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Analysis & Testing Instruments



# Coulometric Sensor Method Oxygen Permeability Analyzer Y310L

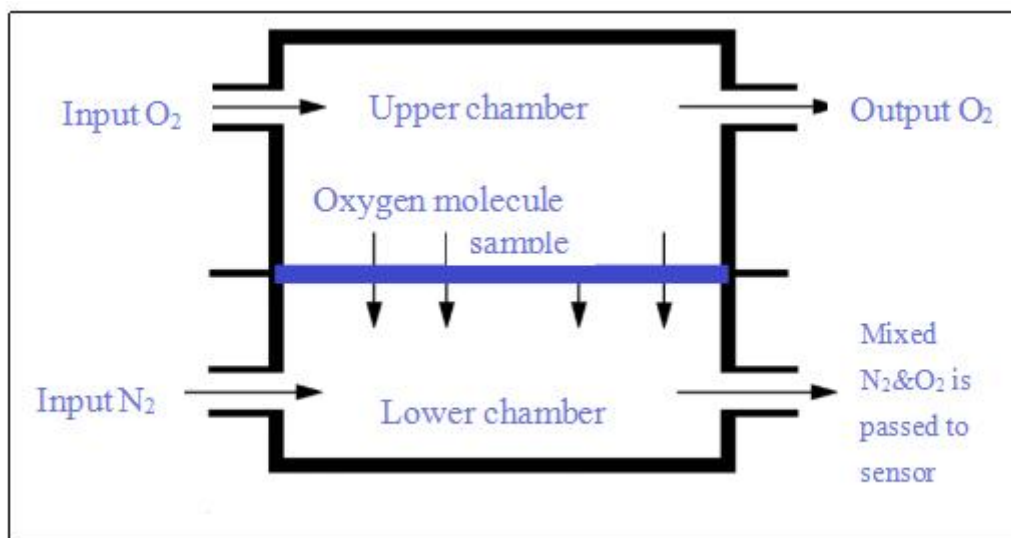


## Introduction

This product is designed and manufactured based on the coulometric sensor method and conforms to GB/T 19789、ASTM D3985. This instrument can be used to measure the oxygen transmission rate of barrier materials with high and medium barrier properties with high accuracy and high efficiency. Y310L is applicable to the determination of oxygen permeability of plastic films, sheeting, paper, and other packaging materials used in food, pharmaceutical, medical apparatus, consumer products, photovoltaic and electronic industries, etc.

## Test Principle

Y310L Oxygen Permeability Analyzer is designed and manufactured based on the coulometric sensor method. The pre-conditioned specimen is clamped in the test cell, oxygen or air flows on one side of the specimen while a stream of high purity nitrogen flows on the other side. Oxygen molecules permeate through the specimen into the nitrogen side and are carried to the coulometric sensor. The sensor analyzes the oxygen concentration and calculates the oxygen transmission rate.



Schematic diagram for Coulometric sensor method

## Standard

GB/T 19789, YBB 00082003, ASTM D3985, ASTM F2622, ASTM F1927, ASTM F1307, ISO 15105-2, DIN 53380-3, JIS K-7126-B

## Technical Parameter

Item	Technical parameter
Test range	0.05 ~ 1000 cm <sup>3</sup> /(m <sup>2</sup> ·24h·0.1MPa), can be measured through the clamp, max to 260000 cm <sup>3</sup> /(m <sup>2</sup> ·24h·0.1MPa))
Resolution	0.0001 cm <sup>3</sup> / (m <sup>2</sup> ·24h·0.1MPa)
Test temperature	15 ~ 45°C
Temperature control accuracy	±0.2°C
Humidity range	0%RH, 5~90%RH, 100%RH
Humidity Control Accuracy	±2%RH
Permeable area	50.24 cm <sup>2</sup> (Customized adapters from 0.785 cm <sup>2</sup> )
Sample size	Φ100 mm
Sample thickness	≤3 mm
Sample quantity	3pcs
Carrier gas pressure	≥0.1 MPa
Carrier gas flow	5~100 mL/min
Dimension	700 mm×655 mm×535 mm
Power	750 W

Power supply	AC 220 V, 50 Hz
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## Product Features

### ◆ High precision oxygen sensor

High-precision imported oxygen sensor with high sensitivity, ultra-high stability and ultra-low failure rate, with a resolution of  $0.0001 \text{ cm}^3/(\text{m}^2 \cdot 24\text{h} \cdot 0.1\text{MPa})$ .

### ◆ The test data is accurate and reliable

Precise control of test temperature and humidity. Equipped with high-precision temperature and humidity sensors, the temperature and humidity of the test chamber are stable, and the temperature control is precise

The temperature can reach  $0.2^\circ\text{C}$ , and the humidity can be accurate to  $\pm 2\%\text{RH}$ .

Automatic test mode, real-time monitoring of temperature, humidity, gas flow values and curves during the test process, high test repeatability.

### ◆ Independent three-chamber design, high test efficiency

The instrument is equipped with 3 chambers, each of which has a standard area of  $50.24\text{cm}^2$ , which can meet the standard test requirements of three parallel samples, and the test efficiency is high.

It supports simultaneous testing of three identical or different samples, and the test data are independent of each other.

The measurement range is  $0.05\sim 1000 \text{ cm}^3/(\text{m}^2 \cdot 24 \text{ h} \cdot 0.1 \text{ MPa})$ , and the measuring range is wide, meeting the testing requirements of high, medium and low barrier materials. With the addition of adapter accessories, it can measure the oxygen transmission rate of bottles, bags, bowls and other containers.

### ◆ Excellent design, convenient control, real-time visualization of curves

The instrument is fully automatic operation, one-key test, automatic judgment, automatic

shutdown.

Real-time display of six sets of curves of transmittance-time, temperature-time, humidity-time, nitrogen flow-time, oxygen flow-time, concentration-time, and the curve supports preview and hide function.

#### ◆ **Smart operating system, global certification**

We develop intelligent operating system by ourselves, with modular graphics, flexible setting of test process parameters, intuitive and convenient operation.

Designed according to the GMP appendix "Computerized System", it has the function of auditing and tracking, and multi-level permission settings for users can meet the requirements of the pharmaceutical industry for data traceability.

Personalized test reports can be set on demand, support data output in multiple formats, support electronic signature functions, and submit audit reports online.

#### ◆ **Offline or online detection**

The instrument comes with its own operating system, which can be tested independently from the computer, and the data is automatically processed. The instrument is equipped with a computer interface, and can also be connected to a computer for online testing.

#### ◆ **Professional calibration service, accurate and reliable data**

Our company has approved and issued by the "General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China": gas transmission rate "National Standard Material Grading Certificate" and "People's Republic of China Manufacturing Measuring Instrument License", the standard number (GBW (GBW ( E) 130497 / GBW(E) 130498); use national standard materials to calibrate and verify the instrument to ensure the accuracy, versatility and authority of the test data.






#### ◆ **Lab Intelligent IoT Platform**





The instrument can be connected to the IoT platform to realize network digital management.

Remote authorization to log in to the IoT platform can realize these functions such as managing experimental data, remote diagnosis and troubleshooting etc.

Customers can download the required instrument information, documents, and operation videos on the platform by themselves.

## Application field

	<p>film</p>	<p>Various plastic films (PP/PET/PE/PVC/BOPP/PP, etc.), plastic composite films, paper-plastic composite films, metal composite films, co-extrusion films, aluminized films, degradable packaging films (PLA/PBAT/PBS) etc.)</p>
	<p>sheet</p>	<p>Oxygen transmission rate test of solid pharmaceutical hard sheet (PP/PVC/PTP, etc.), metal composite sheet, rubber sheet and other sheet materials</p>
	<p>Medicinal stickers, warm stickers</p>	<p>Oxygen permeability test of medical plaster therapy patch, warm patch, dysmenorrhea patch and other patches</p>
	<p>hygiene products</p>	<p>Oxygen transmission rate test for sanitary napkins, pads and other sanitary products</p>
	<p>Paper, cardboard and their composites</p>	<p>Oxygen transmission rate test of paper and cardboard such as coated paper, carbon paper, silicone paper, aluminized paper, paper-aluminum-plastic composite sheet, etc.</p>

	<p>package</p>	<p>Wine bottles, cola bottles, peanut oil barrels, Tetra Pak packaging, vacuum packaging bags, three-piece cans, cosmetic packaging, toothpaste tubes, jelly cups, yogurt cups and other plastic, rubber, paper, paper-plastic composite, glass, metal bottles , Oxygen transmission rate test of bags, cans, boxes, barrels</p>
	<p>package cover</p>	<p>Oxygen permeation performance testing of various package closures</p>
	<p>solar back sheet</p>	<p>Oxygen transmission performance test of solar back sheet</p>
	<p>pipe</p>	<p>Oxygen permeability test of pipes of various materials such as PPR pipes</p>

## Product configuration

<p>Standard configuration</p>	<p>Power cord, communication line, sample cutter, sealing grease, metal gas pipe, terminal ferrule, terminal ferrule, standard membrane, special wrench, syringe, sealing ring, fork wrench, Phillips screwdriver, mouse</p>
<p>Optional parts</p>	<p>Computer, calibration certificate</p>
<p>User-provided</p>	<ol style="list-style-type: none"> <li>1. Standard laboratory environment;</li> <li>2. Power requirements: 220V regulated power supply with three holes and three sockets with a switch;</li> <li>3. Computer requirements: standard configuration (Windows10, with a</li> </ol>

nine-pin serial port);

4. One bottle of oxygen, the purity must be above 99.999%, with pressure reducing valve, the output range is 0-0.4 Mpa; 5. One bottle of nitrogen, the purity must be above 99.999%, with pressure reducing valve, the output range is 0-0.4 Mpa

Note: GBPI has always been committed to the innovation and improvement of product performance and function. For this reason, product technical specifications and appearance will be changed accordingly. The above situation will not be notified. The company reserves the right of modification and final interpretation.



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