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FTIR-961 FTIR Spectrometer

FTIR-961 is a single beam FTIR spectrometer. This instrument is operated by a PC. It is a powerful tool to analyze the sample structure in many fields such as petroleum, chemical engineering and pharmaceutical.
Also known as a specialized analysis system for semiconductor coating materials, this instrument incorporates numerous improvements and innovations built upon the foundation of the original FTIR-761 model, resulting in significantly enhanced performance. It features high resolution, excellent expandability, stable performance, user-friendly operation, a long service life, and low maintenance costs; indeed, both its overall performance and key technical specifications have reached the advanced international standard for comparable products. Widely utilized across fields such as pharmaceuticals, chemicals, petroleum, environmental protection, food, materials science, public security, national defense, semiconductors, and optics, it serves as an indispensable analytical and testing tool for both laboratory research and industrial production.

High stable optical system

- The design integrates main components to an optical bench machined from a cast aluminum. Highly stable and no need for adjustment, re-moving troubles of maintenance of optical path.
- Precision machinery ensures high repeatability of every scanning. Advanced design concept is adopted in both optical path and every part
- The system's corner cube optics provides easy operation without requiring complicated electronics and additional moving parts. In addition, many components of the spectrometer are user replaceable which saves time over the lifetime of the instrument.

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- Internal dynamic collimation system and movable mirror driving system keep interferometer at optimum situation. Voice-coil driver and precision slide improves the ability of working in severe conditions.
- The spectrometer includes a container of desiccant that protects the beam splitter and other optical components from moisture damage.

Specifications

Wavenumber Range	7800 ~ 350 cm-1
Resolution	0.4 cm-1
Signal Noise Ratio	30000:1 (DTGS, resolution 4cm-1; sample and background scan for 1 min 2100cm-1)
Detector	High resolution DTGS detector
Beamsplitter	Coated KBr
Data Collection	He-Ne Laser; A/D Conversion: 24-bit. Compared to semiconductor-based data acquisition modes, the advantages of laser-based acquisition include: data stability, excellent repeatability, high accuracy, insensitivity to temperature fluctuations, and ease of maintenance.
Interferometer	A 30° incidence Michelson interferometer featuring an integrated auto-collimation mechanism and an airtight enclosure. It employs digital, continuous dynamic adjustment—operating at a rate of 130,000 adjustments per second—to ensure ultra-high stability for both instantaneous and long-term measurements.
Atlas Library	Provides 220,000 standard spectra of the most common inorganic substances, organic substances, and polymers.
Moisture-proof design	Featuring six major moisture-proof design elements—including a hermetically sealed interferometer—it delivers the best moisture-proof performance across the entire product series.
Application Scenarios	Techniques such as coupled thermogravimetry, coupled microscopic infrared spectroscopy, coupled in-situ diffuse reflectance spectroscopy, and coupled in-situ electrochemistry are supported, offering compatibility with over 90% of the infrared spectroscopy accessories currently available on the

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	market.
Light Source	Imported, long-life, high-energy ceramic light source; rated for temperatures exceeding 1600°C, with a service life of over 5000 hours.
Electronic System	A/D converter of 24 bits at 500MHz, USB 2.0
Power	110-220V AC, 50-60Hz
Wavenumber Range	7800 ~ 375 cm-1
Resolution	1 cm-1

Parts included

No.	Description	Qty
1	Spectrometer	1
2	Power Supply	1
3	Dust Cover	1
4	USB Cable	1
5	Power Cord	1
6	Screw Driver, 150x6mm	1
7	Allen Wrench, 2.5mm	1
8	Replacement Desiccant	1
9	Polystyrene Film	1
10	Software CD	1
11	User Manual	1 copy

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Optional accessories

Above are some of the usual accessories, there are more things to meet the further use.

Item	Accessories	Description	Mode
1	Solid Package	Press	DF-4B
		Sheet mold	HF-12
		Agate mortar	HW-3
		KBr	HF-2B
2	Attenuated total reflection accessory ATR	Pure diamond crystals are suitable for qualitative analysis of elastic polymers such as plastics and rubbers. The single ATR reflection accessory is suitable for testing samples such as solids, fibers, hard polymers, paint chips, films on glass or metal surfaces, and trace amounts of liquids, with a maximum wavelength range of 4000 to 30 waves	LA-106

For the pharmaceutical industry solutions

Compression method is a traditional method of infrared spectroscopy, only thinner, agate mortar, tablet press and tablet press can be sample preparation, is a simple and easy way.

A blank sheet made of potassium bromide or potassium chloride was used to record the spectra. The baseline should be about 75% transmittance. Except for 3440cm-1 and 1630cm-1, there was a certain absorption peak due to residual or attached water. The area should not exhibit an absorption band greater than 3% transmittance.

(1) solid powder compression method - operating procedures

① the amount of test products: about 1.0 ~ 1.5mg (drying);

② the amount of thinner: about 200 ~ 300mg (drying);

③ grinding process: full grinding (no obvious particles is appropriate);

④ Preparation of the sample: into the tablet mold, even paved, under normal pressure or vacuum production (excluding air and moisture), close the hydraulic valve, pressurized to 8

~ 10MPa, standing 10-15s, pressed into pieces;

⑤ for the test piece requirements: visual inspection should be uniform and transparent, no obvious particles.

(2) Note on the tablet method

① samples and diluent preparation before the need for drying (to prevent the impact of water);

② samples and potassium bromide to be grinding evenly (to prevent the scattering phenomenon);

③ compression molding after the need to slow decompression (to prevent the film cracks);

④ mold used after the first use of alcohol cotton wipe clean, and then clean, dry soft paper or soft cloth wipe clean (to prevent the mold rust);

⑤ For chlorine-containing samples, the use of potassium chloride tablet for comparison test; if the spectrum is completely consistent with the use of potassium bromide tablet, such as the spectrum is inconsistent, you must use potassium chloride tablet (to prevent ion exchange).

(3) Membrane method - liquid sample

Liquid samples such as various types of oil or ethanol qualitative analysis, just a small amount of stainless steel shovel to take a small amount of sample coated with potassium bromide window can be measured.

Conditions of Use

Ambient temperature: 16 ℃ ~ 25 ℃;

Humidity range: 20% to 50%;

Power supply: AC100V ~ 240V, 47Hz ~ 63Hz 1.2A, good grounding;