

Kindly send a quote for the following item on CIP Bangalore basis. Your quotation should clearly indicate the terms of delivery, delivery schedule, payment terms etc. The tender should be submitted in two separate sealed envelopes - one containing technical bid and other containing commercial bid, both of which should reach us, duly signed on or before 17.00 hours, 20th January 2020. Please enclose a compliance certificate along with the technical bid.

Chairman
Department of Inorganic and Physical Chemistry

FT-IR spectrometer with electrochemical interface

1. Spectral range: 350-7500 cm^{-1} or better with spectral resolution should be better than 0.20 cm^{-1} . Possibility of upgradation from 15 - 28000 cm^{-1} spectral range later, if required.
2. Capable of electrochemical *in situ* IR studies
3. High S/N ratio, 55,000:1 at 4 cm^{-1} resolution with fast scan of app. 1 min. Rapid scan of 50-60 spectra / sec should be possible (at slightly lower resolution of 8 cm^{-1})
4. Laser: User replaceable - Solid-state diode laser; life time (guaranteed) of ~ 5 years under normal use. Source should cover the entire IR range with high intensity.
5. Interferometer: Fast scanning - permanently aligned. Polarizer to be included.
6. The system should be sealed and desiccated.
7. Detectors: DTGS/DLaTGS; High sensitivity LN_2 cooled MCT detector (spectral range to be mentioned). Both detectors should be permanently installed in the system. System should be capable of supporting additional detector externally.
8. Software: User friendly software for qualitative and quantitative analysis, curve fitting, normalization, peak area, peak height calculation should be default features. Should contain standard library. The software should have compensation for atmospheric vapour; spectral comparison; handling multiple spectra; reporting - customized templates, notebook; quantitative prediction for PLS, PCR, Beer's Law, CLS, peak ratio, and discriminant analysis; automatic accessory detection and performance verification.
9. Transmission assembly for measuring the samples in transmission mode.
10. Internal validation unit with built in NIST traceable polystyrene film and NG-11 glass for detector linearity test.
11. System must be capable of upgradation with IR Microscope, TG-IR and GC-IR etc.

12. Computer configuration: Windows 10 Professional / Enterprise / Ultimate (64-bit) SP1 or higher, Intel Core i5 or higher and 1.4 GHz or faster, 8GB RAM or higher, HDD- 1TB or higher, DVD-ROM drive, 5 USB ports or more, 19" monitor, mouse, keyboard.

13. Accessory for Electrochemical study:

Dedicated accessory for electrochemical analysis should be supplied and it must be compatible with FTIR Spectrometer. The FTIR system should be able to study electrolyte solutions or small layers on electrode surface in Reflection or ATR mode or both between 1000-8000 cm^{-1} spectral range using Silicon and CaF_2 crystals. Polarizer should be available with Electrochemical accessory. The system should be able to configure with compatible potentiostat. Trigger functionality should be available to provide connections of external experiments. Whole spectro-electrochemical experiment should be controlled via either the FTIR software or potentiostat software.

Interferometer: Minimum 10 years warranty on the scanning mechanism.

Electrochemistry interface:

- Dedicated accessory for electrochemical analysis should be supplied and it must be compatible with FTIR Spectrometer.
- The spectrometer should be able to study bulk electrolyte as well as thin layers on electrode surface in reflection or ATR mode
- Spectral range, 1000-8000 cm^{-1} with Si and CaF_2 crystals.
- Polarizer should be available with the electrochemical accessory. Capability of reflectance measurements on the electrode surface with polarizer accessory.
- The spectrometer should be compatible with potentiostats (Autolab / CH Instruments / EG&G PAR (263A model) / Ametek Instruments).
- Trigger functionality should be available to provide connections for external experiments.
- The spectroelectrochemical experiments should be controlled via the FTIR software or potentiostat software.

Optional items (IR):

1. MCT liq. Nitrogen cooled broad band detector with spectral range, 400 – 12,000 cm^{-1}
2. Diamond ATR accessory
3. Variable angle reflectance accessory
4. High temperature accessory (25 – 400 C)

Optional items (Electrochemistry):

1. Potentiostat / Bipotentiostat with 4 electrode configuration.