

PERME[®] W3/0120 Water Vapor Transmission Rate Tester

W3/0120 Water Vapor Transmission Rate Tester is based on the cup method, and is professionally applicable to the water vapor transmission rate test of plastic films, composite films, sheets and other materials used in medical and other industry. By testing the water vapor transmission rate, the technical index of the materials could be controlled to meet the requirements for production.



Professional Technology

- Standard periodically weighing method and automatic reset before weighing ensures accurate weighing data
- 12 distinct or equivalent specimens can be tested individually with independent test results at one operation
- Standard air velocity enables constant humidity difference between two sides of test dishes
- Wide range and high-precision of automatic temperature and humidity control to support various combinations of non-standard test conditions
- Equipped with fast access testing ports for temperature and humidity which is convenient to the user
- System is controlled by computer with automatic test process
- Universal RS232 communication port is convenient to the data export and transmission
- Reference film or standard weight for fast and accurate calibration
- Supports Lystem[™] Lab Data Sharing System for uniform and systematic data management

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 and into the dry side. By measuring the weight changes of the test dish in different time, water vapor transmission rate and other parameters can be obtained.

This test instrument conforms to the following standards:

ISO 2528, ASTM E96, ASTM D1653, TAPPI T464, DIN 53122-1, JIS Z0208, YBB 00092003, GB/T 16928, GB 1037

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 composite films, breathable water-proof films and many other film materials
	Sheeting	Including engineering plastics, rubber, building materials and many others, 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	Textiles and Nonwovens	Including textiles and non-woven materials, e.g. waterproof breathable fabric, non-woven fabric for diapers and hygienic products
	Inverted Cup Method	Mount film or sheeting in test dish, cover upper surface of specimen with distilled water, and make the lower side in certain humidity. Generate a constant humidity difference between two sides; water vapor permeates through specimen and measure weight changes in different time to obtain the water vapor transmission rate. NOTE: inverted cups are required
	Artificial Skin	Artificial skin has to meet standard requirements for water vapor transmission rate to ensure better breath performance. This instrument can be used to test water vapor permeability of artificial skin
	Medical Products and Accessories	Including plasters, aseptic wound protecting films, face masks and scar sticks
	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
	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

Technical Specifications

Specifications	Film Test
Test Range	0.1 ~ 10,000 g/m ² ·24h (standard)
Number of Specimen	1 ~ 12 with independent test results
Test Accuracy	0.01 g/m ² ·24h
Resolution	0.0001 g
Temperature Range	15 °C ~ 65 °C (Standard)
Temperature Accuracy	±0.1 °C (Standard)
Humidity Range	40%RH ~ 95%RH (standard is 90%RH)
Humidity Accuracy	±1%RH
Air Velocity	0.5 ~ 2.5 m/s (Customization available)
Test Area	33 cm ²
Specimen Thickness	≤ 3 mm (customization is available for other thickness)
Specimen Size	Φ74mm
Volume of Test Chamber	80 L
Gas Supply	Air
Gas Supply Pressure	0.6 MPa
Port Size	Φ6 mm PU Tubing
Instrument Dimension	826 mm (L) x 726 mm (W) x 702 mm (H)
Power Supply	220VAC 50Hz / 120VAC 60Hz
Net Weight	114 kg

Configurations

Standard Configurations	Instrument, Professional Software, Test Dishes, Desiccant Tube, Automatic Moisture Filter, Standard Weight, Round Sample Cutter and Communication Cable
Optional Parts	Reference Film, Air compressor and Desiccant
Note	Customers will need to prepare for gas supply and distilled water.

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