

**UNIVERSITY INSTITUTE OF CHEMICAL ENGINEERING & TECHNOLOGY  
PANJAB UNIVERSITY, CHANDIGARH-160014**



**Phone – 01722534908; Fax- 0172-2779173**

**TENDER DOCUMENT FOR PURCHASE OF**

**i) Dynamic Rheometer**

**ii) Zetasizer**

**TENDER NOTICE NO: GG/ICAR/ UICET/2013/01**

**DATE OF ISSUE: FEBRUARY 15<sup>th</sup> , 2013**

**LAST DATE FOR RECEIPT OF TENDER: MARCH 8<sup>th</sup>, 2013 by 3.00 p.m.**

**DATE & TIME OF OPENING: MARCH 11<sup>th</sup>, 2013 at 3.00 p.m.**

**TENDER FEES Rs. 1,000/-**

**UNIVERSITY INSTITUTE OF CHEMICAL ENGINEERING & TECHNOLOGY**

**PANJAB UNIVERSITY, CHANDIGARH.**

**TENDER DOCUMENT FOR PURCHASE OF EQUIPMENTS (DYNAMIC RHEOMETER  
AND ZETASIZER)**

TENDER NOTICE NO.: GGICAR/ UICET /2013/01

DUE DATE: March 8th, 2013 by 3.00 p.m

DATE AND TIME OF OPENING: March 11th, 2013 at 3.00 p.m.

NAME AND ADDRESS OF: \_\_\_\_\_

TENDERER

TELEPHONE NUMBER, FAX: \_\_\_\_\_

AND E-MAIL ADDRESS OF THE TENDERER \_\_\_\_\_

**TENDER PURCHASE DETAILS:**

The Tender document is available on the university website:<http://tenders.puchd.ac.in>.  
The document must be accompanied with an A/c payee demand draft of Rs. 1,000/-.  
The demand draft must be in favour of The Registrar, Panjab University, Chandigarh,  
payable at Chandigarh only.

Demand Draft No. \_\_\_\_\_

Dated \_\_\_\_\_.

**P.S:- i) For each instrument, the bid should be accompanied with an A/c payee  
demand draft of Rs. 1,000/-**

**ii) For each instrument, separate bid should be submitted.**

Contd.

**EARNEST MONEY DETAILS:**

(i) a) Rs. 30,000/- through demand draft for Dynamic Rheometer

b) Rs. 30,000/- through demand draft for Zetasizer

**The demand draft(s) should be A/c payee in favour of The Registrar, Panjab University, Chandigarh and payable at Chandigarh only. The validity of demand drafts towards Earnest Money Deposit (EMD) should be for a period of six (06) months.**

(ii) Demand Draft No. \_\_\_\_\_ dated \_\_\_\_\_

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## SECTION – I

### Invitation for Bids, General Rules and Terms & Conditions for Tender

1. This invitation to tender is for the supply of i) Dynamic Rheometer ii) Zetasizer for use in UICET, Panjab University. The tender is liable to be rejected because of any misrepresentation by the firm.
2. The requirements of the Institute in terms of category of equipment, detailed specifications and quantity are given in the enclosed list. Any change in the terms that are beneficial to the University can be carried out before the opening of the commercial bids.
3. Tenders will be rejected in case draft of Rs.1,000/- is not attached to the tender document.
4. Tenderers are advised to study all pre-qualification, technical and commercial aspects of the tender document carefully. Submission of Tender shall be deemed to have been done after careful study and examination of the Tender Document with understanding of its implications.
5. i) Sealed offers prepared in accordance with the procedure enumerated in Section II, giving full detailed specifications of the equipments, should be in favor of **Dr. Gargi Ghoshal, CCPI, NFBSFARA, ICAR Project, UICET, Panjab University, Sector-14, Chandigarh**, not later than the date and time laid down, at the address given in the schedule for invitation to tender.  
  
ii) **The sealed offers should be submitted in the office of this Institute-THE UNIVERSITY INSTITUTE OF CHEMICAL ENGINEERING & TECHNOLOGY, (UICET), Panjab University, Sector-14, Chandigarh.**
6. The tenderer should indicate specifically the Basic Price, Custom duty/Excise duty, other duties (if any), and levies chargeable quantitatively against each item. No additional information/clarifications will be entertained after due date. The CCPI may reject tenders if they do not carry such information separately and specifically, quantitatively.

7. The bids should indicate clearly that the rates are F.O.R. UICET, P.U., Chandigarh/ CIF, New Delhi.
8. The tender should be submitted in Three cover system i.e. a, b and c. There should be proper indication of the contents on each envelope as indicated in section II.
9. The Demand Draft must be in a separate sealed envelope indicating the amount, tender Notice Number and due date and enclosed with the bid (please see section II for details).
10. The tenderer should clearly indicate the delivery period and validity period of tender, which in no case should be less than 90 days. However, the period of validity of the tender is extendable upto 120 days.
11. The tenderer should clearly indicate the availability of service and maintenance facilities at Chandigarh for the items quoted.
12. The above mentioned details particularly the VAT, Sales Tax, custom duty/excise duty, any other duty, if not quoted properly, can render the bid invalid.
13. The tenderer is required to **quote for each item separately** in terms of basic price and all other charges. Prices can be quoted in Indian as well as in Foreign Currency.
14. The Tender should be submitted along with the Earnest Money in the shape of Draft valid for a minimum period of six (06) months in favor of The Registrar, PU, Chandigarh. In all cases the interest of PU should be safeguarded, if in any case at a later stage the **Earnest Money Deposit (EMD)** is required to be forfeited because of non-supply/non-providing of demonstration, failure to properly install and commission the equipment, or for any other fault of the firm. Tenders not accompanied by Earnest Money or incomplete in any respect will be rejected outright.
15. The tenderer must indicate the list of prominent institutions /organizations particularly in and around Chandigarh, where the same equipment has been supplied during the last three years.
16. The tender must be submitted along with the copies of :

- a) Manufacturers license or authority from the manufacturer
  - b) Latest Income Tax Clearance Certificate
  - c) Sales Tax Registration Certificate
17. Dr. Gargi Ghoshal, CCPI, NFBSRARA, ICAR Project, UICET, Panjab University, Chandigarh, reserves the right to reject any or all tenders without assigning any reason whatsoever.
18. The tenders will be opened on the date and time indicated in the presence of tenderers present on the occasion, if any. If the date of opening is declared to be a holiday the tenders will be opened on the next working day. The University will not be responsible for any delay in the submission of the tender document by the postal authorities/courier companies, which is received after the last date/time.
19. In case, the item(s) is/are to be imported for supply, irrevocable letter of credit will be opened with the Bank. In case the shipping documents viz-invoice, packing list, airway bill (AWB), delivery-note, etc are supplied late by the firm, the demurrage levied, if any, by the Airport authorities will be borne by the firm.
- However, in case the equipment is supplied indigenously no advance payment or payment against proforma invoice will be made. 90% payment will be made after receipt, inspection, installation/testing of the equipment and certification by the concerned teacher/Lab in charge and The CCPI, NFBSFARA, ICAR Project, UICET. The balance 10% payment will be released after satisfactory performance. The firm can be asked to give the demonstration of the equipment even before the order is placed with it.
20. All damaged or unapproved goods shall be returned at the Tenderer risk and cost and the incidental expenditure thereupon shall be recovered from the concerned party.
21. Printed conditions of the firm sent along with the quotation, if any, shall not be binding on us.
22. Packing list must be put in all packages.

23. All charges e.g. packing, freight, insurance etc., if payable, in terms of Tendered quotation and accepted by us should be supported by voucher/money receipts etc.
24. On acceptance of tender, the date of delivery should be strictly adhered to otherwise The CCPI, NFBSFARA, ICAR Project, UICET, Panjab University, Chandigarh reserves the right not to accept the delivery in full or in part and to claim liquidated damages @1% per month of the value of the order unless extension has been granted by The CCPI, NFBSFARA, ICAR Project, UICET, Panjab University, Chandigarh specifically and in case the order is not executed within the stipulated period. Panjab University will be at liberty to make purchases through other sources at the risk and cost of the defaulting firm, and to forfeit the earnest money of the tenderer besides claiming damages.
25. No claim on account of payment of octroi etc. within the limits of the Municipal Corporation, Chandigarh shall be accepted.
26. The articles if are supplied on 'Bill', the payment will be made by crossed account payee cheque on receipt of the articles in good condition and after being installed and commissioned to the satisfaction of The CCPI, NFBSFARA, ICAR Project, UICET, Panjab University, Chandigarh. The decision to purchase each item is taken independent of other items quoted by the firm. There is no binding on the institute to purchase all the items quoted by any particular firm.



## SECTION – II

### Procedure for Submission of Bids

1. Each bid must be accompanied with a draft of Rs. 1,000/-. The tender documents along with the details are available on the Panjab University web site.
2. There will be three Cover System for this tender.

- a. Pre-qualification documents (in duplicate) in one cover.

Pre qualification will require

- Sales Tax No.
- I.T. clearance
- Authorization from OEM if applicable
- EMD draft

- b. Technical Bid (in duplicate) in one cover.

- c. Commercial bid (in duplicate) in one cover.

3. Each copy of the Pre-qualification document should be covered in a separate sealed cover super scribing the words: 'Pre-qualification document': Each copy should be marked as "Original Copy" and 'First copy'. Both the copies should be put in a single sealed cover super scribing the words 'Pre-qualification document'.
4. Each copy of Technical Bid of the tender should be covered in a separate sealed cover super scribing the words "Technical Bid". Each copy should be marked as "Original Copy" and "First Copy". Both the copies should be put in a single sealed cover super scribing the words "Technical Bid".

The name of the equipment should be mentioned on the envelopes for which the bids are submitted.

5. Each copy of Commercial Bid of the tender should be covered in a separate sealed cover super scribing the words "Commercial Bid". Each copy should be marked as "Original Copy" and "First Copy". Both should be put in a single sealed cover super

scribing the words "Commercial Bid". Commercial Bid should only indicate prices (preferably item wise).

The name of the equipment should be mentioned on the envelopes for which the bids are submitted

6. All the three documents i.e. Pre-qualification, sealed Technical Bid envelope and sealed Commercial Bid envelope prepared as above are to be kept in a single sealed cover super scribed with Tender Number, Due date and the wordings "**DO NOT OPEN BEFORE 3.00 p.m. on March 11th, 2013.**"
7. The cover thus prepared should also indicate clearly the name and address of the tenderer to enable the Bid to be returned unopened in case it is declared "late".
8. Each copy of the tender should be a complete document and should be bound as a volume. Different copies must be bound separately.
9. The bids prepared by the tenderer and all correspondence and documents relating to the bids, shall be written in English language and any printed literature furnished by the tenderer written in any other language must be accompanied by English translation, failing which, tender is liable to be rejected.
10. For each equipment separate bid(s) should be submitted.
11. The Demand draft should be A/c payee in favor of The Registrar, Panjab University, Chandigarh, payable at Chandigarh only.

# ***Technical Specifications***

## Tender Specification for Dynamic Rheometer

### **Dynamic, Rotational & Oscillatory Research Grade Rheometer with Peltier temperature controller with following hardware/software**

Mode of operation:

Oscillatory: Stress/strain sweep at fixed frequency, frequency sweep at fixed strain/stress, temperature sweep at fixed stress /frequency, superimposed stress/strain oscillation at steady shear, multiple frequency modes.

Steady shear/flow mode: Controlled stress/strain sweeps, temperature sweep at constant stress/shear. Creep mode and stress relaxation mode are desirable.

Motor: EC motor/ Drag cup motor

Bearing type: Air/Magnetic

Minimum torque, rotation: Preferably 50nNm

Maximum torque: 150-200mNm

Torque resolution:  $\leq 0.5$  nNm

Minimum frequency:  $1.0 \times 10^{-6}$  Hz

Maximum Frequency: 628 rad/s

Minimum angular velocity:  $10^{-7}$  rad/s

Maximum angular velocity: 300 rad/s

Angular Resolution: 10-12 nrad

Normal Force Range: 0.01-50N

Normal force resolution: 0.001N

Measuring Geometry: i) Cone and plate,  $\geq 60$ mm dia with  $1^\circ$  cone angle

ii) Parallel plate, 50mm dia or higher

Peltier plate Temperature Range (°C): -5 to 200 °C

Standard reference material should also be provided for calibration of equipment.

Software: Should be able to perform flow, transient (creep and stress relaxation) and oscillation experiments. It should be able to analyse the data through model fitting etc.

Air Compressor: i) Compact oil free suitable air compressor must be quoted along with the equipment with tubing and connector.  
ii) Air purification membrane Air dryer/filter to separate oil, particle and condensate.

Associate parts: i) Accessories such as pumps, cooling requirements etc.  
ii) Standard liquid, sample holder etc.

PC along with UPS: The system should be offered with suitable & Branded windows operating system based PC compatible with above software along with UPS should be provided along with equipment.

Installation/Demonstration/ Free of cost by the supplier

Application Training at site:

Warranty: Minimum 1 year with AMC for additional two years

Service facility: Supplier should mention their details of service set up and Manpower in Chandigarh/North India who are responsible for after sales support. Response time should be within 24h.

Optional Accessories:

Concentric Cylinder Geometry with liquid temperature control from -10 °C to 150 °C

## **Tender specification for Zetasizer**

### **(Equivalent to particle size analyzer along with zeta potential)**

#### **To measure the zeta potential and particle size of micro and nano particle**

1. Particle size measurement range : 0.5 nm to 5 microns
2. Sample volume measurement : less than 50 $\mu$ l for particle size measurement and less than 2ml for zeta potential measurement
3. LASER source, having wavelength less than 650 nm and power of minimum 10 mW
4. Measurement angle : 90 $^{\circ}$ /175 $^{\circ}$ /180 $^{\circ}$
5. Temperature range : minimum 0-50 $^{\circ}$ C
6. The system should have photodiode detector or photomultiplier tube to maximize the concentration sensitivity of the system.
7. Zeta potential measurement using Electrophoresis.
8. Mobility range:  $\pm 10\mu\text{cm/Vs}$
9. Zeta potential measurement range : -150 mV to +150mV
10. Conductivity range : preferably 0-300 mS/cm
11. Conductivity accuracy:  $\pm 10\%$
12. Signal processing using PALS/DLS
13. System should be able to analyze high concentration and low concentration samples.
14. Molecular weight determination facility while changing sample concentration and molecular weight range calculation using Debye plots.
15. For particle diameter, accuracy should be  $\pm 2\%$  using NIST traceable polystyrene latex standard of diameter 100 nm and concentration of 100 ppm. The repeatability should be less than 3%.
16. Software should have the following features:
  - Measurements with manually defined parameters or by defining a 'Standard Operating Procedure' or can create Navigation Wizard.
  - Compatible with latest Windows based operating system.
  - Trend plots to allow plotting any one measured parameter from selected records versus the second parameter.
  - Facility for overlaying several plots with facility to export plots.
  - Results should be exported to word processing packages or spreadsheets using a template or cut and paste.
  - Access to all measured data including correlation functions, fitted data points, residuals and all experimental parameters should be possible. The same might be stored for subsequent examination.

- Ability to edit sample data parameters to allow recalculation of measured data.
17. For data acquisition, the system should be quoted with latest version of branded PC, laser printer, uninterrupted constant voltage power supply etc.
  18. Supplier should mention their details of service set up and Manpower in Chandigarh/North India who are responsible for after sales support. Response time should be within 24h.
  19. Quality of services and maintenance of the instrument should be of high order in terms of time, efficiency and cost
  20. Warranty period of at least one year with AMC for additional two years.
- Optional Accessories:
- a. One pair of sample cuvette
  - b. Autotitrator