

WVTR-I3 Water Vapor Transmission Rate Tester (Infrared sensor)

WVTR-I3 Water Vapor Transmission Rate Tester is designed and manufactured based on the infrared sensor method, used to measure the water vapor transmission rate of barrier materials with high and medium moisture barrier properties with a wide testing range and high testing efficiency. WVTR-I3 Water Vapor Permeability Tester is applicable to determination of water vapor permeability of plastic films, laminated film, high barrier materials, back sheet, sheeting, paper, sheet metal, packages and other relative packaging materials in food, pharmaceutical, medical apparatus, consumer goods, photovoltaic and electronic industries, etc. It can also be extended to test the water vapor permeability test of bottles, bags, tubes and other containers.



Product Features

Advanced technology

- High-precision laser pulse modulated infrared sensor improves the test accuracy and stability
 - Precise flow controller and automatic gas flow control effectively ensure the stable operation of the test process
 - World first advanced water circulated temperature control system, realized temperature auto control and wider temperature range
 - Independent temperature control of upper/lower chamber and sensors, effectively ensured the accuracy of the test results
 - Self-developed pipeline gas system, effectively ensured system seal ability of gas pipelines.
 - Three chambers integrated on one instrument sharing same temperature and humidity ensure the consistency of the test conditions of different test chambers
 - Sample gripping adopts self-developed anti-side leakage technology, ensured testing accuracy
-

- Integrated with fully automatic double pressure humidity control method makes wide range of humidity control

High Level configuration

- 11.6" tablet with intelligent data processing function for a comfortable and smooth operating experience
- Multiple test modes of manual, ratio, and cycle are optional
- Manual, ratio, continuous mode for different testing requirement
- Independent testing for three chambers, no test process interference, test results are displayed independently
- Automatic power failure saving function to avoid test interruption
- Automatic record of the whole testing process, result judgement and results saving function
- Efficient testing, low nitrogen consumption and short test time
- System self-detection function to avoid continuing testing in the state of failure
- Real-time monitoring of gas flow, automatic alarm when gas running low
- Rapid access to the temperature and humidity calibration port, convenient to quick calibration

Professional software

- Simple and intuitive operation interface, convenient user-defined testing functions, and perfect data analysis and reporting functions
- Possess powerful functions such as window display, curve overlay analysis, test report customization, original data export, editable with Office software, etc.
- Full process data monitoring and recording, sampling rate adjustable and auto test repeating according to needs.
- The software equipped with data traceability, which can realize multi-level authority management, audit tracking, electronic signature and other functions, comply with GMP requirements (optional)
- Pubtester also provides professional customization services to meet users' personalized needs in fixtures and software
- Provide lifetime software free upgrade

Test Principle

The test specimen is mounted in the diffusion cell, which is divided into a dry chamber and a controlled-humidity chamber. The dry side of the specimen is swept by a flow of dry nitrogen, and the water vapor permeating through the specimen from the controlled-humidity chamber is carried by dry nitrogen to the infrared sensor where proportion electrical signals will be generated. The water vapor transmission rate is obtained by analyzing and calculating the electrical signals.

Applications

Basic Application	Film	Water vapor transmission rate of plastic films, paper-plastic composite films, coextruded films, aluminum foils, aluminum composite films, glass fiber aluminum foil composite films and many others.
	Sheet	Water vapor transmission rate of PP, PVC and PVDC sheets, metal foils, rubber pads, silicon wafers and other sheeting materials.
	Paper, paper board and composite materials.	Water vapor transmission rate of cigarette aluminized paper, paper aluminum-plastic composite sheet and other paper and cardboard
	Packages	Water vapor transmission rate of plastic, rubber, paper, paper-plastic composite, glass and metal packages, e.g. plastic bottles, pouches, coated paper cartons, vacuum bags, metal three-piece cans, plastic packages for cosmetics, soft tubes for tooth paste, jelly and yogurt cups.
Extended Application	Package closure	Water vapor transmission rate of all types of package closure
	LCD display	Water vapor transmission rate of LCD display and its relevant sheet.
	Solar Back-sheets	Water vapor transmission rate of solar Back-sheets and its relevant sheet.
	Pipe	Water vapor transmission rate of PPR and other types of pipes
	Blister Packs	Water vapor transmission rate of whole blister packs
	Aseptic protective film, medical plaster patch	Water vapor transmission rate of aseptic protective film, medical plaster patch
	Battery Plastic Shell	Water vapor transmission rate of battery plastic cell

Technical Specifications

Specifications	WVTR-I1	WVTR-I3
Test Range	Film: 0.001 ~ 40 g/m ² ·24h (Normal)	
	Container: 0.00001 ~ 0.25 g/pkg·24h (Optional)	
Resolution	0.001 g/m ² ·24h	
Specimen Area	50cm ²	
Specimen Thickness	≤3 mm (Accessories needed for other thickness)	
Test Mode	Single chamber	Three chambers independent
Test Temperature	5°C ~ 95°C	
Temperature Accuracy	±0.1°C	
Test Humidity	0% RH, 35%~95%RH ,100%RH (Auto-control)	
Humidity Accuracy	±1%RH	
Carrier Gas	99.999% High-purity Nitrogen (outside of supply scope)	
Carrier Gas Flow	0~200 mL/min (Auto-control)	
Gas Supply Pressure	≥0.2MPa	
Port Size	1/8" metal tube	
Dimensions	585 mm (L)×640 mm (W)×380mm (H)	
Power Supply	AC 220V 50Hz	
Net Weight	50Kg	

Standards

GB/T 26253, GB/T 21529, YBB 00092003, YBB 00092003, ASTM F1249, ISO 15106-2, TAPPI T557, JIS K7129ISO 15106-3, DIN 53122-2

Configuration

Standard configuration: Instrument, computer, professional software, sampler, precise pressure control valve, vacuum grease, communication cable, reference film

Optional configuration: Container testing accessories, temperature and humidity control device for container fixtures

Note: Gas supply and distilled water need to be prepared by customer.