C230 Oxygen Transmission Rate Test System is designed and manufactured based on coulometric sensor method (aka. equal pressure method) and conforms to the requirements of ISO 15105-2/ASTM D3985. This instrument can be used to measure the oxygen transmission rate of barrier materials with high, medium and lower barrier properties with a wide testing range and high testing efficiency. The instrument is featured with patented design of integrated block consisting of 3 test cells. Equipped with high precision sensors and professional computer-controlled system, the instrument can regulate and control the temperature, humidity and flow rate properly, which guarantee the testing sensitivity and repeatability of test results. C230 is applicable to determination of oxygen permeability of plastic films, sheeting, paper, packages and other relative packaging materials in food, pharmaceutical, medical apparatus, daily chemical, photovoltaic and electronic industries, etc.

Product Features[Note3]

Innovative Sensor Technology

The instrument uses Labthink's new generation gas analytical sensor, which is developed by Labthink Global Research & Development Center, collecting top class scientific and technical achievements in Chinese and American sensor technology fields. With core sensor technology, the precision and stability reach world advanced level.

Best Products Created by Mature Process

With 30 years' experience, Labthink has most mature and reliable manufacturing technology of gas permeability testing instruments. Labthink provides customers with high-end barrier property testing instruments with best design, best material, best performance and best sensor by continuously adjusting the details, completing the designs and improving the performance.

Complete Product Line for Various Standards

By studying various test methods of gas transmission rate, Labthink manufactures many gas permeability testing instruments based on ISO 15105-2/ASTM D3985 (equal pressure method) and ISO 2556/ISO 15105-1/ASTM D1434 (differential pressure method). Labthink has the most complete product line of gas permeability testing instruments in packaging industry worldwide.

All for Customers

Labthink is dedicated to providing customers with suitable products. From scientific tracing method to commercially applied method, from scientific research to quality control, you will finally find the products that are suitable for you. C230M Oxygen Transmission Rate Test System is one of those products.

- Precise adjustment of temperature, humidity and flow rate of test gas[Note3]
- Short warm-up time. Test conditions can be achieved in a very short period
- Liquid cooling agent, catalyst or special mixture of gases are not needed
- Professional test mode and fast test mode can meet requirements for different applications or materials
- Reference films are available for system calibration use
- Core sensors and other key parts have self-protection features
- The instrument is equipped with internal computer, requiring no external computer
- Package testing is supported
- Intelligent gas saving feature can help reduce the consumption of test gas
- Net connection and USB ports are available
- Professional software is easy to use. Multiple levels are defined for users. Various forms of reports.
- Labthink exclusive DataShield™ [Note2] provides the users with safe and reliable management of test data and test reports.
- Computer system required by China GMP is available for medical industry.
- CFR21 PART11

Test Principle

The pre-conditioned specimen is mounted between the upper and lower chambers at ambient atmospheric pressure. One chamber contains oxygen or air 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 or air flows outside.

Test Standards [Note3]

ISO 15105-2, ASTM D3985, ASTM F2622, ASTM F1307, ASTM F1927, JIS K7126-B, YBB 00082003-2015, GB/T 19789, GB/T 31354

Applications [Note3]

Basic Applications	**Films**	Plastic films, paper-plastic composite films, coextruded films, aluminized films, aluminum foils, aluminum foil composite films, glass fiber aluminum foil composite films and many others
	Sheeting	PP, PVC and PVDC sheets, metal foils, rubber pads, silicon wafers and other sheeting materials
	Packages	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 cosmetic, soft tubes for toothpaste, jelly and yogurt cups

Extended Applications	**Package Caps**	Test oxygen barrier property of various package caps
	Solar Back-Sheets	Oxygen permeability test of solar back-sheets
	Plastic Pipes	Oxygen permeability test of various sorts of pipes, e.g. PPR
	Blister Packs	Test oxygen transmission rate of the whole blister packs
	Fuel Tanks of Cars	This instrument can be used to test permeability of plastic fuel tanks
	Battery Plastic Shell	This instrument can be used to test oxygen transmission rate of battery plastic shell

Technical Specifications

Table 1: Test Parameters[Note1]

Parameter \ Model		**C230M**
Test Range	$cm^3/(m^2 \cdot d)$ (Standard)	0.05 ~ 5000
	$cm^3/(pkg \cdot d)$ (Package)	0.00025 ~ 25
Resolution	$cm^3/(m^2 \cdot d)$	0.001
Repeatability	$cm^3/(m^2 \cdot d)$	Bigger one of 0.05 and 2%
Test Temperature	℃	10~55 ±0.2
Test Humidity	RH	0%, 5% ~ 90%±1%
Additional Functions	Package Test (3L Max.)	Optional
	DataShield™ Note2	Optional
	Computer System required by GMP	Optional
	CFR21 Part11	Optional

Table 2: Technical Specifications

Test Chamber	3 test chambers
Specimen Size	108mm×108mm
Specimen Thickness	≤3mm
Standard Test Area	$50cm^2$
Carrier Gas	99.999% High-purity Nitrogen (outside of supply scope)
Carrier Gas Pressure	≥0.28MPa/40.6psi
Port Size	1/8 inch metal tubing

Note 1: The parameters in the table are measured by professional operator in Labthink laboratory according to relative requirements for laboratory standard conditions.

Note 2: DataShield™ provides safe and reliable data application support. Multiple Labthink instruments can share one single DataShield™ system which can be purchase as required.

Note3: The described product features and test standards should be in line with Table 1: Test Parameters.

Please Note: Labthink is always dedicated to the innovation and improvement of product performance and function. Therefore, technical specifications are subject to change without further notice. Labthink reserves the rights of final interpretation and revision.