



Labthink®



SINCE
1989



WATER VAPOR TRANSMISSION RATE TEST SYSTEM

Water vapor permeability is a measure of the passage of water vapor through a membrane. It is the rate of water vapor transmission per unit area per unit of vapor pressure differential under test conditions. It is also known as water vapor transmission rate (WVTR) or moisture vapor transmission rate (MVTR).

By studying various test methods of water vapor transmission rate, Labthink manufactures many water vapor permeability testing instruments based on ISO 2528/ ASTM E96 (gravimetric method), ISO 15106-2/ ASTM F1249 (infrared sensor method), and ISO15106-3/ ASTM F3299 (electrolytic sensor method). Labthink has the most complete product line of water vapor permeability testing instruments in packaging industry worldwide.

Combo Model

C403H & C406H

- OTR & WVTR testing capacities
- Cost & space saving
- Higher ROI
- High intelligence



Infrared Sensor Method

- Most popular
- Long service life
- High precision IR sensor
- Variety of cell types
- Intelligent control and user friendly operation
- Wide application for both film & package test



C306H



C303H



C303M



C390



C301H



C301B

Gravimetric Method (Cup Method)

- Fully automatic gravimetric method testing system
- Wide test range and broad application
- Variety of cups
- Less consumption and maintenance cost



C360H



C360M



W3/062



W3/031

Electrolytic Sensor Method

- High sensitivity electrolytic sensor
- Easy to operate
- Wide application for both film & package test

C330H



Comparison on all WVTR models

WVTR Tester (Sensor Method)

Standard:

Infrared Sensor: ISO15106-2, ASTM F1249

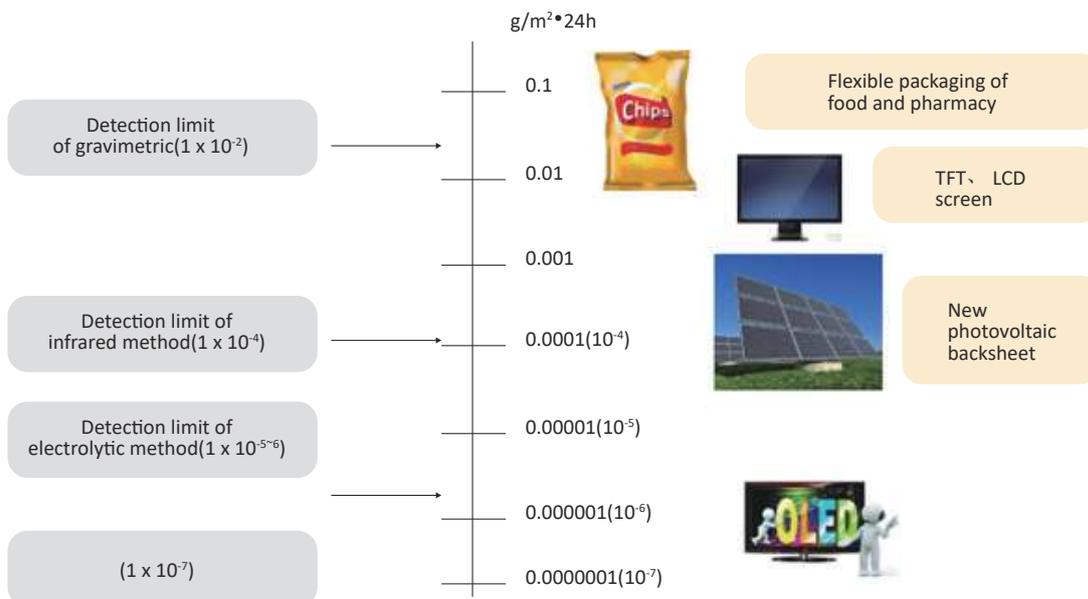
Electrolytic Sensor: ISO15106-3, ASTM F3299

	C301B	C301H	C390M	C390H	C303H& C403H	C306H& C406H	C330H
Sensor Type	Infrared Sensor						Electrolytic Sensor
Test Range (g/m ² ·day)	0.1~40	0.005~50	0.05~40	0.005-40 (standard) 0.005~100 (optional)	0.005~40 (standard) 0.005~100 (optional) (C303H)	0.02~40	0.005~50
Resolution (g/m ² ·day)	0.1	0.0001	0.001	0.0001	0.0001	0.0001	0.001
Repeatability (g/m ² ·day)		0.005 or 2%, (whichever is greater)	0.05 or 2%, (whichever is greater)	0.005 or 2%, (whichever is greater)	0.005 or 2%, (whichever is greater)	0.02 or 2%, (whichever is greater)	0.005 or 2%
Temperature (°C)	15~50 ± 0.5	15~50 ± 0.2	10~55±0.2	10~55±0.2	15~50±0.05 5~60 (optional)	15~50±0.15 5~60 (optional)	10~55±0.2
Humidity (RH)	4%~100% ±2%	0%, 35~90%±2%	5%~90%±1%, 100%	5%~90%±1%, 100%	5%~90%±1%(C303H) 0%, 5~90% ±2%(C403H)	100%, 5~90% ±2% (C306H) 0%, 5~90%±2%, 100%(C406H)	5%~90%±1%, 100%
Test Chamber & Test Result No.s	1 chamber 1 test result	1 chamber 1 test result	3 chambers 1~3 independent test results	3 chambers 1~3 independent test results	3 chambers 1~3 independent test results	6 chambers 1~6 independent test results	3 chambers 1~3 independent test results
Specimen Size	9.7cm×9.7cm	10.6cm×10.6cm	10.8cm x10.8cm		11.2cm×11.2cm	11.7cm×11.7cm	10.8cm X 10.8cm
Specimen Thickness							≤3mm
Standard Test Area							50 cm ²

WVTR Tester (Gravimetric Method)

Standard: ISO 2528, ASTM E96

	W3/031	W3/060	W3/062	C360M	C360H
Method	Water	Water	Water & Desiccant	Water & Desiccant	Water & Desiccant
Test Range (g/m ² ·day)	0.1-10000	0.1-10000	Water Method: 0.1~10,000 Desiccant Method 0.1~2,500	Water Method: 0.01-10000/n(1-6) Desiccant Method: 0.01-1200	Water Method: 0.01-10000/n(1-12) Desiccant Method: 0.01-1200
Accuracy (g/m ² ·day)	0.01	0.01	0.01		
Resolution(g)	0.0001	0.0001	0.001	0.0001	0.0001
Temperature (°C)	15-55 C±0.1	15-55 C±0.1	15-55 C±0.1	20-55 C±0.2	20-55 C±0.2
Humidity (RH)	10%-98%±1%	70%-90%±1%	Water Method: 90%RH~70%RH±1% Desiccant Method: 10%RH~98%RH±1%	10%-90%±1%	10%-90%±1%
Test Cup & Test Result No.s.	3 cups 1~3 independent test results	6 cups 1~6 independent test results	6 cups 1~6 independent test results	6 cups 1~6 independent test results	12 cups 1~12 independent test results
Test Area(cm ²) / cup	50 cm ²				
Specimen Thickness	≤3mm				



Introduction on C303H, C306H & C360H

C303H Features

- 360 ° air circulation constant temperature technology
- Long service life of sensors
- Automatic sample clamping for time and labor saving with consistent clamping force
- Three samples are tested at the same time under the same condition to obtain three independent results



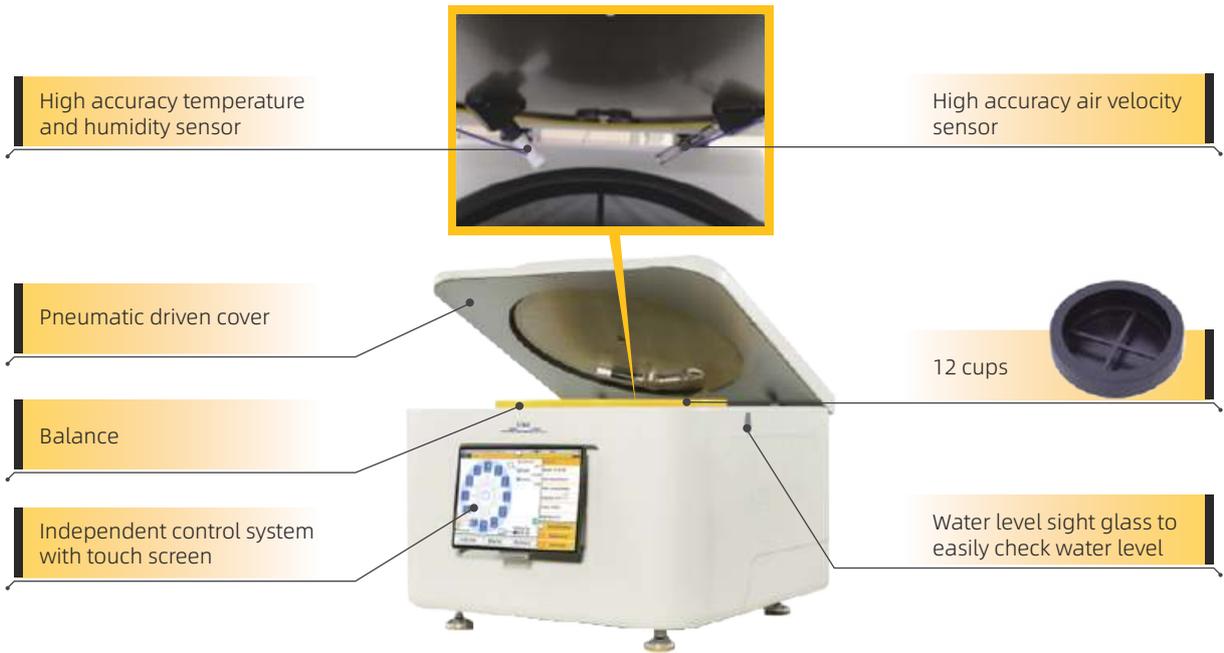
C306H Features

- Six-cell structure features ultra-high testing efficiency
- Multiple testing modes for different testing purposes
- Stable and automatic temperature & RH control
- Intelligent and easy to use



C360H Features

- 12-cup structure features high testing efficiency
- Water method and desiccant method
- Automatic interval weighing system
- Automatic control of temperature, RH and air velocity



Accessories

Sample Holder

- Easy to use
- The specimen can be quickly clamped and easily removed
- It can quickly and accurately locate test specimen on the test chamber
- Avoid specimen contamination during specimen clamping



Cups And Cup Holder (manual and automatic)

- Variety of cups
- Anti-corrosion and light





Manual Cup Holder



WVTR Test Dish Tightening Device
(Automatic cup holder)

Mask When 5cm² mask is used

	WVTR instrument C303H
Standard test range	0.005 ~ 40 g/(m ² ·day)(standard)
Extended test range with mask	0.05~400g/(m ² ·day) (MASK area 5cm ²)



Package Testing Accessories

B2-110



Package sample fixture



Wine bottle closure

PTC-01A



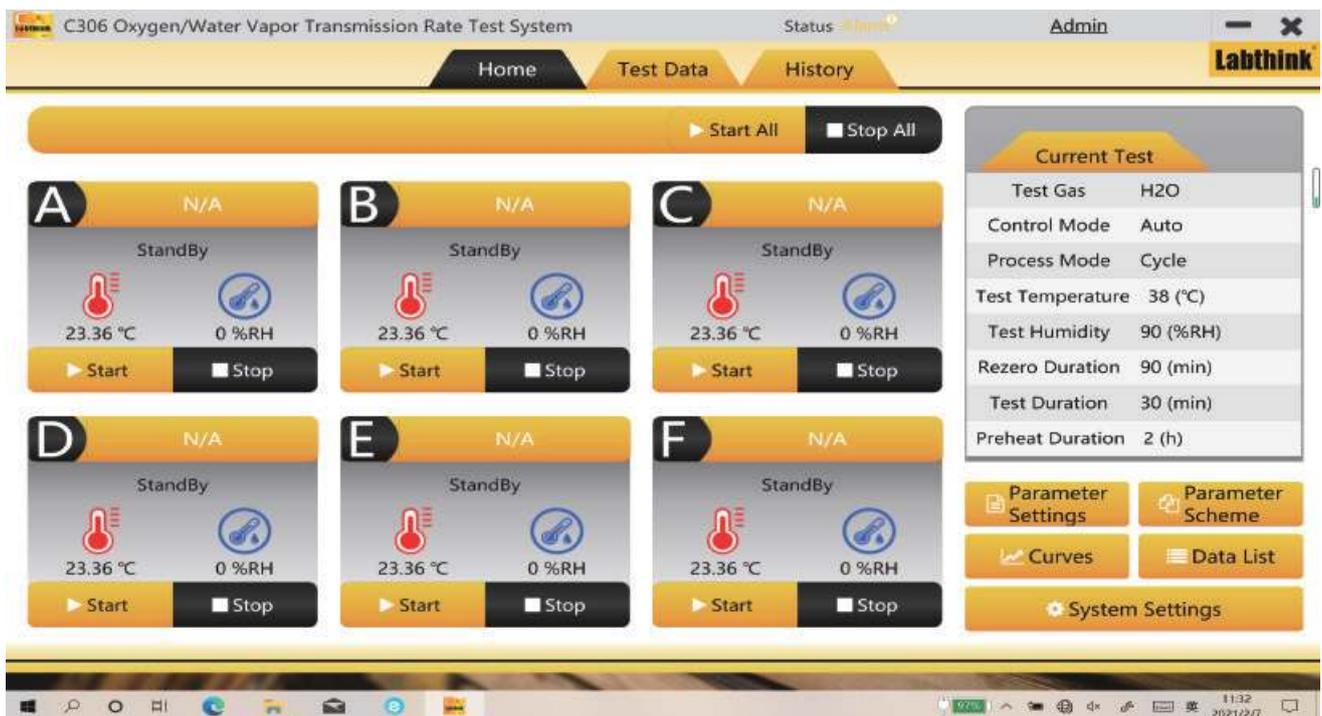
Software

Multiple testing modes to meet different customer needs

Test mode	Experience of materials and instrument	Application
Auto mode	No experience	For beginners
Efficient mode 8 hours	A little experience	For quick QC/QA testing to meet routine multi-batch product testing requirements
Efficient mode 24 hours	A little experience	For quick QC/QA testing to meet routine multi-batch product testing requirements
Expert mode	Rich experience	For materials R&D

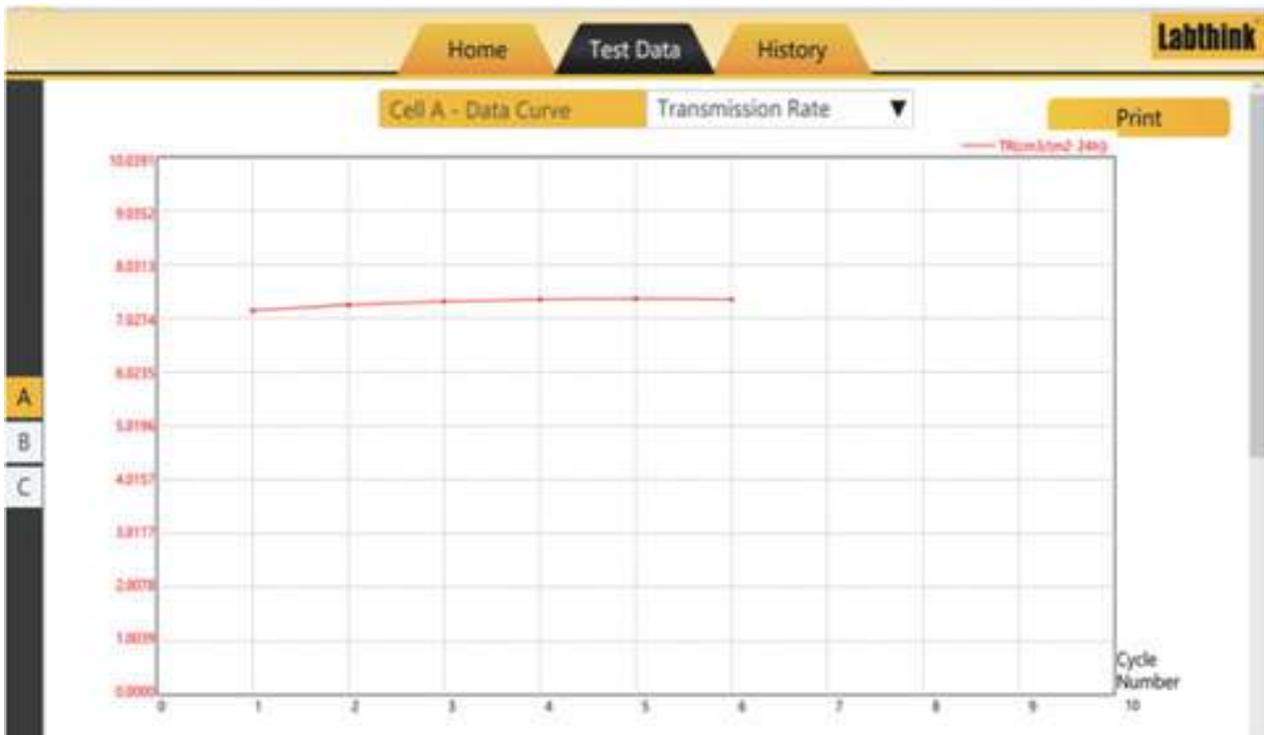
1 Home Interface

Easy parameter setting and a clear display of the current status of the six cells.



2. Real Time WVTR, Temperature, Humidity

Real time viewing of test data curves, various testing conditions, preset parameters and test results.



Status: Normal Admin

Home **Test Data** History

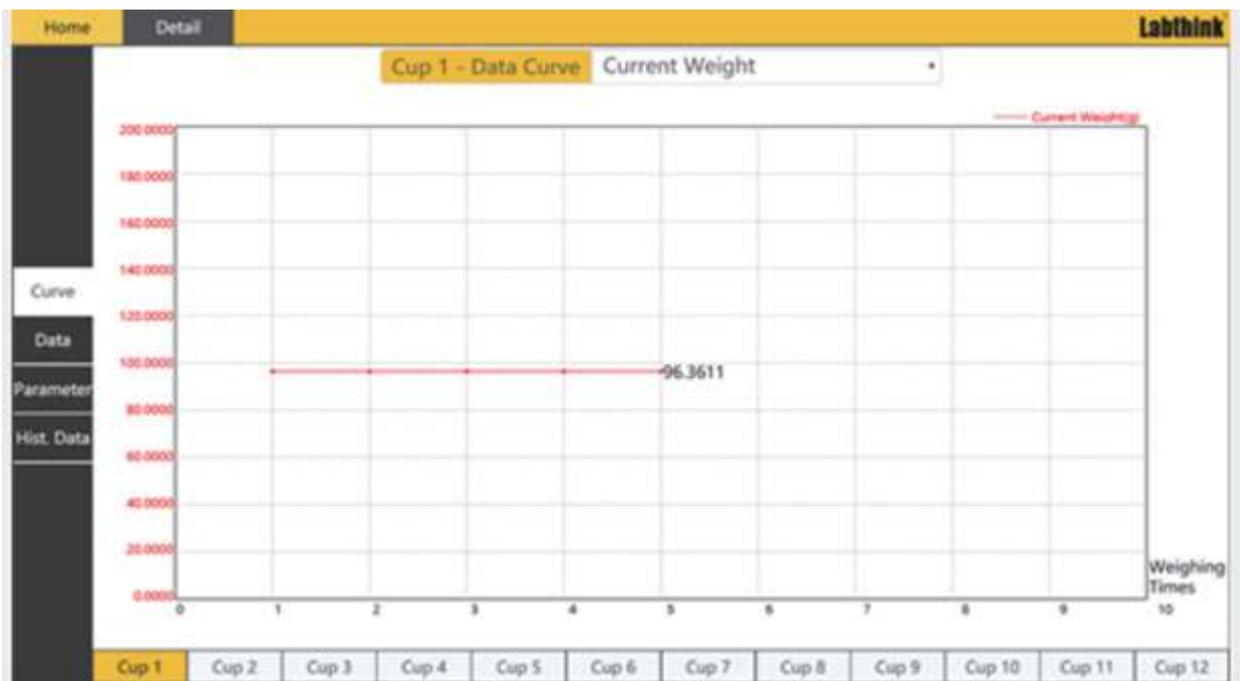
Parameter

Cell: A	Test Type: Film	Test Name:
Specimen Name:	Specimen Material:	Specimen No.:
Operator: Admin	Test Date:	Test Time:
Lab Temperature: 23 (°C)	Lab Humidity: 50 (%RH)	Standard:
Inspection Organization:	Specimen Provider:	Specimen Batch: 202103180909
Control Mode: Auto	Test Gas: H2O	Process Mode: Cycle
Test Temperature: 38.0 (°C)	Test Humidity: 90.0 (%RH)	Rezero Duration: 90.00 (min)
Zero Purging Interval: 3	Preheat Duration: 2.0000 (h)	Mode: Proportion
Proportion: 1 (%)	Test Duration: 30.00 (min)	Specimen Area: 50.00 (cm ²)
Specimen Thickness: 125.00 (µm)	Water Bath: Close	Gas-saving: Open

Test Result

Test Data

Cycle Number	Test Temperature (°C)	Upper Chamber RH (%RH)	Transmission Rate (g/(m ² ·24h))	Water Vapor Permeance (g·cm/(cm ² ·s·Pa))	Time Recorded
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3 Test Report

The test report can be exported in multiple formats, including Word, Excel, and PDF.



4 Query

Input query criteria to retrieve relevant test records from the historical tests. Simply click the "More Query" button to display all available query criteria.

Operation	Test ID	Test Gas	Cell	Transmission Rate	Test Name	Specimen ID	Specimen Name	Specimen Batch	Specimen Material
Export Tag	89	H2O	E	0.0204				202102250617	Ac
Export Tag	88	H2O	D	0.0220				202102250617	Ac
Export Tag	87	H2O	C	0.0245				202102250617	Ac
Export Tag	86	H2O	B	0.0289				202102250617	Ac
Export Tag	85	H2O	A	0.0242				202102250617	Ac
Export Tag	84	H2O	F	0.0205				202103020828	
Export Tag	83	H2O	E	0.0289				202103020828	
Export Tag	82	H2O	D	0.0267				202103020828	
Export Tag	81	H2O	C	0.0258				202103020828	
Export Tag	80	H2O	B	0.0245				202103020828	

Operation	Test ID	Method	Standard	Cup	Test Name	Specimen ID	Specimen Name	Specimen Batch	Specimen Material	Op
Export Tag	26	Water Method	ASTM E96-15	Cup 6				20190812020730		Admi
Export Tag	25	Water Method	ASTM E96-15	Cup 5				20190812020730		Admi
Export Tag	24	Water Method	ASTM E96-15	Cup 4				20190812020730		Admi
Export Tag	23	Water Method	ASTM E96-15	Cup 3				20190812020730		Admi
Export Tag	22	Water Method	ASTM E96-15	Cup 2				20190812020730		Admi
Export Tag	21	Water Method	ASTM E96-15	Cup 1				20190812020730		Admi
Export Tag	20	Water Method	GB 1037-88	Cup 2				20190812002307		Admi
Export Tag	19	Water Method	GB 1037-88	Cup 1				20190812002307		Admi
Export Tag	18	Desiccant Method	GB 1037-88	Cup 2				20190811224035		Admi
Export Tag	17	Desiccant Method	GB 1037-88	Cup 1				20190811224035		Admi

5 Role Management

Different roles can be authorized to ensure data security.

No.	User ID	User Name	Role	Statu	Operation
2	bbb	bbb	Engineer	✓	Modify Delete Lock Reset Password
1	aaa	aaa	Technician	✓	Modify Delete Lock Reset Password

Add User

User ID:

User Name:

Role:

Email:

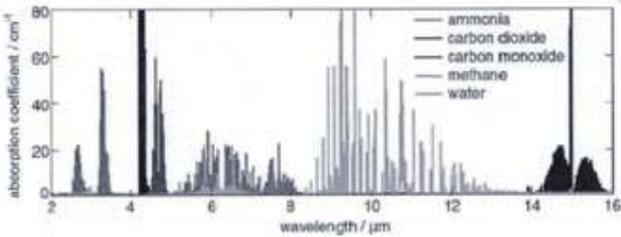
Telephone #:

Okay Cancel

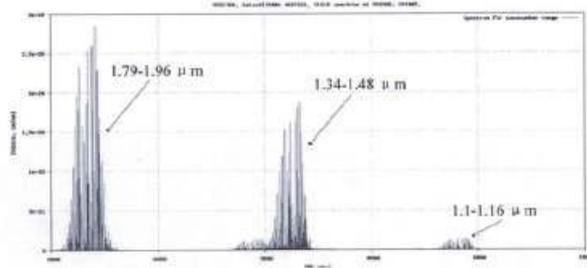
Labthink patented technology infrared moisture sensor

Self-developed Sensor

Principle of Spectral Absorption for Measuring Gas Molecular Concentration



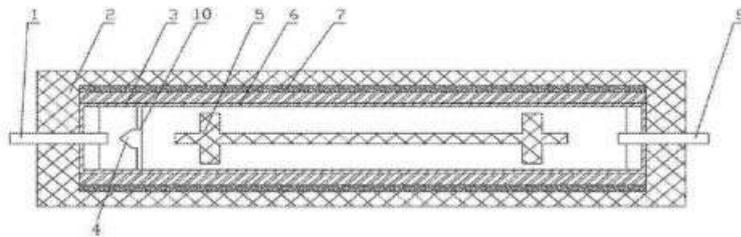
Dedicated light source for this band



The strongest absorption line



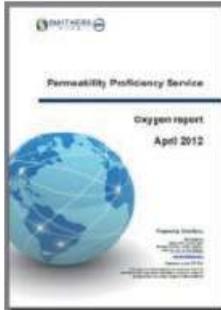
Optimal structural design



Ultra high accuracy/Ultra high repeatability/Super long life time

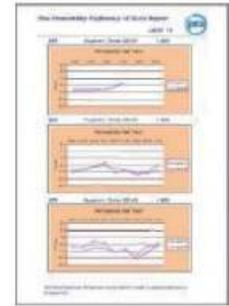
PIRA Data Comparison Program

PIRA Lab Data Comparison



Since 2008, Labthink has been participating in the PIRA global barrier property test data comparison twice a year.

Note: PIRA, founded in 1930, is an international packaging research institute. It regularly organizes inter laboratory testing programs that have become the most important activity in packaging testing field.



Achievements:

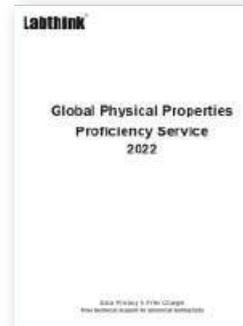
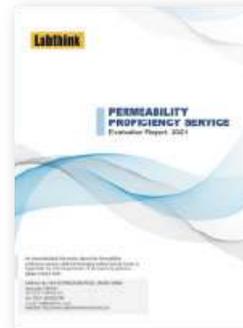
Labthink has got good accuracy in inter laboratory testing data comparison for barrier property. Smither Pira purchased Labthink C230M & C390H in 2021 and very satisfied with their performance.

Testing Service (Lab Certification-CNAS/ILAC)

Labthink Global Proficiency Service

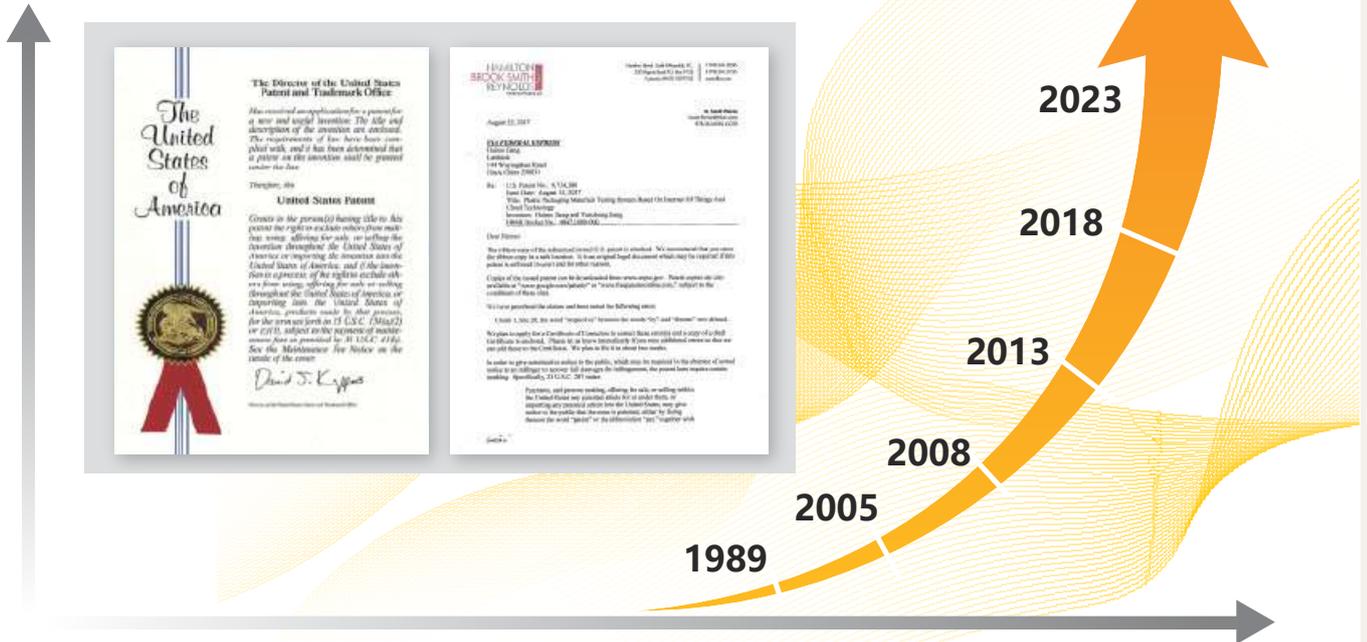
Since 2014, Labthink globally organized our own test data comparison annually.

Test Parameters: OTR & WVTR




Patents

Patents Registered

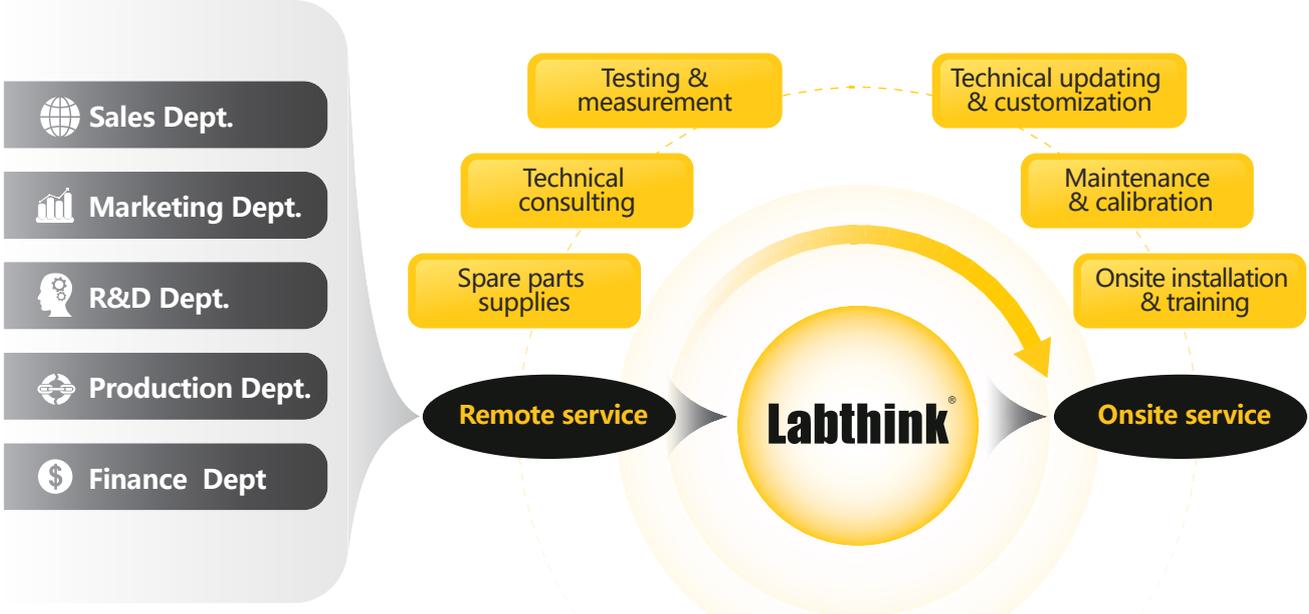


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Labthink[®]

GLOBAL
MANUFACTURER OF
PERMEABILITY TESTING
INSTRUMENTS

The 1st Corporate Partner of WPO
(World Packaging Organization)

Labthink is a multinational technology company since 1989. We are dedicated to providing packaging permeability and reliability testing instruments and testing services to help customers achieve safety control and innovation in materials development and quality control.

