

## WVTR-E3 Water Vapor Transmission Rate Tester (Electrolytic sensor)

WVTR-E3 Water Vapor Transmission Rate Tester is designed and manufactured based on the electrolytic 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-E3 is applicable to determination of water vapor permeability of plastic films, sheeting, paper, packages and other relative packaging materials in food, pharmaceutical, medical apparatus, consumer goods, photovoltaic and electronic industries, etc.



### Product Features

#### Advanced technology

- High precision micro vapor electrolytic sensor, which improves testing accuracy and stability
  - Precise flux controller and automatic gas flux control technology, ensured stable testing process effectively
  - World's first advanced water circulated temperature control system, realized temperature auto control and wider temperature range
  - Independent temperature control for upper/lower chamber and electrolytic sensor, which ensured accurate testing results
  - Self-developed pipeline gas system, ensured system seal ability of gas pipelines.
  - Integrated test structure, the three chambers are tested at the same temperature and humidity to ensure the consistency of the test conditions of different test chambers
  - Sample gripping integrated with 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-end Configuration**

- 11.6" touch-screen tablet with intelligent data processing function for comfort and smooth operation feeling.
- Manual, ratio, continuous mode for different testing requirement.
- Independent testing for three chambers, no test process interference, independent results.
- 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 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 verification port, convenient for users fast 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 can be equipped with optional data traceability, which can realize multi-level authority management, audit tracking, electronic signature and other functions, comply with GMP requirements.
- Pubtester also provides professional customization services to meet users' personalized needs in terms of 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 electrolytic sensor where proportion electrical signals will be generated. The water vapor transmission rate is obtained by analyzing and calculating the electrical signals.

---

**Applications**

<b>Basic Application</b>	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.
<b>Extended Application</b>	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-E3
Test Range	0.001 ~ 50 g/m <sup>2</sup> ·24h
	Container: 0.00001 ~ 0.25 g/pkg.24h (Optional)
Sensor Accuracy	0.001 g/m <sup>2</sup> ·24h
Permeable Area	50 cm <sup>2</sup>
Specimen Thickness	≤3 mm (Accessories needed for thicker specimen)
Number of Specimens	3
Temperature Control Range	5°C ~ 95°C
Temperature Accuracy	± 0.1°C
Humidity Control Range	0% RH, 35%~95%RH, 100%RH
Humidity Accuracy	±1%RH
Carrier Gas	99.999% High-purity Nitrogen (outside of supply scope)
Carrier Gas Flow	100 mL/min (auto control)
Carrier Gas pressure	≥0.2MPa
Port Size	1/8inch metal tubing
Dimensions	740mm (L)×415 mm (W)×430mm (H)
Power Supply	AC 220V 50Hz
Net Weight	50Kg

## Standards

ISO 15106-3, ASTM F3299, GB/T 21529, YBB 00092003-2015

## Configuration

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

---