

i-Gastra 7100 Gas Permeability Tester

- ❖ Online Data Management System for Packaging Testing-The ultimate cloud computing technology for test data processing and management
- ❖ Designed with embedded computer control system and intelligent operating software
- ❖ Can be used for plastic films, composite films, sheets, metal foils and other high-barrier materials
- ❖ Conforms to ASTM, ISO, JIS, and other international standards



Online data management system for packaging testing

Comes with two versions to meet distinct needs of our clients:

The Cloud Version

- Consist of 6 functional modules: Test Management, Target Management, Instrument Management, File Management, Settings, and Online Support
- Cloud services: storage, calculation, and analysis of mass test data
- Automatically upload original test data to the cloud server to guarantee data security
- Intelligent statistical analysis of test results
- Easily accessible through the internet on PCs, laptops, mobile phones, and other devices anywhere and anytime, to check and review real time test results and historical test reports, as well as analytical graphs and statistical information

The Intranet Version

- Featured with storage space for vast data, correlation analysis, trend analysis, and statistical analysis of test data, as well as report printing and data export functions
- Easily accessible via computers through Intranets
- “One Click Upgrade” to the powerful “Cloud Version”

Functionality

- Diffusion coefficient, solubility coefficient and permeability coefficient measurement
- Three independent test cells for testing three pieces of identical or distinct specimens in each test
- Broad humidity control range and automatic temperature control to support various non-standard test conditions
- Proportional and standard modes are available in this instrument
- Test range could be extended to meet the requirements for testing materials with high permeability rate or high-barrier materials
- Data curve fitting function for any temperature makes it possible to obtain test results at extreme conditions
- Can be extended to cover the tests of poisonous or explosive gases (customization required)
- Reference film for fast and accurate calibration

Design

- Patented integrated design of three test cells improves the test efficiency and reduces the space occupancy of the instrument.
- Embedded computer control system provides safer and more reliable data management as well as test operation.
- The instrument can be easily operated with a mouse, a keyboard, and a monitor, without requiring a PC.
- The instrument is equipped with four USB ports and dual Internet ports for convenient data transmission.
- Sophisticated energy consumption and test environment monitoring and analysis functions for better test accuracy and reliability. (Relevant sensors are needed. For more information, please refer to the configuration in Technical Specifications.)

Software

- **Interface:** Windows-based operating interface
- **Statistics:** easy calculation for historical results, instrument usage, energy consumption, and large statistical information
- **Data Comparison:** by presetting target value and range, the system automatically generates data comparison after each test and intelligently judges whether the specimen passes or fails the test
- **Test Report:** can provide detailed test reports in various customized patterns
- **Energy Consumption and Test Status Monitoring (Additional Sensors Required):** the system monitors and displays real-time voltage, current, energy consumption of instrument as well as ambient temperature and relative humidity during the test, which serves to evaluate test data reliability
- **User Management:** multi-level account management for better data management and protection
- **Operation Log:** system automatically records all the operations by the user, which is easy to review

Test Principle

- ❖ Put the pre-conditioned specimen between the upper chamber and lower chamber, clamp it tightly. First

evacuate the low-pressure chamber (lower chamber), and then the whole system. When the specified degree of vacuum is achieved, shut off the lower test chamber and feed test gas to the upper test chamber (high pressure chamber) until certain pressure is reached. Ensure that a constant differential pressure (adjustable) is maintained across the specimen. Hence under the gradient of differential pressure the test gas permeates from the high-pressure side to the low-pressure side. By monitoring and measuring the pressure in the low-pressure side, a variety of barrier parameters of the tested specimen can be obtained.

- ❖ This instrument conforms to the following standards:
ASTM D1434, ISO 2556, ISO 15105-1, JIS K7126-1, GB/T 1038-2000, YBB 00082003

Applications

This instrument is designed to determine gas permeability 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
	Various Gases	Test the permeability of various types of gases, e.g. O ₂ , CO ₂ , N ₂ , Air and He
Extended Applications (Additional Accessories Required)	Inflammable, Explosive Gases	Test the permeability of inflammable and explosive gases (Note: 1.all inflammable, explosive and poisonous gases cannot react with relative pipe devices. 2.air inlet/outlet tube and outer hood are required)
	Biodegradable Films	Test gas permeability of various sorts of biodegradable films, e.g. starch-based biodegradable bags
	Materials for Aerospace Usage	This instrument can test the Helium permeability of airship gas bags
	Paper and Paper Board	Test gas permeability of paper and paper-plastic composite materials, e.g. aluminized paper, Tetra Pak sheeting, paper bowls for instant noodles and disposable paper cups
	Paint Films	Test gas permeability of substrates coated paint films
	Glass Fiber Cloth and Paper	Including glass fiber cloth and paper materials, e.g. Teflon paint cloth, Teflon welding cloth, and Teflon Silicon Rubber Cloth
	Soft Tube Materials for Cosmetics	Including various types of cosmetic tubes, aluminum-plastic tubes, and toothpaste tubes
	Rubber Sheeting	Including various sorts of rubber sheeting, e.g. car tires

Technical Specifications

Test Specs	Test Range	0.05~ 50,000 cm ³ / m ² •24h•0.1MPa (Standard)
		Upper limit no less than 500,000 cm ³ / m ² •24h•0.1MPa (Extended)
Note: standard or extended volume is selected by filler block		

	Vacuum Degree	< 20 Pa
	Vacuum Accuracy	0.1 Pa
	Test Temperature	5°C~ 95°C
	Accuracy	±0.1°C
	Test Humidity	0% RH, 2% RH~ 98.5% RH, 100% RH (Optional)
	Accuracy	±1% RH
	Test Area	38.48 cm ²
	Specimen Size	Φ97 mm
	Number of Specimens	3 pieces (with independent test results)
	Test Pressure	-0.1 MPa~ +0.1 MPa (standard)
	Test Gas	O ₂ , N ₂ , CO ₂ , He, Air (outside of supply scope)
Environment Monitoring Specs (Optional)	Voltage Monitoring Range	AC 0 ~ 250 V, with ±0.5% accuracy
	Current Monitoring Range	0~ 15 A, with ±0.5% accuracy
	Energy Analysis Accuracy	±0.5%
	Environmental Temperature Monitoring Range	-10°C ~ 55°C, with ±0.1°C accuracy
	Environmental Humidity Monitoring Range	0~ 100% RH, with ±2% RH accuracy
Other Specs	Port Size	Φ6 mm PU Tubing
	Gas Supply Pressure	0.4 MPa~ 0.6 MPa
	Power Supply	AC 110 V 60 Hz
	Instrument Dimension	760 mm (L) x 575 mm (W) x 450 mm (H)
	Net Weight	88 kg
Configurations	Standard	Mainframe (including Wireless Data Interface), Professional Software, LCD Monitor, Keyboard, Mouse, Temperature Controller, Filter Paper, Vacuum Pump, Vacuum Grease, Special Sampler
	Optional	Environment Monitoring Sensors (including voltage and current sensors), Vacuum Grease, Blades for Sample Cutter, Vacuum Pump Oil, Filter Paper, Humidity Generator, Printer (compatible with PCL3)
	Online Data Management System for Packaging Testing	Wireless Data Transfer Module, High Gain Antenna

Note: 1. The gas supply port of the instrument is Φ6 mm PU Tubing;
 2. Customers will need to provide gas supply;
 3. The given temperature and humidity control ranges are independently valid.

Please Note:

- ❖ Pictures used are for illustration purposes only and may differ from the actual product received.
- ❖ Labthink International is always dedicated to the innovation and improvement of product performance and function. Therefore, technical specifications are subject to change without further notice. Please visit our

website at www.labthink.com for the latest updates. Labthink International reserves the rights of final interpretation and revision.