Reference for PR No. 1000015808 (RFx No.6100000680)

Technical Specification for FTIR Imaging system

Indian Institute of Technology Bombay invites competitive bids from authorised bidders along with Manufacturer and Authorization Certificates through e-procurement portal for the specifications below of FTIR Imaging system.

Scope	FTIR Imaging system should be software controlled and fully automated.
A) FTIR General Parameters	
Spectral range	MID IR: 7500 – 450 cm^{-1} or better Far-IR: 700-50cm^{-1} or better
Source	Mid IR and Far IR source with 10 years warranty
Interferometer	Dynamically aligned Michaelson interferometer; insensitive to external vibrations and temperature effects with 10 years warranty
Beam splitter	Mid IR and Far IR range beam splitter with 10 years warranty
Laser	He-Ne laser sources (Mid and Far IR) with 10 years warranty
Optics	Suitable optics
External Beam	Should have facility for external beam
B) FTIR Imaging system	
Microscope Platform	FTIR imaging system should have Transmission, Reflectance, and ATR imaging modes
Aperture	Completely automated variable size aperture
Detector	Single element MCT and Linear Array detector. Additional detectors could also be quoted for microscopic applications for the samples of size down to 50 μm. All detectors must be permanently fixed and software selectable.
FTIR Microscope Calibration	NIST traceable polystyrene standards must be offered to check performance of the FTIR Microscope in all modes like transmission, reflection and ATR.
Micro-Attenuated Total Refection (ATR)	Imaging ATR with Germanium should be quoted. Micro ATR also should be offered.
Purge	Sample area purge should be available
C) Sample Viewing	

Sample Illumination	Software controlled LED's illumination must be available.
Video Image	High resolution color digital camera USB with 1024 × 768 low-noise CCD. Real-time 500 μm field of view. System should support additional monitor for best viewing comfort.
Real Time IR Spectrum	simultaneous view of sample while collecting data. Full view of the sample area with aperture positioned, even during collection. Real time spectral preview and library search facility must be available.
D) FTIR Imaging Detector Specification	
Signal to Noise Ratio	Better than 500:1, @ 25 μm pixel size and 16 cm^{-1} Resolution, 4 scans for imaging
Ultra-fast Imaging	1.2 × 1.2 mm Area at 20 seconds / Stage Speed: 10 steps/sec / Interferometer Speed: 150 spectra/sec or better
Stage	High precision motorized stage and joystick should be included
Objective	0.7 NA or better
Image Pixel Size	25/6.25 micron and 6.25 / 1.6 (or better) micron ATR imaging
Wavelength Range	7600 – 720 cm^{-1} or better
IR Imaging Collection Speeds	150 spectra per second or better
Software	1) Principle Component Application, Multivariate Curve Resolution, Image processing using different profiles like peak area, peak height etc. 2) Particle size analysis including counting number of particles along with IR spectra 3) Software should capable for microscopic analysis of microparticles with different size and shape. 4) The size and locations of identified regions should be used to position the specimen to align each region with an aperture and so to set the aperture to a size appropriate for collecting a spectrum from the region of interest. 5) Software should have automated mixture analysis software for chemical identification of unknown sample especially multiple component sample by a completely automated way and report best possible spectral matches using spectral libraries. 6) Software should have facility to perform analysis in automated way e.g., identification of particles of different size and adjusting the aperture accordingly before spectral acquisition.
Sample Preparation Kit	Kit containing carbide blade, roller and knife, needles, tweezers etc. must be offered. BaF$_2$/KBr windows – 4 nos. or more., Gold coated reflectance slides – 5 nos. or

	more. should be quoted.
Libraries	Licensed copy of ST Japan/ BIORAD/Aldrich / Hummel / only with minimum 10,000 General spectra & minimum 4,000 spectra for Polymer, Additives, Plasticizers libraries FTIR spectra should be supply along with instrument. **No pirated libraries** will be accepted. Library upgradation should also be provided for 5 years after installation free of cost.
Local Supply	All the pre requisition for installation like Branded PC of suitable configuration along with 2 nos. of 27" inch monitor, laser printer, required UPS etc. should be supplied along with system. Nitrogen cylinder with regulator and gas connection setup should also be supplied as needed.
Accessories	All accessories for the proper operation of instrument should be included as standard supply.
Terms and Conditions	1) System performance should be demonstrated with necessary standards and calibration kits which will be provided by the vendor as part of standard delivery.
	2) All the system components supplied, should have warranty for three year from date of installations (except mentioned earlier) and 2 years AMC after that including all labour cost. Payment of spare parts if necessary will be made on as and when required basis.
	3) Warranty should include preventive maintenance kit, calibration kit.
	4) No conditional warranty will be accepted.
	5) Basic training for a period of one week after installation & commissioning of the equipment to technical personnel to be provided at our site.
	6) On-site training of staff and students (at least twice in a year for 7 days each) during the first 3 years.
	7) Good technical support should be provided after the installation of the instrument and the service engineer should be able to attend unlimited breakdown calls and should visit the installation site within 24 hours without fail.
	8) Service support should be available for 6 days a week.
	9) Training on troubleshooting the issues associated with instrumentation or application should be provided free of cost whenever required by the user.
	10) Manufacturer should provide the service support details in Mumbai and India. Details of the service engineers and application specialists should be provided along with their experience on these kind of systems.

	11) Details of the users (name, phone number and email ID) in India for the quoted instrument in the bid should be provided. 12) Instrument performance, quality of service and application support certificates from at least three existing users should be provided. 13) The delivery period should be specifically stated. Earlier delivery may be preferred. **We may provide unknown samples to the vendors for analysis on the quoted models to verify their claims on technical specifications and reserve the rights to reject any or all bids based on the results.**

Submit technical brochure and a point by point compliance statement with Technical Bid.