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Analysis & Testing Instruments

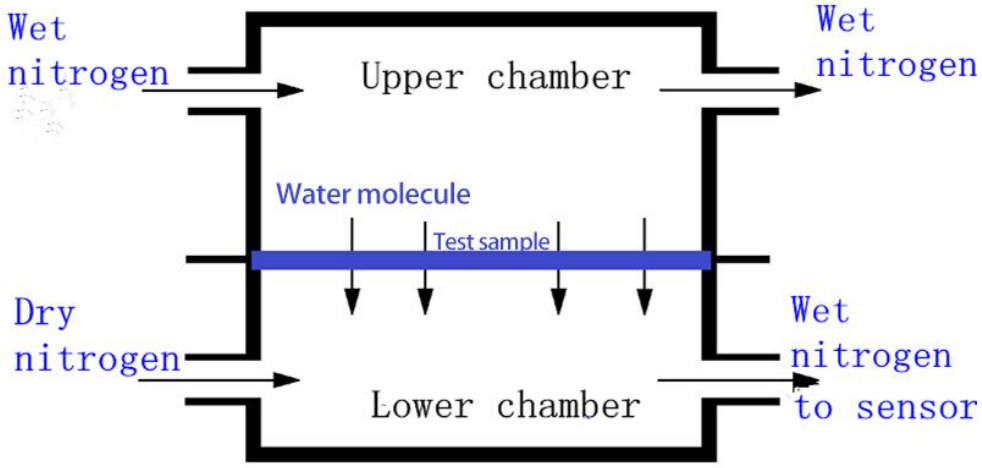
W401 2.0 Infrared Method Water Vapor Transmission Rate Tester

Introduction

AUTO W401 2.0 water vapor transmission rate tester is designed and manufactured according to GB/T 26253 and ASTM F1249 standards, based on the testing principle of infrared method, it provides wide range and high efficiency water vapor transmission rate test for high, medium and low barrier materials is suitable for water vapor transmission performance testing of films, sheets, paper, packaging and other related materials in the fields of food, medicine, medical equipment, daily chemistry, 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 W401 2.0 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.



Working principle diagram

Standard

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

Specification

Item	Technical parameters
Test range	0.002~100 g/(m^2·24h)
Test precision	0.0001 g/(m^2·24h)
Temperature	15～45℃
Temperature accuracy	±0.1℃
Humidity range	(5～90）%RH，100%RH
Humidity	±1%RH
Test area	50.24 cm^2
Sample size	Φ100 mm
Sample thickness	≤3 mm
Number of sample	1 Piece
Carrier gas	99.999% N_2（user provide）
Carrier pressure	≥0.1 MPa
Carrier gas flow	5~100 mL/min
Pneumatic pressure	≥0.3 MPa
Power	450 W
Power supply	AC 220 V, 50 Hz

Features

◆ **Patented core technology, efficient and accurate testing**

High-precision original imported infrared sensor, high sensitivity, with ultra-high stability and ultra-low failure rate, resolution of 0.0001 g/(m^2·24h).

New pneumatic control system, automatic fixture one-button lock sample, convenient and labor-saving, superior sealing performance.

◆ **Precise control of temperature and humidity**

Temperature control:The semiconductor stabilizer automatically controls the temperature, and the temperature control accuracy is 0.1 ℃.

Humidity control: dual airflow (dry and wet) humidity control, stable humidity, high precision, and humidity accurate to ±1%RH.

◆ **Meet the needs of high-throughput, wide range and high-applicability testing**

Equipped with a single chamber, which is small and flexible, and the test efficiency is high.

Measuring range of 0.002 g/(m^2·24h), wide range, to meet the test needs of high, medium and low barrier materials, plus suitable accessories, can measure the water vapor transmission of bottles, bags, bowls and other containers.

◆ **Excellent shape, convenient control, real-time visualization of curves**

The host is embedded with a 11.6-inch high-resolution color LCD screen, which has a clear view, sensitive control and easy to operate.

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

Real-time display of transmission - time, temperature - time, humidity - time, flow - time, voltage - time five sets of curves, curves support preview hidden function.

◆ **Intelligent operating system, global certification**

We develop intelligent operating system by ourselves, with modular graphics, flexible setting of test process parameters, intuitive and convenient operation.

Designed according to the GMP appendix "Computerized System", it has the function of

auditing and tracking, and multi-level permission settings for users can meet the requirements of the pharmaceutical industry for data traceability.

Personalized test reports are set on demand, support a variety of formats of data output, support electronic signature function, online submission of audit report function.

◆ **Offline or in-line detection**

The instrument comes with its own operating system, which can be tested independently from the computer, and the data is automatically processed. The instrument is equipped with a computer interface, and can also be connected to a computer for online testing.

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

Our company has 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 Material Classification Certificate" and "People's Republic of China Manufacturing Measuring Instrument License", the standard number (GBW (E)130543 / GBW(E)130544). The instrument is calibrated and verified by the national standard material independently developed to ensure the accuracy, versatility and authority of the test data.

◆ **Laboratory intelligent IoT platform**

The instrument can be connected to the IoT platform to achieve digital network 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 materials, documents, and operation videos on the platform.

Application

	Film	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, coextruded films,

		aluminized films, degradable packaging films (PLA/PBAT/PBS, etc.) and other film-like materials.
	Sheet	Water vapor transmittance test of solid pharmaceutical hard sheets (PP/PVC/PTP, etc.), metal composite sheets, rubber sheets and other flakes.
	Paper, cardboard and its composites	Water vapor transmittance test of coated paper, silicone paper, cigarette bag aluminized paper, paper aluminum-plastic composite sheet and other paper and cardboard.
	Medicinal patches	Water vapor transmission performance test of medical plasters
	Package	Customizable fixtures can be extended to packages such as pharmaceutical polyethylene bottles, sealed bags, pharmaceutical ointment tubes, infusion hoses, plastic trays, etc.

Factory configuration

Standard configuration	Power cord, communication line, sample cutter, sealing grease, ferrule connector, standard membrane, hexagon socket wrench, syringe, sealing ring, syringe sealing ring, fork wrench, cross screwdriver, mouse, metal trachea.
Optional	Computer, calibration certificate, air compressor
Remark	1. Standard laboratory environment; 2. Power requirements: 220 V regulated power supply, one socket with three holes and three switches;

	3. Computer requirements: standard configuration (Windows 10, 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 water or purified water; 7. Air compressor.

Note: Guangzhou Biaoji has always been committed to the innovation and improvement of product performance and function. For this reason, product technical specifications and appearance will also be changed accordingly. The above situation will not be notified. The company reserves the right of modification and final interpretation.