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Analysis & Testing Instruments

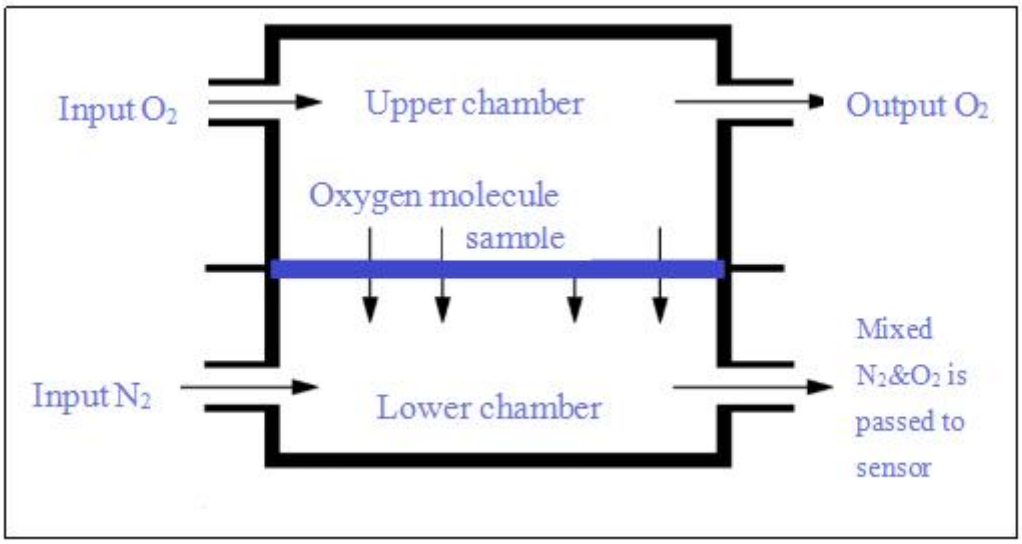
Coulometric Sensor Method Oxygen Permeability Analyzer Y310 2.0

Introduction

This product is designed and manufactured based on the coulometric sensor method and conforms to GB/T 19789, ASTM D3985, etc. This instrument provides wide-range, high-efficiency oxygen transmission rate detection for high, medium and low oxygen barrier materials. Y310 2.0 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

Y310 2.0 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	0.01~1000 $cm^3/(m^2 \cdot 24h \cdot 0.1MPa)$（can be measured through the clamp, max to 260000 $cm^3/(m^2 \cdot 24h \cdot 0.1MPa)$）
Repeatability	0.01 or 2%, whichever is greater
Resolution	0.001 $cm^3/(m^2 \cdot 24h \cdot 0.1MPa)$
Temperature control range	15~45℃
Temperature control accuracy	±0.1℃
Humidity control range	0%RH，5～90%RH，100%RH
Humidity control accuracy	±2%RH
Permeable area	50.24 cm^2（custom fittings, min to 0.785 cm^2）
Sample size	Φ100 mm
Sample thickness	≤3 mm
Sample quantity	3 pcs
Carrier gas pressure	≥0.1 MPa
Carrier gas flow	5~100 mL/min
Pneumatic pressure	≥0.3 MPa
Dimension	700mm*655mm*390mm

Item	Technical parameter
Power	750 W
Power supply	AC 220 V，50 Hz

Product Features

◆ **Patent core technology, high efficient and accurate testing**

High-precision imported oxygen sensor with high sensitivity, ultra-high stability and ultra-low failure rate, with a resolution of 0.001 cm3/(m2 · 24h · 0.1MPa).

The new pneumatic air circuit control system, the automatic fixture clamps the sample, which is convenient and labor-saving, and has excellent sealing performance.

◆ **Precise control of temperature and humidity**

Temperature control: bi-directional automatic temperature control of the semiconductor refrigeration chip, the temperature control accuracy is higher, up to 0.1 ℃.

Humidity control: automatic humidity control with dual airflow (dry gas and wet gas) humidity method, stable humidity, high precision, accurate to ±2%RH.

◆ **Meet the test requirements of high throughput, wide range and high applicability**

The instrument is equipped with 3 chambers with independent data, which can meet the needs of high-throughput testing and high testing efficiency.

The test range is wide, and the test lower limit is as low as 0.01 cm3/(m2 24 h 0.1 MPa), which can meet the test 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 host is embedded with an 11.6-inch high-resolution color touch screen with clear views, sensitive touch and easy operation.

Exquisite 3D printed shell, smooth lines, fashionable and beautiful, novel and unique.

The instrument is fully automatic operation, one-button test, automatic judgment, automatic shutdown.

Real-time display of six sets of curves including permeation-time, temperature-time, humidity-time, nitrogen flow-time, oxygen flow-time, and concentration-time. The curves support preview and hide functions.

◆ **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

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

	composites	paper-aluminum-plastic composite sheet, etc.
	package	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
	package cover	Oxygen permeation performance testing of various package closures
	solar back sheet	Oxygen transmission performance test of solar back sheet
	pipe	Oxygen permeability test of pipes of various materials such as PPR pipes

Factory configuration

Standard configuration	Power cord, communication line, sample cutter, sealing grease, metal gas pipe, terminal ferrule, reference material, special wrench, syringe, sealing ring, fork wrench, Phillips screwdriver, mouse

Optional parts	Computer, calibration certificate
User-provided	1. Standard laboratory environment; 2. Power requirements: 220V regulated power supply with three holes and three sockets with a switch; 3. Computer requirements: standard configuration (Windows10, with a 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. GBPI reserves the right of modification and final interpretation.