

W203 Water Vapor Permeability Tester

The [W203 Water Vapor Permeability Tester](#) is manufactured based on the infrared sensor method and is applicable to test the water vapor transmission rate of medium and high barrier materials such as plastic films, composite films, sheets, papers and other various materials.



Product Features

- 13-inch touchscreen tablet running on the Windows 10 operating system.
- This instrument is designed and manufactured according to the infrared sensor method and meets the requirements of ISO 15106-2 and ASTM F1249.
- High precision sensors ensure high accuracy and repeatability of the WVTR measurement system.
- Three diffusion cells are integrated into a single instrument and share the same temperature and humidity, ensuring consistent test conditions across all test cells.
- Three distinct or equivalent specimens can be tested individually, providing independent results in a single operation.
- Equipped with a dual-flow dry-wet humidity control system, it can achieve three-stage humidity control ranges: 0% RH, 35% to 90% RH, and 100% RH, with an accuracy of up to $\pm 1\%$ RH.
- The high-precision temperature control system can precisely regulate temperature within the range of 10°C to 60°C, with an accuracy of up to $\pm 0.1\%$ C.
- A reference film for fast calibration ensures accurate and universal test data (optional).
- The instrument is equipped with SAICHENG's latest operating software, featuring a user-friendly interface, intelligent data processing, strict user management, secure data storage, electronic signature, etc.

Principle

The test specimen is mounted in the diffusion cell, which is divided into a dry chamber and a controlled humidity chamber. A flow of dry nitrogen sweeps the dry side of the specimen, while the dry nitrogen carries the water vapor permeating through the specimen from the controlled humidity chamber to an infrared sensor. This sensor generates proportional electrical signals based on the water vapor concentration. The water vapor transmission rate is determined by analyzing and calculating these electrical signals. For package samples, dry nitrogen flows inside the package, while humidified nitrogen flows outside.

Standards

This test instrument conforms to many national and international standards:

ASTM F1249, ISO 15106-2, GB/T 26253, JIS K7129, YBB00092003-2015

Applications

This instrument is applicable to the determination of water vapor transmission rate of:

Basic Applications	Films	Including plastic films, plastic composite films, paper-plastic composite films, geomembranes coextruded films, aluminized films, aluminum foils, aluminum foil composite films, and many others
	Sheeting	Including PP sheet, PVC sheet, PVDC sheet, metal foil, rubber sheet, silicon sheet and other sheet materials.
Extended Applications	Packages	Including 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.

Technical Specifications

Items	Specifications
Test Range	Film test: 0.01 ~ 50 g/m ² ·24h (Standard) Container test: 0.00005 ~ 0.25 g/(pkg·24h) (Optional)
Resolution	0.0001 g/m ² ·24h
Number of Specimen	1 ~ 3 (Independent testing results)
Temperature Range	10°C ~ 60°C (Standard)
Temperature Accuracy	±0.1°C
Humidity Range	0%RH, 35%RH ~ 90%RH, 100%RH
Humidity Accuracy	±1%RH
Test Area	50 cm ²
Sample Thickness	≤ 3 mm (Customization is available)
Carrier Gas	99.999% High-purity Nitrogen (outside of supply scope)
Carrier Gas Pressure	≥0.20 MPa
Port Size	1/8-inch Metal Tubing
Instrument Dimension	600 mm (L) x 700 mm (W) x 450 mm (H)
Power Supply	120VAC 60Hz / 220VAC 50Hz (can be changed to local requirement)

Net Weight	60 kg
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Configurations

Standard: Instrument, Tablet, Humidity Control Device, Professional Software, Communication Cable, Sample Cutter, Gloves, Gas Inlet Pipe, Connector, Pressure Reducing Valve

Optional: Reference Film

Note: 1. The gas supply port of the instrument is 1/8-inch metal tubing;
2. Customers will need to prepare for gas supply and distilled water.

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