

INVITATION FOR TENDER FOR SUPPLY OF EQUIPMENT

Sealed tender offers are invited in two separate sealed covers (Technical and Commercial offers) from eligible manufacturers/suppliers or their direct Indian agents for the supply of the following equipment.

Please send offers, **ALONG WITH DESCRIPTIVE CATALOGUE/ BROCHURE**. The validity of the bid should be at least four months (120 days) or more from the date of the opening of this tender. Please ensure that your quotation reaches not later than **13.10.2017 at 15:00 Hrs** at the following address:

Dr. Jayeeta Mitra,
Assiastant Professor, Agricultural and Food Engineering Department,
Indian Institute of Technology Kharagpur – 721 302, West Bengal, India

Earnest money of **Rs. 12,000/-** is to be deposited in the form of Account payee Demand Draft in favour of IIT Kharagpur, payable at Kharagpur, India. Any bid which is not accompanied with an EMD shall be summarily rejected. Earnest money deposited will be forfeited if the tenderer withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender. No interest will be paid on the earnest money of the unsuccessful bidders.

Tender Reference	<i>IIT/SRIC/AGFE/AUL/JM/2017-18/EQ-2, Dated: 21.09.2017</i>
Price of Tender Document	NIL
Last Date and Time for submitting the tender document	13.10.2017 at 15:00 Hrs (Indian time)
Time and Date of Opening of Technical Bids	13.10.2017at 16:30 Hrs (Indian time)
Place of Opening Tender	Agricultural and Food Engineering Department, Indian Institute of Technology Kharagpur – 721 302, West Bengal, India
Address of Communication	As stated above
Contact Telephone Numbers	+91- 3222 - 28 83142
E-mail	jayeeta.mitra@agfe.iitkgp.ernet.in

Detailed specification for

Nano Particle Size (Laser based), Zeta Potential, Molecular weight , Microrheology measurement

A proven complete system should have the measurement facility for **Nano Particle Size, Zeta Potential (Aqueous, Non Aqueous, Solid Flat Surface), Molecular Weight & microrheology measurement** at variable temperature (0°C -90°C with +/- 0.1 deg.C accuracy) with inbuilt Peltier temperature controller.

Description:

Particle size analysis (at high and low concentrations for any dispersions / emulsions / colloids / submicron suspensions):

- (i) **Principals:** Dynamic Light Scattering (**Non Invasive Back Scattering detection is preferable**)

- (ii) **Measurement Angle: Preferably 173°**
- (iii) **Minimum Particle size range (dia):** Preferably 0.40-0.60nm (with sufficient documentary proof in terms of Analysis report or published journal should be attached)
- (iv) **Maximum Particle size range (dia):** 9000 to 10000nm (with sufficient documentary proof in terms of Analysis report or published journal should be attached)
- (v) **Minimum sample required:** preferably less than 14µl.
- (vi) The instrument should be very sensitive, i.e. Toluene count should be more than 140kcps.....also the photon count should be mentioned in the analysis report.
- (vii) Should have a facility to measure long term trend analysis (continuous measurement of more than 10000data with some fixed time interval) so that kinetics of growth as function of time/temperature, molecular size of clusters/large molecules can be determined.
- (viii) Instrument should have automatic and manual measurement facility. Manual measurement should have facility of fixing measurement position with the cuvette and attenuator.
- (ix) **Sample Concentration:** Minimum sample concentration around 0.1 mg/mL (of 15 to 20 kDa protein) & Max. sample concentration around 40% w/v.

Zeta Potential (in both aqueous and non aqueous solution phase)

- (i) Principal of measurement : Preferably by high & Low frequency micro electrophoresis, Laser Doppler velocimetry with Phase Analysis light Scattering.
- (ii) **Measurement Angle:** Forward Angle.
- (iii) **Zeta Potential Range:** Preferable more than +/-400mV
- (iii) **Size Range :** Min: 5nm, Max: 90 micron
- (iv) **Maximum Sample Concentration:** Preferably more than 35% w/v
- (v) **Maximum sample conductivity:** Preferably more than 180mS/cm
- (vi) Live measurement windows for display of Frequency, Voltage and Current, Zeta Potential vs pH, Electrophoretic mobility vs pH and Zeta potential vs Current.
- (vii) Minimum sample volume: 20µl.
- **Microrheology:**
System should have microrheology measurement unit compatible with the main equipment. The microrheology attachment should have the capability to determine the viscoelastic properties like
 - (i) Storage modulus (G')
 - (ii) Loss modulus (G'')
 at different frequencies, Complex viscosity and mean square displacement of particles.
Also the micro rheology apparatus should be able to give the correlograms relating scattering intensity against time.

Molecular weight determination

Molecular weight determination: Should have facility to measure MW
Range of molecular weight – around 1,000Da to 2×10^6 Da or better.

Other Essential parameters for the quoted model:

- The instrument should have Dry Air purging facility to avoid condensation.
- Laser: Should be Class 1 type, preferably low power (less than 5mw, He-Ne Laser)
- Optics: Fixed Optics with automatic alignment prior to measurement.
- Auto initialization: Automatic.
- Correlator: should have more than 3900 channels
- Detector: Should be Avalanche Photo Diode Detector.
- Measurement time: should be less than 10Sec.

Software: Software should be suitable for running the equipment, data acquisition, data analysis, data transfer, graphical presentation etc. Vendor should also mention the key feature of the software.

- Should be compatible with Windows OS.
- Should have facility to create Standard Operating Procedure (SOPs) for better result quality & easy handling.
- Should have facility of Custom Report Generation for different application.
- Should have built-in library for RI with facility to insert RI for new sample.
- Should have built-in library for different solvent for selecting appropriate viscosity with facility to insert viscosity for new sample.
- Data representation should have facility to display Intensity wise / Volume wise / Number wise Particle Size Distribution and Statistics.
- Should have facility to see the correlogram.
- Should have facility to over plot the results for direct comparison.
- Should have Temperature based trend analysis facility
- Should have Time based trend analysis facility.
- Should have Crystal screening facility
- Should have facility to measure 2nd Viral Co-efficient
- Should have Polymer Characterization facility.
- Should have facility to measure/display of Zeta Potential, Electrophoretic Mobility, Conductivity, Temp, Formulation Stability
- Should have facility to plot Zeta Potential vs pH; Electrophoretic mobility vs pH;

The Instruments should have a prohibition of the following features :

- **Surface Zeta Potential (Streaming Potential)**

For the measurement of zeta-potential of solid surfaces e.g. silica, PEEK

Support: (i) Remote access of the instrument (ii) Readily available complete service spare kit optical alignment on the fault identification and rectification. (iii) Vendor should have service facility in or around Kolkata.

Essential accessories/items

- (i) Suitable Computer should be quoted along with the system.
(ii) Essential Cuvettes for Aqueous medium:

Size measurement

- Polystyrene Cuvettes(1.5ml Capacity) : 100nos
- Glass Cuvettes (1.5ml Square) : 2nos

Zeta Potential measurement

- Gold Plated Zeta Potential Cuvettes: 10nos with 20 nos stoppers

Validation Standards:

- 60nm NIST Traceable Size Standard: 1no
- Zeta Potential Standard: 1no

- (iii) Zetapotential Cuvettes for Non-Aqueous medium

Installation/Demonstration/Application Training at site: It should be free of cost by the supplier.

Warranty: 1 year from the date of Installation

PRICE BIDS FOR INDIAN FIRMS: PRICES ARE TO BE QUOTED ON F.O.R., IIT KHARAGPUR, ON DOOR DELIVERY BASIS CLEARLY SHOWING THE BREAK UP.

5. **PERIOD OF VALIDITY:** BIDS SHALL REMAIN VALID FOR ACCEPTANCE FOR A PERIOD OF 120 DAYS FROM THE DATE OF OPENING.
6. INDIAN AGENTS ADDRESS AND PERCENTAGE OF AGENCY COMMISSION INCLUDED IN ABOVE F.O.B./EX-WORKS PRICE. (THIS WILL BE PAID TO THE INDIAN AGENTS IN INDIAN RUPEES ONLY AND NOT IN **FE**). PLEASE ENCLOSE COPY OF AGENCY AGREEMENT ENTERED INTO WITH YOUR PRINCIPALS INDICATING THE NATURE OF AFTER SALES SERVICES OF INDIAN AGENTS, PRECISE RELATIONSHIP & MUTUAL INTEREST IN THE BUSINESS.
7. **MEASUREMENTS/WEIGHT:** NETT/GROSS OF THE CONSIGNMENT. IN CASE OF AN ORDER, YOU SHALL USE AIR WORTHY PACKAGE (AS APPLICABLE) DULY CERTIFIED WITH DOCUMENTS – PLYTO – SANITARY CERTIFICATE (AS PER QUARANTINE ORDER 2003).
8. **SCOPE OF SUPPLY:** SHOULD INCLUDE FREE INSTALLATION AND COMMISSIONING
9. **PAYMENT TERMS FOR FOREIGN FIRMS**
 - A) 100% PAYMENT THROUGH SIGHTDRAFT/FORIGN DEMAND DRAFT/LC (EXCEPTIONAL CASES)/SWIFT TELE TRANSFER AFTER RECEIPT OF STORE IN GOOD ORDER AND CONDITION.
 - B) BANK CHARGES ON LC/SD (WITHIN INDIA APPLICANT ACCOUNT AND OUTSIDE INDIA TO BENEFICIARY ACCOUNT).

PAYMENT TERMS FOR INDIAN FIRMS

- A) 100% PAYMENT THROUGH CROSSED ACCOUNT PAYEE CHEQUE / ELECTRONIC TRANSFER AFTER RECEIPT OF STORE IN GOOD ORDER AND CONDITION.
- B) ENSURE MENTIONING
 - i) BANK DETAILS OF THE BENEFICIARY, VAT NO., SERVICE TAX NO. AND PAN NUMBER
 - ii) FULL NAME AND ADDRESS OF THE BENEFICIARY ON WHOM ORDER HAS TO BE PLACED
10. WHETHER ANY EXPORT LICENCE IS REQUIRED FROM YOUR GOVERNMENT, IF SO, PLEASE CONFIRM WITH DETAILS.
11. COUNTRY OF ORIGIN OF THE GOODS IS TO BE MENTIONED.
12. THE INSTITUTE SHALL PROVIDE THE CONCESSIONAL CUSTOMS DUTY AND EXCISE DUTY EXEMPTION CERTIFICATE AS PER GOVT. NOTIFICATION NO. 51/96 CUSTOMS DATED: 23.07.1996 AND CENTRAL EXCISE DUTY EXCEMPTION IN TERMS OF GOVT. NOTOFICATION NO. 10/97 – CENTRAL EXCISE DATED: 01.03.1997 AS AMENDED FROM TIME TO TIME.
13. **LIQUIDATED DAMAGES:** THE STORES SHOULD BE DELIVERED / DISPATCHED TO DESTINATION AND READY FOR OPERATION NOT LATER THAN THE DELIVERY DATE SPECIFIED. IT THE SUPPLIER FAILS TO DELIVER ANY OR ALL THE STORES OR PERFORM THE SERVICE BY THE SPECIFIED DATE, LIQUIDATED DAMAGES AT 1% PER MONTH OR PART THEREOF IN RESPECT OF THE VALUE OF STORES WILL BE DEDUCTED FROM THE CONTRACT PRICE SUBJECT TO A MAXIMUM OF 5%. ALTERNATIVELY, THE ORDER WILL BE CANCELLED AND THE UNDELIVERED STORES PURCHASED FROM ELSEWHERE AT THE RISK AND EXPENSE OF SUPPLIER.

14. **PATENT RIGHTS:** THE SUPPLIER SHALL INDEMNIFY THE PURCHASE AGAINST ALL THIRD PARTY CLAIMS OF INFRINGEMENT OF PATENT, TRADEMARK OR INDUSTRIAL DESIGN RIGHTS ARISING FROM USE OF THE GOODS OR ANY PART THEREOF IN INDIA.
15. ONLY THOSE BIDDERS WHO'S BIDS HAVE BEEN TECHNICALLY FOUND ACCEPTABLE WILL ONLY BE INVITED FOR PARTICIPATION IN THE PRICE BID.
16. THOSE BIDDERS WHO DO NOT RECEIVE ANY COMMUNICATION FOR PARTICIPATION IN PRICE BID OPENING MEETING MAY PRESUME THAT THEIR BID HAS NOT BEEN ACCEPTED BY THE INSTITUTE.
17. CONDITIONAL OFFER WILL NOT BE ACCEPTED.
18. LATE TENDERS I.E. TENDER RECEIVED AFTER THE DUE DATE AND TIME OF SUBMISSION AS MENTIONED ABOVE SHALL NOT BE ACCEPTED.
19. BIDDERS TO ENCLOSE THE FOLLOWING DOCUMENTS:-

A) CURRENT INCOME TAX AND SALES TAX CLEARANCE CERTIFICATES (VAT No.), SERVICE TAX NO. AND PAN NO.

C) BANKER'S SOLVENCY CERTIFICATE

C) SUMMARY OF AUDITED STATEMENT OF ACCOUNTS FOR THE LAST THREE YEARS TO BE ENCLOSED AND FINANCIAL HIGHLIGHTS AND THE KEY PERFORMANCE DURING THE LAST THREE QUARTERS TO BE ENCLOSED AS PER FORMAT:-

COMPANY'S KEY PERFORMANCE

DESCRIPTION	JAN. TO MARCH	APRIL TO JUNE	JULY TO SEPT.
GROSS REVENUE			
PROFIT BEFORE TAX			
PROFIT AFTER TAX			
RETURN ON INVESTED CAPITAL (ROIC)			

D) CUSTOMER SATISFACTION CERTIFICATE FROM ONE SUCH ORGANIZATION IS TO BE ATTACHED WITH THE TECHNICAL BID AND PRICE BID.

E) NAME AND ADDRESS OF MINIMUM THREE CLIENTS TO WHOM SUCH EQUIPMENT HAVE BEEN SUPPLIED SHOULD BE MENTIONED.

20. **WARRANTY / GUARANTEE:** THIS COMPREHENSIVE WARRANTY / GUARANTEE SHALL REMAIN VALID FOR **36 MONTHS** AFTER THE GOODS (OR ANY PORTION THEREOF AS THE CASE MAY BE) HAVE BEEN DELIVERED AND COMMISSIONED TO THE FINAL DESTINATION.

21. THE INSTITUTE DOES NOT BIND ITSELF TO OFFER ANY EXPLANATION TO THOSE BIDDERS WHO'S TECHNICAL BID HAS NOT BEEN FOUND ACCEPTABLE BY THE EVALUATION COMMITTEE OF THE INSTITUTE.

22. ALL TENDERS (UNLESS OTHERWISE SPECIFIED) ARE TO BE SUBMITTED / HANDED OVER TO **DR. _____** (Name of the PI), Name of the Department, INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR - 721 302 AND ACKNOWLEDGEMENT TO BE OBTAINED.

IMPORTANT

1. IIT Kharagpur authority may accept or reject any or all the bids in part or in full without assigning any reason and does not bind itself to accept the lowest bid. The Institute at its discretion may change the quantity / upgrade the criteria / drop any item or part thereof at any time before placing the Purchase Order.
2. Promptly make arrangements for repair and / or replacement of any damaged item (s) irrespective of settlement of claim.
3. In case of any dispute, the decision of the Institute authority shall be final and binding on the bidders.
4. For any query pertaining to this bid document correspondence may be addressed to **Dr. Jayeeta Mitra**, at the address mentioned above.

LAST DATE FOR SUBMISSION OF SEALED BIDS: 13.10.2017

- 1) Please Note that the Institute remains closed during Saturdays & Sundays and all specified government holidays.
 - 2) Fax, e-mail Tender will not be accepted.
 - 3) The General Terms and Conditions as stated above relate to supply of stores / equipment /assets etc. and for specific service other terms and conditions of the Institute will apply.
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