

**UNIVERSITY OF CALICUT**

**(Purchase Division)**

No.236802/PURCHASE-ASST-B1/2016/Admn

Calicut University (P.O.)

Date: 24.01.2018

**NOTICE INVITING RE-TENDER**

The Registrar, University of Calicut, invites online tender for the purchase of **Fourier Transform Infrared Spectrophotometer (FTIR)** for Central Sophisticated Instrumentation Facility (CSIF). Tender documents and tender schedule may be downloaded free of cost from the Website **[www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in)**.

The bidder shall remit Rs.12,600/- as cost of tender and Rs 75,000/- as Earnest Money Deposit to take part in the tender. The rate quoted should be inclusive of taxes and all other charges.

**Detailed technical specifications (including catalogues and other details if any) should be uploaded under the heading Other Important Documents.**

Successful bidder shall furnish a Performance Security of Rs.3,75,000/- for satisfactory fulfillment of the contract. The EMD and Performance Security are returnable. Performance security will be returned only after the expiry of the warranty period of the equipment supplied

Tender Notice no.	No.236802/PURCHASE-ASST-B1/2016/Admn Dated 24.01.2018
<b>Last date for submission of bid on line</b>	<b>09.02.2018 5:00 PM</b>
Last date for submission of Hard copies (Technical Bid)	12.02.2018 4:00 PM
Bid opening date	12.02.2018 4:00 PM

All bid/tender documents are to be submitted online only and in the designated cover(s)/envelope(s) on the website. Tenders/Bids shall be accepted only through online mode on the website and no manual submission of the same shall be entertained. Late tenders will not be accepted.

Further details can be had from the Deputy Registrar, Purchase Division, University of Calicut, Calicut University (P.O), Malappuram, Pin.673 635, Kerala, during working hours. (0494 – 2407130, 2407160).

**Specifications for Fourier Transform Infrared Spectrophotometer (FTIR) Imaging System**

**General**

High performance high resolution FTIR Imaging system should be fully external PC controlled through Windows based software. Suitable multiple PC with genuine OS and software should be supplied. The instrument should run on 220-230V, 50 Hz main power supply line.

**Spectrometer:**

1. Spectral range for spectrometer: 8500 to 50 cm<sup>-1</sup> or better

Include Beam Splitter and detector for both MID and FAR IR

2. Spectral resolution of spectrometer: **0.06 cm<sup>-1</sup> or better**
3. Wave number accuracy: Better than 0.01 cm<sup>-1</sup> @ 2000 cm<sup>-1</sup>
4. Interferometer : Michelson interferometer with multiple beam splitter capability
5. Rapid Scan: system should be capable to operate in rapid scan mode/kinetic mode
6. Rapid Scan Mode: 50 spectra/sec at 16 cm<sup>-1</sup> spectral resolution or better
7. External Beam Options: At least 2 ports or better should be available

#### **Microscope:**

1. The microscope must use reflecting optics (up to and including the detector) and capable of acquiring micro-spectroscopic IR data in transmission, ATR and reflectance modes.
2. The microscope design must permit high spatial resolution (diffraction limited) data collection using a single motorized, rotatable View Through aperture and a 15x, 0.61 numerical aperture Schwarzschild or similar IR objective with matched condenser. Aperture size control and rotation must be under computer control together with full control via an on board control panel.
3. Fixed trinocular viewer with high resolution visible camera
4. The sample must be able to be viewed by the user using a direct binocular optical element for best visual spatial sampling definition.
5. The microscope must have at least two detectors, single point MCT detector and FPA detector.
6. An automated motorized stage must be available for the microscope. Software for developing and storing for future recall multiple auto-sampling position templates must be available.
7. The microscope when utilizing the 15x, 0.5 or better NA IR objectives, shall have a maximum working distance of 20 mm or better above the microscope stage.
8. The microscope must have a minimum three-position nosepiece (turret).
9. MCT Detector with range 450-10,000 cm<sup>-1</sup> for single point collection and mapping.
10. The microscope must have a user control panel with the following functions: sample and background scan initiations, setup (interferogram monitoring), switching between reflection and transmission modes, visible image captures, motorized aperture control (rotation and x & y blade controls) and visible illumination intensity control
11. Visible sample illumination must be LED based and on axis and variable in intensity
12. The microscope must have the capability to accept specialized sample mounting stages (i.e. heated, cooled, etc.) for specialized experiments as required.
13. The microscope design must incorporate on-axis sampling optics using matched high numerical aperture Schwarzschild or similar objectives and on axis detector optics utilizing a 15x Schwarzschild or similar condenser matched to the objective allowing the sample aperture to be re-imaged onto the detector without optical aberration.
14. The microscope system must allow for the simultaneous viewing of the sample in visible mode through the binocular / internal visible camera, allowing for the viewing of the sample through the software whilst positioning it on the stage

#### **Imaging:**

1. Imaging mode spectral range: 5500-850 cm<sup>-1</sup> or better
2. 2D FPA detector: 64 x 64 Array or better.
3. Accessories for Microscope: Micro Attenuated Total Reflectance (Micro ATR) with Germanium crystal.

70 x 70 micron in single scan and with a resolution better than 1.1 micron

4. The system must be capable of obtaining a 2-D image (x by y pixels) without the need to use a motorized stage, but motorized stage must be quote for single point mapping and mosaic collection
5. The all-reflective Schwarzschild or similar IR 15x objective must have a numerical aperture of at least 0.62, allowing for the collection of higher spatial resolution IR images and for the collection of more light from higher collection angles, providing for higher throughput and better SNR
6. A standard 4x, 15x and 25x IR and visible objective has to be supplied with the microscope, with pixel resolution covering 1.1 - 5 microns.
7. Spatial resolution: at least 1.1 micron or better without requiring ATR in high magnification mode, and 5.5 micron in low magnification mode to survey large area. Working distance of 21 mm or better has to be available while collecting high spatial resolution (1.1 micron) chemical image.
8. XY movement for sample : 126 x 76 mm with 0.1 micron step size
9. Live IR image should be possible, and also Live ATR image view.
10. All software for data acquisition and image possessing for post run image analysis should be provided
11. Imaging of 700 x 700 micron area with should not take more than 3 seconds.
12. Visible image and IR image overlay should be possible
13. Kevley slides for biological samples 25 nos.

## Software

1. The size of image acquisition must not be limited by either available computer memory or by the operating system addressable memory limits.. This is achieved by using a novel and unique data management and saving scheme to enable very large images to be collected, without being limited
2. The software must allow for user controlled setting of FPA integration times. This will allow for an effective higher dynamic range, by limiting detector response for high throughput measurements such as background collects, whilst maximizing detector response by increasing integration time for the collection of highly attenuating (or thick) samples.
3. The software must have the ability to allowing viewing of the “live” IR image (with non uniformity correction or calibration) to facilitate easier sample positioning and identification of contact pressure and quality for micro ATR imaging.
4. The software must allow for the easy imaging data exploratory analysis by allowing for the viewing of spectra from any location on the imaging through a single mouse click, it must have a “play” function that scans through all wave numbers to quickly highlight chemically heterogeneity in the image.
5. PCI based noise reduction for the image should be available.

**Note: Instrument should be supplied with a library data base of 10,000 materials and Microvice accessory for sample holding must be supplied. Microscope should come with installation kit which includes Gold coated mirrors, Aluminum coated mirrors, needle, roller, cutting blades etc.**

- Library: More than 10,000 or better compound library
- Warranty for 3 years from date of installation (for spectrometer + Microscope)
- Subsequent to installation on-site training at Calicut university should be provided (for spectrometer + Microscope)
- **The service of a trained operator to operate the equipment for 3 years should be provided at free of cost.**
- All other accessories such as sample holders for spectrometer, standard die for pellet making, hydraulic press etc to run the instrument successfully.

- Three or more standard die (7 & 13 mm) for pellet making.
- Suitable De-Humidifier (for an approximate area of 100 Sq. feet) should be provided.

#### **General Conditions:**

1. No tender received after the specified date and time will be accepted on any account. The rates will be considered firm for acceptance till the date mentioned above. Tenders not stipulating period of firmness and tenders with price variation clause and/or 'subject to prior sale' condition are liable to be rejected.
2. The tenders will be opened on the appointed day and time in the office of the undersigned.
3. If any tenderer withdraws from his tender before the expiry of the period fixed keeping the rates firm for acceptance, the earnest money if any, deposited by him forfeited to University or such action taken against him as University think fit.
4. The final acceptance of the tenders rests entirely with the University who do not bind themselves to accept the lowest or any tender. But the tenderers on their part should be prepared to carry out such portion of the supplies included in their tenders as may be allotted to them.
5. Communication of acceptance of the tender normally constitute a concluded contract. Nevertheless, the successful tenderer shall also execute an agreement for the due fulfillment of the contract within the period to be specified in the letter of acceptance. The contractor shall have to pay all stamp duty, lawyer's charges and other expenses incidental to the execution of the agreement. Failure to execute the agreement within the period specified will entail the penalties set out in para below
6. (a) The successful tenderer shall before signing the agreement and within the period specified in the letter of acceptance of his tender, deposit a sum equivalent to 5 percent of the value of the contract as security for the satisfactory fulfillment of the contract less the amount of money deposited by him along with his tender. The amount of security may be deposited in the manner prescribed in Store Purchase Manual (Revised Edition 2013) Government of Kerala. Letters of guarantee in the prescribed form for the amount of security from an approved bank will be considered enough at the discretion of the University. If the successful tenderer fails to deposit the security and execute the agreement as stated above, the earnest money deposited by him will be forfeited to the University and contract arranged elsewhere at the defaulter's risk and any loss incurred by University on account of the Purchase will be recovered from the defaulters who will however not be entitled to any gain accruing thereby. If the defaulting Firm is a registered firm their registration is liable to be cancelled. (b) In cases where a successful tenderer, after having made partial supplies fails to fulfill the contracts in full, all, or any of the materials not supplied may at the discretion of the Purchasing Officer, be purchased by means of another tender/quotation or by negotiation or from the next higher tenderer who had offered to supply already and the loss, if any caused to the University shall thereby together with such sums as may be fixed by the University towards damages be recovered from the defaulting tenderer. (c) Even in cases where no alternate purchases are arranged for the materials not supplied, the proportionate portion of the security deposit based on the cost of the materials not supplied at the rate shown in the tender of the defaulter shall be forfeited and balance alone shall be refunded.
7. No interest will be paid on earnest money deposited.
8. The security deposit shall, subject to the conditions specified herein, be returned to the contractor within three months after the expiration of the contract, but in the event of any dispute arising between the Department concerned and the contractor, the Department shall be entitled to deduct out of the deposits or the balance thereof until such dispute is determined the amount of such damages, costs, charges and expenses as may be claimed. The same may also be deducted

from any other sum which may be due at any time from University to the contractor. In all cases deposit will be released only after the expiry of the guarantee period.

9. (a) All payments to the contractors will be made by Purchasing Officer in due course: (i) either by Departmental cheques payable at the Kerala Government Treasuries or (ii) by cheques or drafts on the Reserve Bank of India /State Bank of India (at any of their Principal Branches in India) (iii) in the case of supplies from abroad by drafts as may be arranged between the contracting parties. (b) All incidental expenses incurred by the University for making payments outside the district in which the claim arises shall be borne by the contractor.
10. Bank charges incurred in connection with payment against documents through Bank will be to the account of the contractor. The firms will produce stamped pre receipted invoices in all cases where payments (advance/final/for the release of railway receipts/shipping documents) are made through banks.
11. The contractor shall not assign or make over the contract of the benefits or burdens thereof to any other person or body corporate. The contractor shall not under let or sublet to any person or persons or body corporate the execution of the contract or any part thereof without the consent in writing of the Purchasing Officer who shall have absolute power to refuse such consent or to rescind such consent (if given) at any time if he is not satisfied with the manner in which the contract is being executed and no allowance or compensation shall be made to the contractor or the subcontractor upon such rescission. Provided always that if such consent be given at any time the contractor shall not be relieved from any obligation, duty or responsibility under this contract.
12. In case the contractor becomes insolvent or goes into liquidation, or makes or proposes to make any assignment for the benefit of his creditors or proposes any composition with his creditors for the settlement of his debts, carries on his business of the contract under inspection on behalf of or his creditors, or in case any receiving order or orders for the which under any clause or clauses of this contract the contractor shall have rendered himself liable to damages amounting to the whole of his security deposits, the contract shall, thereupon, after notice given by the Purchasing Officer to the Contractor be determined and the University may complete the contract in such time and manner and by such persons as the University shall think fit. But such determination of the contract shall be without non prejudice to any right or remedy of the University against the contractor or his sureties in respect of any breach of contract therefore committed by the contractor. All expenses and damages caused to University by any breach of contract by the contractor shall be paid by the contractor to University, and may be recovered from him under the provisions of the Revenue Recovery Act in force in state.
13. a) In case the contractor fails to supply and deliver any of the said articles and things within the time provided for delivery of the same, or in case the contractor commits any breach of any of the covenants, stipulations and agreements here in contained, and on his part to be observed and performed, then and in any such case, it shall be lawful for University (if they shall think fit to do so) to arrange for the purchase of the said articles and things from elsewhere or on behalf of the University by an order in writing under the hand of the Purchasing Officer put an end to this contract and in case the University shall have incurred, sustained or been put to any costs, damages or expenses by reason of such purchase or by reason of this contract having been so put an end to or in case any difference in price, compensation, loss, costs, damages, expenses of other moneys shall then or any time during the continuance of this contract be payable by the contractor to the University under and by virtue of this contract, it shall be lawful for the University from and out of any moneys for the time being payable or owing to the contractor from the University under by virtue

of this contract or otherwise to pay and reimburse to the University all such costs, damages and expenses they may have sustained, incurred or been put to by reason of the purchase, made else where or by reason of this contract having been so put an end to as aforesaid and also all such difference in price compensation, loss costs, damages, expenses and other money shall for the time being be payable by the contractor aforesaid. b) In case any difference or dispute arises in connection with the contract, all legal proceedings relating to the matter shall be instituted in the Court with in whose jurisdiction the purchasing officer voluntarily resides.

14. Every notice hereby required or authorized to be given may be either given to the contractor personally or left at his residence or last known place of abode or business, or maybe handed over to his agent personally, e-mailed or may be addressed to the contractor by post at his usual or last known place of abode or business and if so addressed and posted , shall be deemed to have been served on the contractor on the date on which, in the ordinary course of post, a letter so addressed and posted/e-mailed would reach his place of abode or business.
15. The tenderer shall undertake to supply materials according to the standard sample and /or specifications.
16. No representation for enhancement of rates will be considered.
17. Any attempt on the part of the tenderers or their agents to influence the Department/stores Purchase Department in their favour by personal canvassing with the officers concerned will disqualify the tenderers.
18. The prices quoted should be inclusive of all taxes, duties, cesses, etc., which are or may become payable by the Contractor under the existing or future laws or rules of the country of origin/supply or delivery during the course of execution of the contract.
19. Special Conditions, if any of the tenderers attached with the tenders will not be applicable to the contract unless they are expressly accepted in writing by the purchaser.

**Online Payment modes:** The tender document fees can be paid in the following manner through e-Payment:

**i. State Bank of India Internet Banking:** If a bidder has a SBI internet banking account, then, during the online bid submission process, bidder shall select SBI option and then select Internet banking option. The e-Procurement system will re-direct the bidder to SBI's internet banking page where he can enter his internet banking credentials and transfer the tender document amount.

**ii. National Electronic Fund Transfer (NEFT):** If a bidder holds bank account in a different bank, then, during the online bid submission process, bidder shall select NEFT option. An online remittance form would be generated, which the bidder can use for transferring amount through NEFT either by using internet banking of his bank or visiting nearest branch of his bank. After obtaining the successful transaction receipt no., the bidder has to update the same in e Procurement system for completing the process of bid submission. Bidder should only use the details given in the Remittance form for making a NEFT payment otherwise payment would result in failure in e-Procurement system.

**As NEFT payment status confirmation is not received by e-Procurement system on a real time basis, bidders are advised to exercise NEFT mode of payment option at least 48 hours prior to the last date and time of bid submission to avoid any payment issues. NEFT payment should be done according to following guidelines:**

**i. Single transaction for remitting Tender document fee and EMD:** Bidder should ensure that tender document fees and EMD are remitted as one single transaction.

**ii. Account number as per Remittance Form only:** Account no. entered during NEFT remittance at any bank counter or during adding beneficiary account in Internet banking site should be the same as it appears in the remittance form generated for that particular bid by the e-Procurement system. Bidder should ensure that tender document fees and EMD are remitted only to the account number given in the Remittance form provided by e- Procurement system for that particular tender. Bidders must ensure that the banker inputs the Account Number (which is case sensitive) as displayed in the Remittance form. No additional information like bidder name, company name, etc. should be entered in the account no. column along with account no. for NEFT remittance.

**iii. Only NEFT Remittance Allowed:** RTGS payments, Account to Account transfers, State Bank Group Transfers (GRPT) or Cash payments are not allowed and are treated as invalid mode of payments. Bidder must ensure that the banker does NEFT transaction only irrespective of the amount and specially instruct the banks not to convert the payment type to RTGS or GRPT.

**iv. Amount as per Remittance form:** Bidder should ensure that the amount being remitted is neither less nor higher than the amount shown in remittance form.

**v. UTR Number:** Bidders should ensure that the remittance confirmation (UTR number) received after NEFT transfer should be updated as it is, in the eProcurement system for tracking the payment.

**vi. One Remittance Form per Bidder and per Bid:** The remittance form provided by eProcurement system shall be valid for that particular bidder and bid and should not be re-used for any other tender or bid or by any other bidder.

Any transaction charges levied while using any of the above modes of online payment has be borne by the bidder. **The supplier/contractor's bid will be evaluated only if payment status against bidder is showing "Success" during bid opening**

**REGISTRAR  
UNIVERSITY OF CALICUT  
MALAPPURAM, KERALA STATE**