

## INVITATION FOR RE-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.

### **Rheometer / Rapid Visco Analyzer**

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 **28.04.2017 at 15:30 Hrs** at the following address:

**Dr. H N Mishra**  
**Professor & PI, LAV Project**  
**Agricultural & Food Engineering Department**  
**Indian Institute of Technology, Kharagpur – 721 302 (India)**

Earnest money of **Rs. 30,000/-** 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.

Re-Tender Reference	<b>IIT/SRIC/AGFE/LAV/HNM/2016-17/Retender</b> <b>Dated: 06.04.2017</b>
Price of Tender Document	NIL
Last Date and Time for submitting the tender document	28.04.2017 at 15:30 Hrs (IST)
Date & Time of Opening of Technical Bids	28.04.2017 at 16:30 Hrs
Place of Opening Technical Bids	Agricultural & Food Engineering Department, Indian Institute of Technology Kharagpur, West Bengal, India, PIN-721302
Address of Communication	As stated above
Contact Telephone Numbers	Tel-fax: +91- 3222 283130
E-mail	hnm@agfe.iitkgp.ernet.in

## DETAILED TECHNICAL SPECIFICATIONS FOR

### **Rheometer / Rapid Visco Analyzer**

The Rheometer / Rapid Visco Analyzer is required for determination of viscoelastic behavior, viscosity and pasting characteristics in food grains and grain powders, mixes and dough; food liquids such as milk, juices, concentrates and pastes; processed food and beverages such as RTE snacks, bakery, confectionery and dairy products, etc. Further, the equipment may be used for the following purposes.

#### **Instrument Applications:**

- Analyzing the starch pasting characteristics using standard starch pasting profile of cereals, native and modified starches at minimum possible time.
- Differentiating between different rice varieties in terms of Pasting temperature, Peak Viscosity, Breakdown, Setback values in RVU units.
- Analyzing processing effects like degree of cook on quality of extruded products, snack foods etc.
- Determine flour quality in terms of its suitability for making bread, biscuits, pasta, noodles and extruded food products etc.
- Analyzing properties of whey protein concentrates, skim milk powders, dairy products (curd, yoghurt, cheese and others), protein network functionality and gelation characteristics and cooked foods.
- Analyzing cooking quality of Rice in terms of qualitative effects of Amylose and Amylopectin ratios.
- Analyzing enzyme activity as stirring number in cooked viscous starch, grains, flour, potatoes, noodles, rice, barley, wheat, sorghum etc.

#### **Modes of Operation:**

The instrument should be capable of direct strain control, shear rate control and shear stress control.

- Oscillatory:** Stress/strain sweep at fixed frequency, frequency sweep at constant strain/stress, temperature sweep at constant stress/frequency, time sweep test, superimposed stress/strain oscillation and steady shear, multiple frequency modes.
- Steady shear/ Flow mode:** Controlled stress/strain sweeps, temperature sweep at constant stress/shear, squeeze flow and pull off and creep recovery test.
- The instrument should have provision to measure fluid parameters of shear stress and viscosity at given shear rates.

#### **Technical Specification**

- Temperature range~ between 0 to 99.9 ° C
- Temperature accuracy: minimum  $\pm 0.1^\circ$  C at 25° C
- Heating/Cooling rate: 10 to 15° C/minute (variable)
- Speed range: Infinity variable 0 to 2000 rpm (computer controlled)
- Speed accuracy: minimum  $\pm 1\%$
- Torque range (Rotational and oscillation): 2 to 200 mNm with resolution: 0.1 nNm
- Angular velocity : 0.0001 to 300 rad/s
- Angular frequency : 0.001 to 628 rad/s
- Viscosity range: 20 to 16,000 cP at appropriate rpm
- Viscosity range (cP) : Minimum 1cP to maximum 6 million cP (In case rotational test)
- Sensitivity and accuracy : as low as 10 cP viscosities
- The suitable measurement geometry Parallel plate, Cone & plate ( cone angle 1°, 2° 4°,8° and 12°), Concentric cylinder, Roughened surface plates (sand blasted, serrated and splined) and special geometry for starch pasting properties measurements.
- The computer system with latest software to perform experiment, measurement, analysis (graph and report) and must have a data export function which will readily export data to Microsoft Excel.
- All required accessories for above stated applications/ operations should be provided.

## GENERAL TERMS & CONDITIONS

PLEASE SPECIFICALLY INDICATE THE FOLLOWING POINTS IN YOUR QUOTATIONS AND COMPLY THE TERMS AS MENTIONED HEREUNDER:-

1. TENDERS ARE INVITED COMPLYING THE REQUIREMENT FOR TENDER AS DETAILED IN THE TENDER SPECIFICATION TO BE SUBMITTED IN THE COMPANY'S / FIRM'S LETTERHEAD NEATLY PRINTED / TYPED DULY SIGNED BY AUTHORIZED PERSON WITH THE SEAL OF THE BIDDERS. ALL ENVELOPS CONTAINING THE TENDER SHOULD BE PROPERLY SEALED. SEPARATE ENVELOPS SHOULD BE USED FOR TECHNICAL AND PRICE BID AND INDICATION TO THEIR EFFECT MAY PLEASE BE SUPERSCRIBED ON THE ENVELOP.

### **THE FOLLOWING DOCUMENTS ARE REQUIRED FROM THE INDIAN AGENTS OF FOREIGN FIRMS:**

1.1 FOREIGN PRINCIPAL'S PROFORMA INVOICE INDICATING THE COMMISSION PAYABLE TO THE INDIAN AGENT AND NATURE OF AFTER SALES SERVICE TO BE RENDERED BY THE INDIAN AGENT.

1.2 COPY OF THE AGENCY AGREEMENT WITH THE FOREIGN PRINCIPAL INDICATING THE NATURE OF AFTER SALES SERVICES, PRECISE RELATIONSHIP BETWEEN THEM AND THEIR MUTUAL INTEREST IN THE BUSINESS.

1.3 PLEASE ENCLOSE THE DOCUMENT(S) RELATED TO THE ENLISTMENT OF THE INDIAN AGENT WITH DIRECTOR GENERAL OF SUPPLIES & DISPOSALS (DGS & R) UNDER THE COMPULSORY REGISTRATION SCHEME OF MINISTRY OF FINANCE.

2. TECHNICAL CATALOGUE/LEAFLET SHOULD BE ENCLOSED WITHOUT FAIL. PROVIDE COMPLIANCE STATEMENT WITH RESPECT TO THE TECHNICAL SPECIFICATIONS MENTIONED ABOVE.
3. PLEASE CONFIRM WHETHER YOU ARE AUTHORISED TO QUOTE ON BEHALF OF YOUR PRINCIPALS AND IF SO, PLEASE ENCLOSE A COPY OF SUCH AUTHORISATION WITH YOUR QUOTATION.
4. **PRICE BIDS FOR FOREIGN FIRMS:** PRICES ARE TO BE QUOTED ON 'EX-WORKS' DULY PACKED OR ON "FCA/FOB" INTERNATIONAL PORT" BASIS AND ALSO INCLUDING AGENCY COMMISSION PAYABLE TO YOUR INDIAN AGENTS, IF ANY SHOWING CLEARLY THE FOLLOWING BREAK UP:-

- I) EX-WORKS PRICE
- II) PACKING & FORWARDING
- III) FREIGHT
- IV) ANY OTHER RELEVANT EXPENSES.
- V) TAXES PAYABLE BY THE INSTITUTE

INSURANCE WILL BE PAID BY OUR INSTITUTE SEPARATELY AND SHOULD NOT FORM PART OF THE QUOTED PRICE.

**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.

B) 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 HARI NIWAS MISHRA, AGRICULTURAL & FOOD ENGINEERING 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 Hari Niwas Mishra** at the address mentioned above.

**LAST DATE FOR SUBMISSION OF SEALED BIDS: 28.04.2017 at 15:30 Hrs**

- 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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## Uploading Tenders (e-Publishing) on the Central Public Procurement Portal (CPPP)

<b>Name of Work/Item of Procurement</b>	
<b>No. of Covers</b>	NA
<b>Bid Validity in Days</b>	
<b>Bid Opening Place</b>	
<b>Bid Submission Closing Date</b>	
<b>Bid Opening Date</b>	
<b>Tender Submission Fee (if any)</b>	NIL
<b>Estimated Tender Value (if any)</b>	NA
<b>EMD (if any)</b>	₹