

INDIAN INSTITUTE OF TECHNOLOGY – DELHI
Department of Chemical Engineering

Jan 10, 2012

Subject: NIQ for Procurement of FTIR from RP02501

Sealed quotations in separate envelopes of technical and commercial bid kept in a one sealed outer envelope are invited for purchase of a '**Vacuum FTIR Spectrometer for electrochemical analysis**' as per specifications given above. Your sealed quotation should reach latest by 5.30 PM on 31/1/2012 to **Prof. S. Basu, Department of Chemical Eng., Indian Institute of Technology Delhi (IIT Delhi), Hauz Khas, New Delhi - 110016**. Your quotation should be superscribed "Quotation for **Vacuum FTIR Spectrometer for electrochemical analysis** dated 10.1.12.

Specs for VACUUM FTIR Spectrometer for electrochemical analysis

- 1) The standard spectral operating range should be not less than $8000\text{-}350\text{ cm}^{-1}$ with KBr beam splitter, DTGS detector with KBr-window and MIR source and have the option for upgradeable to $28000\text{-}15\text{ cm}^{-1}$.
- 2) The spectrometer shall be a vacuum spectrometer capable of maintaining a working pressure of less than 0.2 hPa (mbar).
- 3) For true vacuum operation, the housing of the spectrometer must be made of at least ¼" cast aluminum. The optics must be permanently mounted so that the optical alignments are maintained under both evacuated and non-evacuated operations.
- 4) The interferometer and sample chambers must be separately evacuable in order that the sample compartment may be brought up to atmospheric pressure without losing vacuum in the interferometer and detector chambers.
- 5) Standard spectral resolution should be better than 0.4 cm^{-1} .
- 6) Signal-to-noise: 5 sec sample: $> 9000:1$ ($< 4.8 \times 10^{-5}$ AU noise) peak-to-peak
1 min sample: $> 50,000 : 1$ ($< 0.9 \times 10^{-5}$ AU noise) peak-to-peak
- 7) Wave number accuracy: Better than 0.01 cm^{-1} @ 2000 cm^{-1}
- 8) The FT-IR must incorporate permanently aligned interferometer with Gold Coated cube corner mirrors for maximum light throughput.
- 9) Flexibility & automation option:
 - Two internal detector positions, software selectable
 - Two internal source positions, software selectable
 - Spectrometer should have five output ports, two input ports (software selectable) for future up gradation to FTIR Microscope, Raman, TGA-IR, GC-IR etc.
- 10) Spectrometer should have Automatic Component Recognition to identify detector, source and beam splitter. Appropriate acquisition parameters must be automatically set in the software.
- 11) Spectrometer should have Automatic Accessory Recognition for all sampling accessories that are placed in the sample compartment must be automatically identified and spectral test routines must automatically start to verify accessory performance.
- 12) System should have online diagnostic features for continuous check on spectrometer components during measurements.
- 13) The FTIR system should be equipped with a Photovoltaic MCT detector.

- 14) The vendor should take the responsibility for adoption of electrochemical cell with electrodes to quoted FT-IR system and supply electrochemical cell (2 nos) with IR window.
- 15) The system should have the feature to start the electrochemical as well as IR measurement simultaneously with click of a single button from the software.
- 16) FTIR should work in conjunction with potentiostat-galvanostat, which is supplied (standard make) by the users (purchaser) including the electrodes.

Terms & Conditions:

1. The quotations must have validity of at least three months.
2. Quotation must include insurance and air-freight charges, delivery period of the items addresses to The Indian Institute of Technology, Delhi, India (both FOB and CIF, New Delhi).
3. The products will be used for educational purposes. Any applicable academic institution discounts should be offered and stated.
4. Detailed Brochures should accompany the offer.
5. If the bidder is an authorized dealer then the authorized Indian dealership certificate from the principles should be enclosed.
6. Warranty details must be given.
7. Payment will be through irrevocable letter of Credit.
8. In case the items are proprietary products of the company, a proprietary item certificate stating the same must be provided.
9. Training should be provided free of cost.
10. Institute reserves the right to accept or reject any or all the quotations without assigning reasons thereof.

Prof. Vikram Kumar (Chair),