

Specification for Fourier Transform Infrared Spectrometer

FT-IR spectrometer, which has capability to analyze plastics, soils, polymer samples with the following technical specifications.

SI No.	Description	Requirement
1.	Wavelength/Spectral Range	8,000 – 350 cm^{-1} or better
2.	Resolution	0.5 cm^{-1} or better <ul style="list-style-type: none"> • The system should be upgradable to Near IR to FAR IR • Documentary evident must be enclosed
3.	Signal to noise ratio	47000:1, peak-peak, 1 minute with high performance pack
4.	Wavelength accuracy	0.01 cm^{-1} achievable or better
5.	Detectors	DLaTGS/DTGS/FR-DTGS (or similar) detector for MID and FAR IR range, InGaAs/FR-DTGS (or similar) type detector for NIR range.
6.	Purging	Efficient purging arrangement in the instrument, Purge generator including Compressor for far IR operations, Purge kit including flow regulator and necessary tube.
7.	Light source	Standard: High-intensity ceramic source Option: Halogen lamp, water-cooled mercury source Up to three light sources may be installed simultaneously including external light sources
8.	Beamsplitter	KBr (or similar) Beam splitter for MID IR range, poly propylene/ wire grid (or similar) Beam splitter for FAR IR range and CaF ₂ (or similar) beam splitter for NIR Range. The beam splitters should be moisture resistant and capable of working in high humidity area should be able to work in high humidity area. The system should have automatic beam splitter exchanger to cover the Mid-Far/ Mid-NearFar spectral range.
9.	Spectrometer should have an suitable ATR without external interference	ATR with diamond crystal for direct powder, liquids, polymers, composites, thin film sample analysis without any sample preparation should be quoted. All accessories related to ATR should

		be quoted.
10.	Full Optical Upgradeability	Single range Frontier systems can be upgraded to Near IR to FAR IR
11.	Sample placing accessories	Standard company made 15 ton Hydraulic Press, Agate Mortar Pestle (2 nos), KBr (Spectroscopy grade) Die set, Magnetic Film sample holder, Pellet holder, demountable liquid cell along with syringe etc should also be given with instrument.
12.	Advanced Features	Air cooled IR source, Storage facility for extra beamsplitter in case of provision for manual beamsplitter exchange, Internal validation feature.
13.	Software	A single software platform incorporates all of the functions required for infrared analyses; instrument control, data manipulation and analysis, and flexible report utilities. A suite of optional software packages provide advanced capabilities or functions designed for specific application areas.
14.	Computer interface	Compatible branded PC, Colour Laser Printer and online UPS with 30 min backup should also be provided with instrument. TCP/IP interface allows direct connection with LAN. Instruments can be configured with their own IP address allowing control via the internet.
15.	Other Accessories	<ul style="list-style-type: none"> • A compatible toolkit for the regular maintenance of the equipment, Four rechargeable desiccants, one spare IR source, Nitrogen purging accessories should be provided with instrument • Variable angle specular reflectance accessories. • Oil free Hydraulic press with Agar pestle and mortar. Liquid cell holder and demountable cell with NaCl windows for viscous/ Semi Solid samples, CaF2 windows KBr die set, Assorted Rectangular Teflon Spacers, KBr Circular and rectangular Windows, Universal KBr pellet Holder, KBr (4X250g), gas cell should be supplied with instrument.
16.	Communication	USB 2.0 or higher
17.	Power supply	230 ± 20 volts, 50Hz Frequency

18.	Installation and Training	Full multimedia tutorials CD guides users through operation of the instrument and its accessories, and provides both an overview and detailed training on the software. Accessory training is accompanied by multimedia testing and certification. HTML tutorials provide additional training for common maintenance and software operation. Context sensitive help provides assistance throughout the software.
19.	Spectral libraries	Standard comprehensive spectral libraries (transmission) for the following classes of compounds: <ul style="list-style-type: none"> • Organic and inorganic compounds • Plastics, Polymers and additives • Pigments, fatty acids, natural products
20.	Warranty	Warranty for 1 year and CMC for 2 years