

FTIR SPECTROMETER (FIR, MIR & NIR)

SPECIFICATIONS

1. **Spectral range** of (Far IR, Mid IR & Near IR) $14,000\text{ cm}^{-1}$ - 50 cm^{-1} or better range with exchangeable MIR, NIR & FIR beam splitter

2. **Detectors:** DLaTGS/DTGS detector for MIR range,

DLaTGS/DTGS (or similar) for FIR range

InGaAs or similar type detector for NIR Range.

Detectors should be installed at a time. The detectors can be automated and selected through software

3. **Beam splitters:** KBr beam splitter for MIR range,

Solid substrate/ silicon / mylar beam splitter for FIR range

CaF₂ beam splitter for NIR Range.

The beam splitters should be moisture resistant.

4. **Optical Unit:** Mirror should be Gold or Aluminium coated. Sealed and desiccated optical unit with provisions for purging facilities. Optical system should also be compatible for all the accessories and detectors.

5. **Resolution** : 0.3 cm^{-1} or better

6. **S/N Ratio** : Equal or better than 45000:1 peak to peak

(4 cm^{-1} resolution, 1 min measurement time)

7. System should have automatic accessory recognition facility to identify, optimize the accessory once it is mounted in the sample compartment

8. System/Software should have facility to minimize the effect of water vapour and CO₂ on the sample spectra without the need for reference or calibration spectra Sealed and desiccated Interferometer with built-in provision to protect from moisture.

9. Spectrometer components like source, laser, detector, interferometer must be continuously monitored and the software must offer detailed information about the nature of any failure and suggest possible remedy.

10. ATR with Monolithic Diamond crystal for direct Powder, Liquids, Polymer, Films sample analysis without any sample preparations. For MIR and NIR range from 350 cm^{-1} to 10000 cm^{-1}

11. **Diffuse Reflectance Accessory** with temperature range upto 910 °C. Accessory should be capable of measuring catalyst samples with size as small as 3 mm total diameter (including powders). Accessory should have capability to operate in vacuum from 133 mPa to 10-6 Torr. Accessory should have options to take in external gases like CO/N₂/CO₂/He etc.

Instrument should operate in entire FTIR range and should come with IR transparent window.

12. System should be supplied with latest branded PC and Printer.

13. Oil free, imported Hydraulic press with Agar pestle and mortar.

14. Liquid cell holder and demountable cell with NaCl windows for viscous/Semi Solid samples, KBr die set, Assorted Rectangular Teflon Spacers, KBr Circular and rectangular Windows, Universal KBr pellet Holder, KBr (4 x 250g) should be supplied with instrument. Sealed cell with NaCl windows for Liquids. Additional 20 NaCl plates for recording transmission spectra.

15. High purity nitrogen cylinder (industrial grade) with double stage double meter gas regulator with stainless steel diaphragm and pressure gauge to be quoted.

16. **Manuals:** One set of manuals with all details of parts should be supplied

17. Available Input power: 220 V one phase/three Phase, 50 Hz

18. **LIBRARY SEARCH Software with 10,000 Spectra database**

Options for spectra search by single or multi region and feature for library generation & management.

- ATRFTIR Aldrich-ICHEM Package 30001 (For ResPro)
- ATRFTIR Aldrich-ICHEM Pkg VOL 1 30001-1 (For ResPro)
- ATRFTIR Aldrich-ICHEM Pkg VOL 2 30001-2 (For ResPro)
- Polymers + Polymer Additives (ATR) 30002 (For ResPro)
- Solvents (ATR) 30004 (For ResPro)
- Organometallics + Inorganics (ATR) 30005 (For ResPro)
- Forensic (ATR)30014 (For ResPro)
- Hazardous + Toxic Chemicals (ATR)30018 (For ResPro)
- Pharmaceuticals Drugs+Antibiotics (ATR) 30020 (For ResPro)