate stating the radiation dosage for the quoted model. Vendors should install and commission the machine with all the attachments and demonstrate all applications as specified above.
- ⇒ Users should be given training at our site.
- ⇒ The vendor has to stand guarantee for the relocation of XRD machine once the permanent campus of IISER Trivandrum gets ready at Vithura in 2-3 years. They must be in a position to dismantle the setup in the present campus and re-install it at the new campus.
- ⇒ Enclose pre-installation guide for the details on space, electrical power and other utilities required. Operational and maintenance manuals should also be provided. .
- ⇒ The vendors are requested to mention all the technical details of their model and also to supply a list of recent installations of the quoted model in India.
- ⇒ [Note: The vendors are requested to quote strictly as per our specification and also mention in detail if they have any other extra features.]

SPECIAL CONDITIONS

1. COMPLIANCE STATEMENT

Along with the technical details provide a tabular column indicating whether the equipment quoted by you meets the specifications by indicating 'YES' or 'NO'. If 'YES', support the claim by providing original brochures.

2. REFERENCES:

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.

3. TWO - PART TENDER

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.


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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.


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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. In case 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 ORIGIN:** 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 in case 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.


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