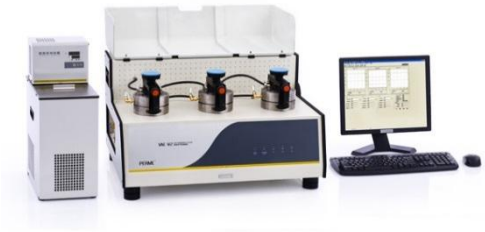
VAC-V2 is based on the differential pressure method, and is professionally applicable to the determination of gas transmission rate as well as solubility coefficient, diffusion coefficient and permeability coefficient of plastic films, composite films, high barrier materials, sheeting, and aluminum foils.



Professional Technology

- Gas transmission rate, solubility coefficient, diffusion coefficient and permeability coefficient of the specimen could be obtained at one operation
- 3 distinct or equivalent specimens could be tested individually with independent test results at one operation
- Wide range and high precision temperature and humidity control to meet various test conditions
- The instrument comes with two test modes: proportional mode and standard mode
- Test range could be extended based on user requirements to test the materials with high permeability
- Test results could be easily obtained even at extreme conditions by data fitting function, which could fit any temperature
- The instrument could be used to test poisonous, inflammable, and explosive gases (customization required)
- The instrument is controlled by a computer and test process is automatic
- Reference film for fast calibration to ensure accurate and universal test data
- Standard RS232 port for convenient data transfer
- Support Lystem™ Lab Data Sharing System for uniform management of test results and test reports

Test Principle

The pre-conditioned specimen is mounted in the gas diffusion cell as to form a sealed barrier between two chambers. The lower-pressure chamber is firstly evacuated, followed by the evacuation of the entire cell. A flow of gas is thereafter introduced into the evacuated higher-pressure chamber and a constant pressure difference is generated between two chambers. The gas permeates through the specimen from the higher pressure side into the lower side. The gas permeability and other barrier properties of the specimen can be obtained by monitoring the pressure changes in the lower chamber.

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

Applications

This test instrument is applicable to the determination of gas permeability of:

Basic Applications	Films	Including plastic films, plastic composite films, paper-plastic composite films, geomembranes, coextruded films, aluminized films,

		aluminum foil, aluminum foil composite films, and many others
	Sheeting	Including engineering plastics, rubber, and building materials, e.g. PP, PVC, and PVDC
Extended Applications	Various Gases	Test the permeability of various types of gases, e.g. O_2, CO_2, N_2, Air and Helium
	Inflammable, Explosive Gases	Test the permeability of various films to inflammable, explosive gases
	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 bag
	Paper and Paper Board	Test gas permeability of paper and paper-plastic composite materials, e.g. aluminized paper, Tetra Pak sheeting, paper bowl for instant noodles and disposable paper cup
	Paint Films	Test gas permeability of substrates coated with 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

Specifications	**Film**
Test Range	0.05 ~ 50,000 cm^3/m^2·24h·0.1MPa (standard volume)
	At least 500,000 cm^3/m^2·24h·0.1MPa (extended volume)
Number of Specimens	3 (with independent test results)
Vacuum Resolution	0.1 Pa
Vacuum Degree of Test Chamber	<20 Pa
Temperature	5°C ~ 95°C
Accuracy	±0.1°C
Humidity	0%RH, 5%RH～95%RH (Automatic humidification function under 10°C ~40°C can be customized)
Accuracy	±1%RH
Specimen Size	Φ97 mm
Test Area	38.48 cm^2
Test Gas	O_2, N_2, and CO_2 (not in supply scope)
Test Pressure	10kpa~200kpa (standard)
Gas Supply Pressure	0.4 MPa ~ 0.6 MPa

Port Size	Φ6 mm PU Tubing
Instrument Size	760 mm(L) x 575 mm(W) x 450 mm(H)
Power	AC 220V 50Hz
Net Weight	88 kg

Configurations

Standard Configurations	Instrument, Constant Temperature Control Device, Professional Software, Round Sample Cutter, Vacuum Grease, Fast Quantitative Filter Paper and Vacuum Pump (Imported)
Optional Parts	Blades for Sample Cutter, Vacuum Grease, Vacuum Pump Oil, Fast Quantitative Filter Paper
Note	1. The gas supply port of the instrument is Φ6 mm PU Tubing; 2. Customers will need to prepare for gas supply.