Water Absorption Rate and Moisture Permeability Test Analysis Report for Ceiling Panels

A、Water absorption rate：

一、Composition of Test Materials：

1.1、Fiberglass decorative ceiling panels：150kg/m3&T15mm fiberglass panels，with #600 series fabric on the front side and WR-2140 wood grain on the back side.

1.2、Rockwool decorative ceiling panels：180kg/m3&T15mm Rockwool panels，with #600 series fabric on the front side and WR-2140 wood grain on the back side.

1.3、**Environmental conditions:** Temperature: 23°C, Humidity: 50% RH.

试验项目	このPCに保存済み方法（概要）	评价要点（合格基准参考）
① 耐湿性（吸水率）	·将 100×100mm 试样干燥 → 浸水 24 小时 → 测量质量差	·3g/100cm² 以下：良好 ·1g/100cm² 以下：非常良好

二、Test Methods：

1、Complete immersion in water

2、Floating on the water surface

三、 **Test Process:**

A、Fiberglass decorative ceiling panels: (Status at 2 hours and 24 hours)

P1--Floating on the water surface for 2 hours P2--completely submerged in water for 24 hours

P1

P2

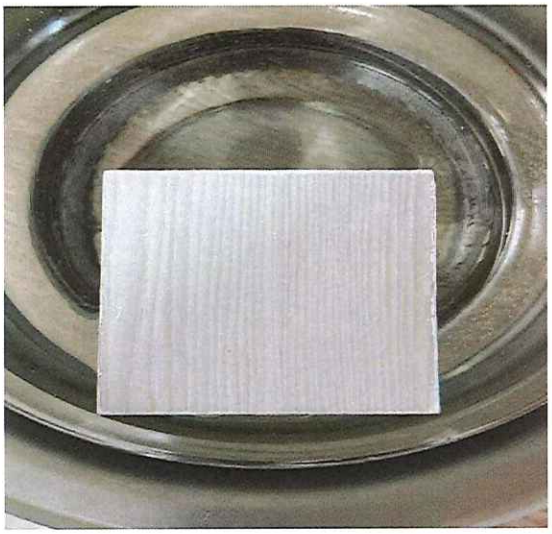
P3--Floating on the water surface for 24 hours P4--completely submerged in water for 24 hours

P3

P4

B、Rockwool decorative ceiling panels：(Status at 2 hours and 24 hours）

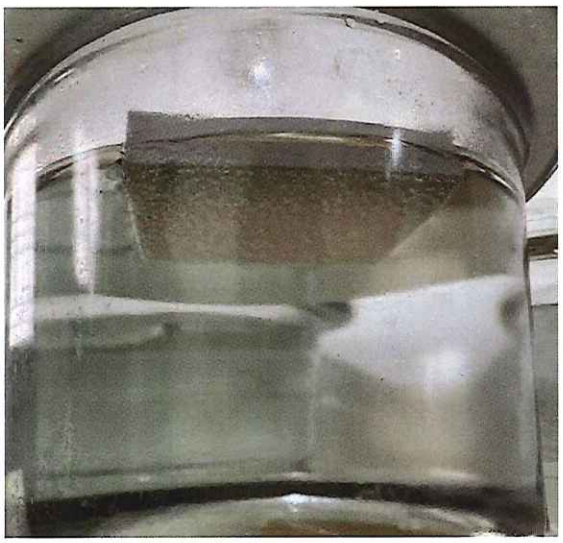
P5--Floating on the water surface for 2 hours　　P6--completely submerged in water for 2 hours



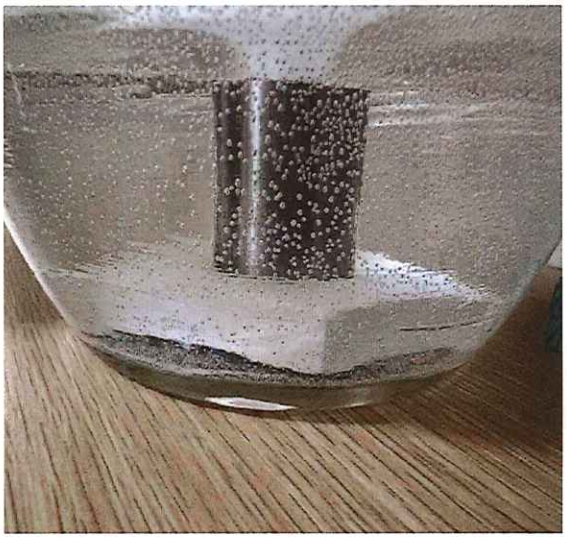
P5

P6

P7--Floating on the water surface for 2 hours　　P8—completely submerged in water for 2 hours



P7



P8

Test conclusion:

1. Fiberglass decorative ceiling panel

After testing, the fiberglass decorative panel floating on the water surface showed a water absorption rate of 4.5 g/100cm² after 24 hours; when completely submerged in water, the water absorption rate was 81.52 g/100cm² after 24 hours.

2. Rockwool decorative ceiling panel

The rockwool decorative ceiling panel floating on the water surface showed a water absorption rate of 3.11 g/100cm² after 24 hours; when completely submerged in water, the water absorption rate was 7.11 g/100cm² after 24 hours.

Tested by: Mingjie Wang

Reviewed by: Haibao Zhu

Approved by: Shengli Yu

Date: April 30, 2026

Water Absorption Test Original Recording

NO：BY/QR90-06

Sample	Fiberglass decorative ceiling panel	Quantity	2
Specification	100mmx100mm	Test reference	/
Batch No.	/	Production date	2026.4.20
Ambient Temperature (°C)	23	Relative Humidity (%RH)	50
Equipment Name	Electronic balance	Equipment Model	PE160
	Glass bell jar		/
Date		2026.4.21	

Sample No.1: Completely submerged.
Sample No.2: Floating on the water surface.

Sanple No.		Sample No.1	Sample No.2	/
Dimensions	Length（mm）	100	100	/
	Width（mm）	100	100	/
Room Temperature (°C)		23		
Mass Before Absorption (g)		30.49	39.25	/
Mass After Absorption (g)		112.01	43.75	/
Water Absorption Rate		81.52g/100cm²	4.5g/100cm²	/

Note： Water absorption rate = (m_2 - m_1) ÷ Sample area,

m_2 = mass after absorption, m_1 = mass before absorption.

Evaluation Criterion: 50 g/100cm²

Remarks	150kg/m3 fiberglass wool, front side: #600 series fabric, backside: WR-2140 woodgrain, double-layer waterproofing agent sprayed.		
Tested by	Mingjie Wang	Test date	2026.4.21
Reviewed by	Haibao Zhu	Approved by	Shengli Yu

Water Absorption Test Original Recording

NO：BY/QR90-06

Sample	Rockwool decorative ceiling panel	Quantity	2
Specification	100mmx100mm	Test reference	/
Batch No.	/	Production date	2026.4.20
Ambient Temperature (°C)	20	Relative Humidity (%RH)	50
Equipment Name	Electronic balance	Equipment Model	PE160
	Glass bell jar		/
Date		2026.4.21	

Sample No.1: Completely submerged.

Sample No.2: Floating on the water surface.

Sample No.		Sample No.1	Sample No.2	/
Dimensions	Length（mm）	100	100	/
	Width（mm）	100	100	/
Room Temperature (°C)		20		
Mass Before Absorption (g)		34.80	30.26	/
Mass After Absorption (g)		41.91	33.37	/
Water Absorption Rate		7.11g/100cm²	3.11g/100cm²	/

Note： Water absorption rate = (m_2 - m_1) ÷ Sample area,

m_2 = mass after absorption, m_1 = mass before absorption.

Evaluation Criterion: 50 g/100cm²

Remarks	180kg/m3 OWS Rockwool; Front side: #600 series fabric, Backside: WR-2140 woodgrain, double-layer waterproofing agent sprayed.。		
Tested by	Mingjie Wang	Test date	2026.4.21
Reviewed by	Haibao Zhu	Approved by	Shengli Yu

B、Moisture Permeability：

1. Composition of Test Materials：

1.1. Fiberglass Decorative Ceiling Panel: 150kg/m3 fiberglass panel,

Front side 600# series fabric; back side WR-2140 wood grain

1.2. 180kg/m3 OWS Rockwool Ceiling Panel

Front side: #600 series fabric; backside: WR-2140 woodgrain,

1.3. Test Equipment: Constant temperature and humidity chamber, desiccant (calcium chloride), electronic balance, glass adhesive (silicone sealant)

1.4、Environmental Conditions: Temperature 23°C, Humidity 55% RH

⑧透湿性 （杯式法）	·将试样密封于装有干燥剂的杯中 ·在 23℃、50～60%RH 条件下测量 7 天	·40 ng/m²·s·Pa 以下：良好 ·10 ng/m²·s·Pa 以下：非常良好

2. Test Method

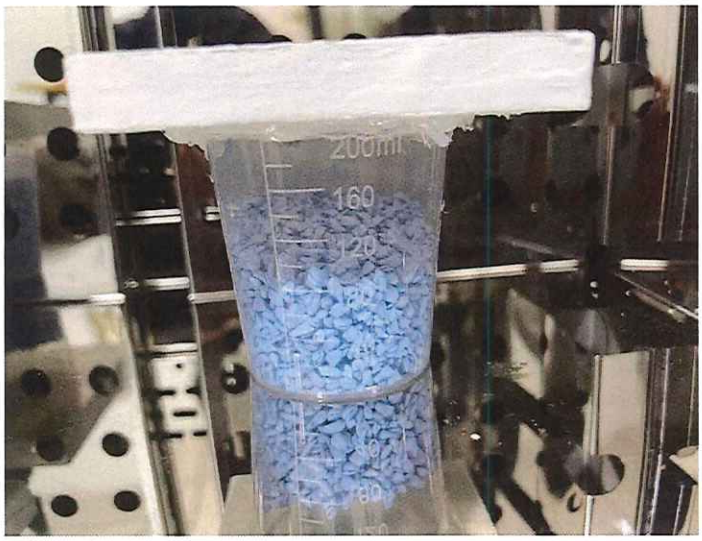
a. Weigh 100g of desiccant and place it into a plastic cup with a diameter of 7cm.

b. Cover the cup mouth with the test sample respectively, seal it with glass adhesive, and place it in the constant temperature and humidity chamber.

c. After 7 days, measure the weight gain of the desiccant due to moisture absorption.

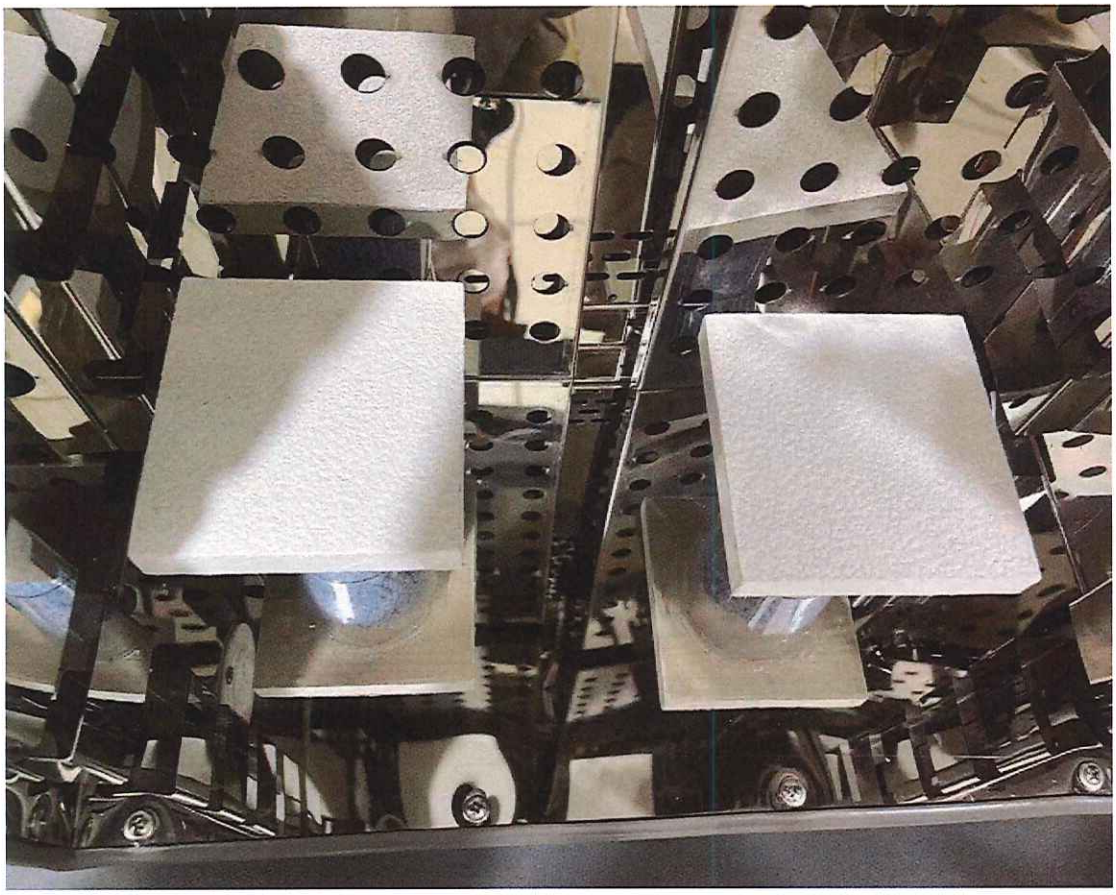
3. Test Process

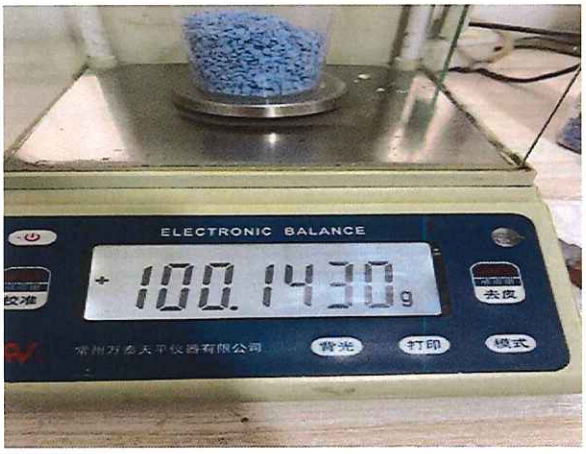
Desiccant Weighing



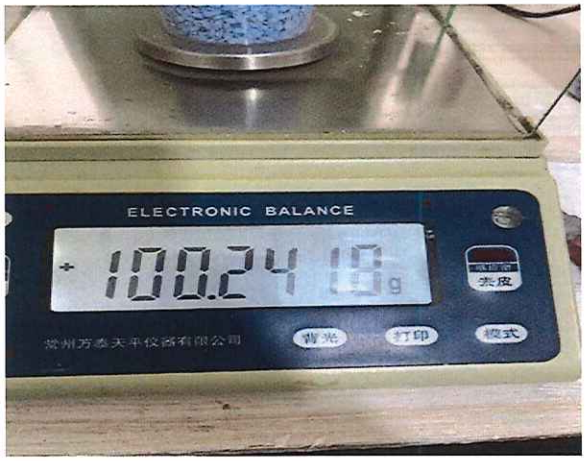
Seal the bottle rim with glass adhesive (silicone sealant)


200ml
160





Desiccant Mass in Fiberglass Sample After 7 Days



Desiccant Mass in Rockwool Sample

After 7 Days

4. Test Conclusion:

Based on the test,

the moisture permeability of the Fiberglass Decorative Panel after 7 days is **25.98 g/m²;**

the moisture permeability of the Rockwool Decorative Panel after 7 days is **45.94 g/m².**

Tested by: Mingjie Wang **Reviewed by:** Haibao Zhu

Approved by: Shengli Yu **Date:** April 30, 2026

Moisture Permeability Test Original Recording

NO：BY/QR90-06

Sample	Fiberglass decorative ceiling panel	Quantity	1
Specification	100mmx100mm	Test standard	/
Batch No.	/	Production Date	2026.4.20
Ambient Temperature (°C)	23	Relative Humidity (%RH)	55
Equipment Name	Electronic Balance	Equipment Model	PE160
	Constant Temperature & Humidity Chamber		HWS-30
Test Date		2026.4.21-4.27	

Sample No.		Sample No.1	Sample No.2	/
Sample Area	Circle with 7cm diameter	0.003848m2		
Room Temperature (°C)		23		
Initial Mass (Desiccant) (g)		100.0425		
Final Mass (Desiccant) (g)		100.1430		
Mass Difference		0.1005g		
Results		Mass Difference ÷ Area = **25.98 g/m²**		

·将试样密封于装有干燥剂的杯中
·在 23°C、50～60%RH 条件下测量 7 天

·40 ng/m²·s·Pa 以下：良好
·10 ng/m²·s·Pa 以下：非常良好

Remarks	150kg/m3 fiberglass wool, front side: #600 series fabric, backside: WR-2140 woodgrain, double-layer waterproofing agent sprayed.		
Tested by	Mingjie Wang	Test date	2026.4.27
Reviewed by	Haibao Zhu	Approved by	Shengli Yu

Moisture Permeability Test Original Recording

NO：BY/QR90-06

Sample	Rockwool decorative ceiling panel	Quantity	1
Specification	100mmx100mm	Test standard	/
Batch No.	/	Production Date	2026.4.20
Ambient Temperature (°C)	23	Relative Humidity (%RH)	55
Equipment Name	Electronic Balance	Equipment Model	PE160
	Constant Temperature & Humidity Chamber		HWS-30
Test Date		2026.4.21-4.27	

Sample No.		1	2	/
Sample Area	Circle with 7cm diameter	0.003848m2		
Room Temperature (°C)		23		
Initial Mass (Desiccant) (g)		100.0650		
Final Mass (Desiccant) (g)		100.24185		
Mass Difference		0.1768		
Results		Mass Difference ÷ Area =**45.94g/m2**		

·将试样密封于装有干燥剂的杯中
·在 23℃、50～60%RH 条件下测量 7 天

·40 ng/m²·s·Pa 以下：良好
·10 ng/m²·s·Pa 以下：非常良好

Remarks	180kg/m3 OWS Rockwool; Front side: #600 series fabric, Backside: WR-2140 woodgrain, double-layer waterproofing agent sprayed.。		
Tested by	Mingjie Wang	Test date	2026.4.27
Reviewed by	Haibao Zhu	Approved by	Shengli Yu