OX2/231 Oxygen Permeability Tester is based on the equal pressure method, and is professional applicable to the determination of oxygen transmission rate of film and package products, including plastic films, composite films, sheeting, plastic bottles, plastic bags and other packages.

Professional Technology

- Tests 3 equivalent specimens at one operation and exports test results in average value
- 2 test modes for both films and packages, and accessories for package test are available for customization
- Equipped with constant temperature and humidity control devices (optional parts) to meet different test requirements
- Reference film for fast calibration to ensure accurate and universal test data
- The instrument is controlled by micro-computer with LCD, menu interface and PVC operating panel, which could conveniently export test data, test results and test curves
- Test data could be automatically and safely saved by the function of power failure protection
- Micro-printer and standard RS232 port for convenient data output and transfer
- Supports Lystem™ Lab Data Sharing System for uniform management of test results and test reports

Test Principle

The pre-conditioned specimen is mounted between the upper and lower chambers at ambient atmospheric pressure. One chamber contains oxygen and the other chamber is slowly purged by a stream of nitrogen. Due to the concentration difference between the two chambers, oxygen molecules permeate through the specimen into the nitrogen side and are taken to the coulometric sensor where proportional electrical signals are generated. The oxygen transmission rate is then obtained by analyzing and calculating the signals. For package samples, high purity nitrogen flows inside the package, and oxygen flows outside.

This test instrument conforms to the following standards:
ISO 15105-2, GB/T 19789, ASTM D3985, ASTM F2622, ASTM F1307, ASTM F1927, JIS K7126-2, YBB 00082003

Applications

This test instrument is applicable to the determination of oxygen 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 various sorts of engineering plastics, rubber and building

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		materials, e.g. PP, PVC and PVDC
	Packages	Including plastic, rubber, paper, paper-plastic composite, glass and metal packages, e.g. Coke bottles, peanut oil packages, Tetra Pak materials, vacuum bags, metal three-piece cans, plastic packages for cosmetics, soft tubes for toothpaste, jelly and yogurt cups
Extended Applications	Package Caps	Test seal performance of different package caps
	Solar Back-Sheets	Including solar back-sheets
	Plastic Pipes	Including various sorts of pipes, e.g. PPR
	Blister Packs	Test oxygen transmission rate of the whole blister packs
	Contact Lenses	Test oxygen transmission rate of contact lenses in usage situation
	Fuel Tanks of Cars	Plastic fuel tanks are widely used in cars for its light weight, buffering vibration and easy molding characters. But its fuel permeability is the most essential factor, this instrument can be used to test permeability of plastic fuel tanks
	Battery Plastic Shell	Battery electrolyte is protected by the plastic shell from outside environment. Battery service life is directly dependent on its permeability. This instrument can be used to test oxygen transmission rate of battery plastic shell
	Red Wine Bottles	Test oxygen transmission rate of red wine bottles
	Biodegradable Films	The oxygen transmission rate is an essential factor that affects biodegradable film properties and further development.
	Soft Plastic Infusion Bottles	Oxygen is the main factor that leads injection to deterioration. It will be very important to lower oxygen content of infusion bottles.
	Warm Paste Packages	Once exposed to oxygen before usage, warm pastes will lose efficacy, they should be placed in vacuum packages. So it is necessary to test the oxygen transmission rate of warm pastes packages.

Technical Specifications

Specifications	**Film Test**	**Package Test (customization available)**
Test Range	0.01 ~ 1000 $cm^3/m^2 \cdot d$ (Standard) 0.1 ~ 10,000 $cm^3/m^2 \cdot d$ (Optional)	0.0001 ~ 10 $cm^3/pkg \cdot d$ (Standard)
Number of Specimens	1 ~ 3	
Resolution	0.01 $cm^3/m^2 \cdot d$	0.0001 $cm^3/pkg \cdot d$
Temperature Range	15°C~ 55°C (Optional)	/
Temperature Accuracy	±0.1°C	/
Humidity Range	0%RH, 15%RH~90%RH, 100%RH (Optional)	
Humidity Accuracy	±1%RH	
Test Gas	O_2 and Air (outside of supply scope)	

Test Area	$50cm^2$	/
Thickness	≤ 3 mm (customization is available for other thickness)	/
Specimen Size	108 mm x 108 mm	Test in 100% O_2 --- Specimen should be smaller than Φ120 mm and lower than 360 mm Test in the Air---No size limitation Bottles--- the inner diameter should be bigger than Φ8 mm, outer diameter should be smaller than Φ42mm (Standard) Bags or Boxes---Supported by accessories
Carrier Gas	High purity nitrogen with more than 99.999% concentration (outside of supply scope)	
Gas Supply Pressure	≥0.28 MPa	
Port Size	1/8 inch copper tubing	
Instrument Dimension	670 mm (L) × 410 mm (W) × 310 mm (H)	670 mm (L) × 410 mm (W) × 630 mm (H)
Power Supply	AC (85 ~ 264)V (47 ~ 63)Hz	
Net Weight	48 kg	50 kg

Configurations

Standard Configurations	Mainframe, Micro-printer and Professional Software
Optional Parts	Constant Temperature Control Device, Constant Humidity Control Device, Sealing Accessories for Package Test and Test Hood for Package Test
Note	1. The gas supply port of the instrument is 1/8 inch copper tubing; 2. Customers will need to prepare for gas supply.