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Analysis & Testing Instruments

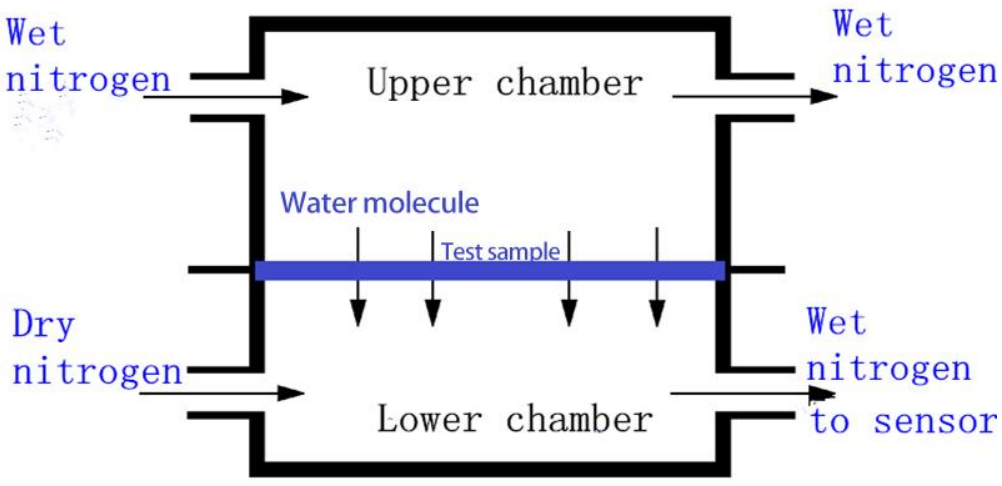
Infrared Method Water Vapor Permeability Analyzer AUTO W46/1

Product introduction

AUTO W46/1 Infrared Method Water Vapor Transmission Rate Tester is based on the testing principle of the infrared method, designed with reference to GB/T 26253, ASTM F1249 and other standards, and tests the water vapor transmission rate of samples under set temperature and humidity conditions (quantity), suitable for water vapor transmission rate performance testing of films, sheets, paper, packages and various materials in the fields of food, medicine, medical equipment, daily chemicals, photovoltaic electronics, etc. It is an ideal configuration instrument for off-line or on-line testing of the barrier properties of packaging materials for production units in the packaging industry.

Test principle

AUTO W46/1 water vapor transmission rate tester adopts the principle of infrared method. Fix the pre-treated sample in the middle of the test chamber, divide the test chamber into a high-humidity side and a low-humidity side, the humidified nitrogen flows on one side of the film, and the dry nitrogen (carrier gas) flows at a fixed flow rate on the other side, in the presence of a humidity gradient, water vapor will permeate from the high-humidity side to the low-humidity side, and the water vapor that passes through the sample is carried to the infrared sensor by the flowing dry nitrogen, and the water vapor transmission rate (and other parameters) of the sample is obtained by the electrical signal output by the sensor.



Schematic diagram of infrared method

Standards

ASTM F1249, GB/T 26253, YBB 00092003, BS EN ISO 15106-2, JIS K7129

Technical parameters

Item	Technical parameters
Test range	0.002~200 g/(m^2·24h)（film and sheet）
Test precision	0.0001 g/(m^2·24h)（film and sheet）
Temperature range	15~45℃（15~60℃ optional）
Temperature accuracy	±0.1℃
Humidity range	(5～90）%RH，100%RH
Humidity accuracy	±2%RH
Test area	50.24 cm^2
Sample size	Φ110 mm
Sample thickness	≤3 mm
Number of test sample	6 Pieces
Carrier gas	99.999% N_2（user provide）
Carrier gas pressure	≥0.1 MPa
Carrier gas flow	5~100 mL/min
Pneumatic pressure	⩾0.3 MPa
Gas supply port	1/8 inch metal pipe
Instrument size	460 mm×592 mm×628 mm
Power	1150 W
Power supply	AC 220 V，50 Hz (110V as requested)

Features

◆ Unique cavity design, innovative and convenient to upgrade

The newly upgraded vertical drawer cavity design can be opened and closed with one button, which is convenient for upgrading.

The fully automatic pneumatic clamp clamps the sample, which is convenient and labor-saving, and has excellent sealing performance.

◆ High-precision patented infrared moisture sensor

The high-precision infrared moisture sensor developed and prepared by the top technical team at home and abroad has ultra-high stability and ultra-low failure rate, long service life, high sensitivity, and a resolution of up to 0.0001 g/(m2·24h).

◆ Precise control of temperature and humidity

Temperature control: bidirectional automatic temperature control of the semiconductor refrigeration chip, the temperature control accuracy reaches 0.1 ℃.

Humidity control: dual air flow (dry gas and wet gas) humidity control method, stable humidity, high precision, accurate humidity to ±2%RH.

◆ Meet the test requirements of high throughput and wide range

The instrument is equipped with 6 chambers with independent data, which can meet the needs of high-throughput testing and has high testing efficiency.

The measuring range is 0.002~200 g/(m2·24h), and the measuring range is wide, meeting the testing requirements of high, medium and low barrier materials.

◆ Excellent appearance, convenient operation, real-time visualization curve

The main unit is equipped with an 11.6-inch high-resolution color touch screen with clear view, sensitive touch and easy operation.

The instrument is fully automatic operation, one-button test, automatic judgment, automatic shutdown.

Real-time display of five sets of curves: permeation-time, temperature-time, humidity-time, flow-time, voltage-time, curves support preview and hide function.

◆ Intelligent operating system, global certificated

Intelligent operating system, modular diagram, flexible setting of test process parameters, intuitive and convenient operation.

Designed according to the GMP appendix "Computerized System", it has an audit trail function and multi-level authority settings for users, which can meet the needs of the pharmaceutical industry for data traceability.

Personalized test reports can be set on demand, data output forms in multiple formats are supported, electronic signatures, and online submission of audit reports are supported.

◆ **Professional calibration service, accurate and reliable data**

Our company has been approved and issued by the "General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China": Water Vapor Transmission Rate "National Standard Substance Grading Certificate" and "License for Manufacturing Measuring Instruments of the People's Republic of China", the standard number (GBW (E)130543 / GBW(E)130544). The self-developed national standard material is used to calibrate and verify the instrument to ensure the accuracy, versatility and authority of the test data.

◆ **Lab intelligent IoT platform**

The instrument can be connected to the IoT platform to realize network digital management.

Remote authorization to log in to the IoT platform can realize these functions such as managing experimental data, remote diagnosis and troubleshooting etc.

Customers can download the required instrument information, documents, and operation videos on the platform by themselves.

Application field

	Films	Water vapor transmittance test of various plastic films (PP / PET / PE / PVC / BOPP / CPP, etc.), plastic composite films, paper plastic composite films, metal composite films, co-extrusion films, aluminum films, degradable

		packaging films (PLA / PBAT / PBS, etc.)
	Sheet	Water vapor transmission rate test of solid pharmaceutical hard sheet (PP/PVC/PTP, etc.), metal composite sheet, rubber sheet and other sheet materials
	Paper, cardboard and their composites	Water vapor transmission rate test of paper and cardboard such as coated paper, silicone paper, aluminum paper for cigarette packs, paper-aluminum-plastic composite sheet, etc.
	Medicinal patch	Water vapor transmission performance test of medical plasters
	Package	Customized fixtures can be extended to packaging parts, such as the water vapor transmission rate of medical polyethylene bottles, sealed bags, medical ointment tubes, infusion hoses, plastic trays, etc.

Configuration List

The standard configuration	Power cord, communication line, sample cutter, sealing grease, ferrule connector, standard film, hexagon socket wrench, syringe, sealing ring, syringe sealing ring, fork wrench, cross screwdriver, mouse, metal trachea
Purchase	Computer, measurement certificate, air compressor
Note	1.Standard laboratory environment; 2.Power requirements: 220V regulated power supply, one three-hole three-position switch socket; 3.Computer requirements: standard configuration (Windows10, with a nine-pin serial port); 4.Other accessories: a bottle of 40 liters of nitrogen (purity 99.999% or more) for calibration, other gases are customized;

	5.Drying dish (all samples need to be dehydrated and degassed for 24 hours); 6.Distilled or purified water; 7.Air compressor

Note: GBPI is always committed to product innovation and improved performance, so accordingly product technical specifications are subject to change without notice. GBPI reserves the right to amend and the final power of interpretation.