

PERME[®] TSY-W3 Electrolytic Detection Method Water Vapor Permeability Tester

This instrument is professionally applicable to the determination of water vapor transmission rate of plastic films, composite films, high barrier materials, back-sheets, sheeting, aluminum foils, waterproof materials, and other materials used in sanitary and medical industry. By testing the water vapor transmission rate, the technical indexes of materials could be controlled to meet the requirements for production.



Professional Technology

- The system is controlled by micro-computer with LCD, menu interface and PVC operation panel, which could conveniently export test data, test results and test curves
- Wide range and high-precision of automatic temperature control to support combinations of non-standard test conditions
- The system could be extended for the water vapor transmission rate test of finished package containers by special customization
- Reference film for fast calibration to ensure the accurate and universal test data
- Equipped with micro-printer and RS232 port for convenient data transfer
- Supports Lystem[™] Lab Data Sharing System for uniform management of test results and test reports

Test Principle

Under a certain test temperature, a constant humidity difference is generated between two sides of the test specimen. The water vapor permeates through the specimen into the dry side and then is taken to the sensor, where proportional electric signals will be generated. The water vapor transmission rate and other parameters can be obtained by analyzing and calculating these electrical signals.

This test instrument conforms to the following standards:
ISO 15106-3, GB/T 21529, DIN 53122-2, YBB 00092003

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, coextruded films, aluminized films, aluminum foils, aluminum foil composite films and many others
	Sheeting	Including engineering plastics, rubber and building materials, e.g. PP, PVC and PVDC
	Paper and Paper Board	Including paper and paper board, e.g. aluminum foil paper for cigarette packages and Tetra Pak materials

Extended Applications	Packages	Including plastics, rubber, paper, paper-plastic composite, glass, and metal packages, e.g. Coke bottles, Tetra Pak materials, vacuum bags, metal three-piece cans, soft tube packages for cosmetic and toothpaste, and jelly cups
	Solar Back-sheets	Including solar back-sheets
	LCD Monitor Films	Including LCD monitor films
	Paint films	Test water vapor permeability of various sorts of paint films
	Medical Products and Accessories	Including plasters, aseptic wound protecting films, face masks and scar sticks
	Cosmetics	Test water vapor permeability of cosmetics
	Biodegradable Films	Test water vapor permeability of various sorts of biodegradable films, e.g. starch-based packaging films
	Package Caps	Test seal performance of different package caps
	Plastic Packages for Drugs and Health Care Products	Test water vapor transmission rate of plastic bottles for drug and health care products, e.g. eye drop bottles, infusion bags and health care product packages
	Blister Packs	Test water vapor transmission rate of the whole blister packs

Technical Specifications

Specifications	Film Test
Test Range	0.001 ~ 50 g/m ² ·24h (standard) 0.01 ~ 1000 g/m ² ·24h (optional)
Number of Specimens	1
Resolution	0.1 ppm
Temperature Range	5°C ~ 95°C
Temperature Accuracy	±0.1°C
Humidity Range	0%RH, 2%RH~98.5%RH, 100%RH (standard is 90%RH)
Accuracy	±1%RH
Test Area	38.48 cm ²
Thickness	< 1 mm (accessories required for thicker specimens)
Specimen Size	Φ100 mm
Carrier Gas	99.999% High Purity Nitrogen (outside of supply scope)
Gas Flow	100 mL/min
Gas Supply Pressure	≥ 0.12 MPa
Port Size	1/8 inch copper tubing
Instrument Dimension	500 mm (L) x 400 mm (W) x 360 mm (H)
Power Supply	AC 220V 50Hz
Net Weight	36 kg

Configurations

Standard Configurations	Mainframe, Micro-printer, Constant Temperature Control Device, Precision Pressure Regulator for Nitrogen Cylinder, Porous Ceramic Tray, Desiccant, Round Sample Cutter
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	and Vacuum Grease
Optional Parts	Professional Software and Communication Cable
Note	1. The gas supply port of the instrument is 1/8 inch copper tubing; 2. Customers will need to prepare for gas supply, distilled water and salt reagent.

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