TEST REPORT

Test Report

68, Gajaeul-ro, Seo-gu, Incheon, 22829, Korea
TEL 82-41-589-0010 FAX 82-41-589-0012

Report No. : THF-2024-000012

1.Applicant

- ○ Company Name : Saint-Gobain Isover Korea Co.,Ltd
- ○ Address : 1F, 70, Bugokgongdan 1-gil, Songak-eup, Dangjin-si, Chungcheongnam-do, Republic of Korea
- ○ Date of receipt : 20240109

2. Test targer product

- ○ Sample Name : **WeatherProof Black(Glass Fiber Tissue)**
- ○ Applied Range : **Interior Finishing Materials**
- ○ Product No. : WeatherProof Black(Glass Fiber Tissue)_231228

3. Test Standard : **Ministry of Land, Infrastructure and Transport Notice No. 2023-24 'Quality recognition and management standards for building materials, etc.'**

4. Purpose of the report : QUALITY CONTROL

5. Test period : 2024. 01. 09. ~ 2024. 02. 21.

6. Test Environment : Temperature : (15~30) ℃, humidity : (20~80) % R.H.

7. Test Results : **Suitable with test results according to Ministry of Land, Infrastructure and Transport Notice No. 2023-24 'Quality recognition and management standards for building materials, etc.' Article 24 Subparagraphs 1 and 2**

①. The test results of this test report are only limited in to the samples and sample names provided by the client and do not guarantee the quality of all products of the client. You can check website (www.ktr.or.kr) or QR code to verify the authenticity of the certificate.
②. This test report shall be used only within the purpose of its defined usage and shall not be used for public relation, advertisement and lawsuit.
③. This test report is only valid when printed on KTR original report paper with hologram and when re-issued by KTR.

Confirm	Prepared by Name :	Technical Manager Name : Lee Seong-gyu Lee Seong-gyu

Issue Date : 2024. 02. 21.

Korea Testing & Research Institute

President Kim Hyun Cheol

QR Code to verify genuineness

*** Test reports are valid for 3 year from the date of issuance of the report.**

8. Test Results

Division	Test Item		Unit	Test Results			Criteria	Test Method	Test Site
				1st	2st	3st			
Interior Finishing materials	Heat release rate test	Total Heat Release	MJ/㎡	0.4	0.4	0.5	8 MJ/㎡ or below	(1)	A
		Heat Release Rate(HRR) time over 200 kW/㎡	s	0	0	0	10 s below		
		Whole melting of core material or any cracking or hole that penetration to the rear side	-	not be observed	not be observed	not be observed	should not be observed		
	Gas Hazard Test	Average deed stopping time	min:s	14:57	14:57	-	than 9 min or more		

※ Performance test was done according to the Article 24, (1) and (2) of the 「Ministry of Land, Transport and Maritime Affairs, Notification No. 2023-24」.(Client provided)

※ Suitable to the heat release rate (cone calorimeter method) test result according to Article 24, (1) of 『Notice No. 2023-24 of the Ministry of Land, Infrastructure and Transport』.

※ Suitable to gas hazard test results according to Article 24, (2) of 『Notification No. 2023-24 of the Ministry of Land, Infrastructure and Transport』.

※ Test reports are valid for three years from the date of issuance of the report according to the Article 29, (4) of the 「Ministry of Land, Transport and Maritime Affairs, Notification No. 2023-24」.

※ Test Method

(1) 「Ministry of Land, Infrastructure and Transport Notice No. 2023-24」

※ Test site A. Korea Testing & Research Institute Building C, 68, Gajaeul-ro, Seo-gu, Incheon, Republic of Korea

※ Quasi-noncombustible materials performance criteria in the Article 24(1) and (2) of the 「Ministry of Land, Transport and Maritime Affairs, Notification No. 2023-24」.

1) The total heat release should be 8MJ/㎡ or below for 10 minutes after the heating start.
2) The maximum heat release rate for 10 minutes shall not exceed 200 kW/㎡ in a row for than 10 seconds or more.
3) After heating for 10 minutes, there should be not observe harmful cracks(a deformation in which the test object splits and the floor is visible), holes(a deformation in which the bottom surface is visible from the surface of the test object), and melting(a case where the test object melts and the floor is visible) penetrating the test specimen. There should not be partial melting or contraction exceed 20% of the thickness of the test specimen.
4) The average time of suspension of behavior in experimental mice should be more than 9 minutes.

■ Test conditions for Heat release rate

	Date of Test	2024. 01. 18.
Burning surface	Separate display of Burning surface	
Testing Environment	Temperature (23 ± 2) ℃, Relative Humidity (50 ± 5) % R.H.	
Test Time (min)	10	
Orifice constant C ($m^{1/2} \cdot g^{1/2} \cdot K^{1/2}$)	0.042 65	
Heat Flux (㎾/㎡)	50 ± 1	
Exhaust system flow (m^2/s)	0.024 ± 0.002	

■ Heat release rate test conditions

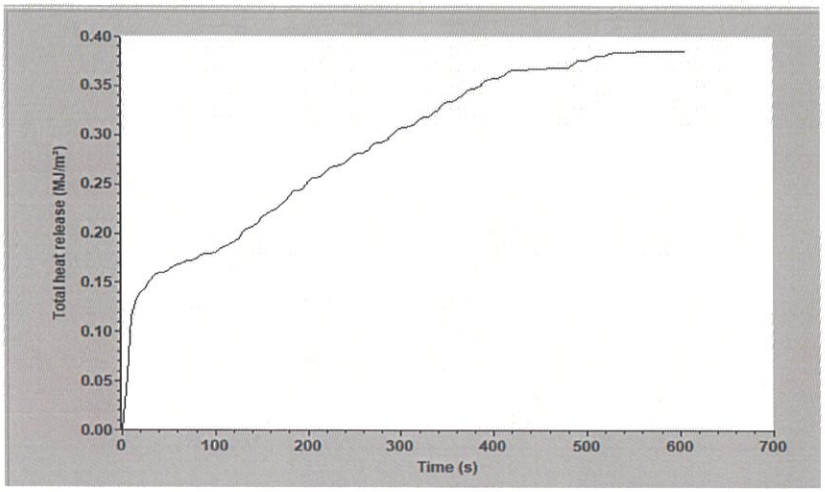
Width (mm)	No. 1	99.6	No. 2	99.6	No. 3	99.6
Length (mm)		99.6		99.6		99.6
Thickness (mm)		0.3		0.4		0.4
Mass (g)		1.8		1.7		1.7
Total density (kg/m^3)		201.6		175.0		198.7
Core density (kg/m^3)		-		-		-
Pretreatment	Temperature (23 ± 2) ℃, Relative Humidity (50 ± 5) % R.H.					

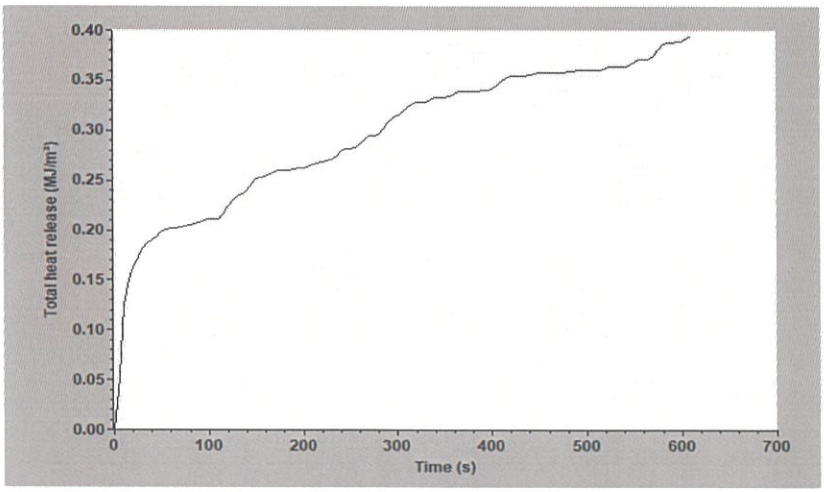
■ Composition of specimen

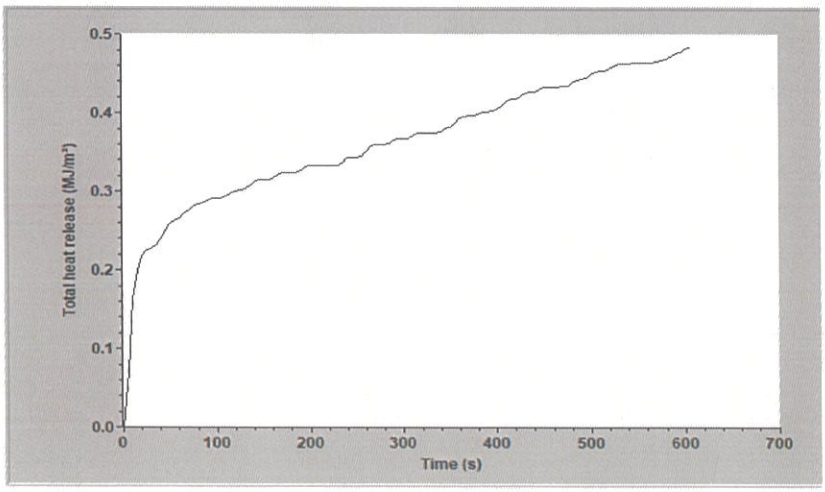
Composition	Quality of the material	Manufacturer	Model	Thickness (mm)
Facing	Glass Fiber	ADFORS	UH60B	0.59 ㎜

Diagram


■ Heat release rate Test Temperature Graph(Total heat release)







■ Gas Hazard test result

			Date of Test	2024. 01. 19.
Test Items	Unit	Test result		Test Method
		No. 1	No. 2	
Average deed stopping time of Test Mouse	min:s	14:57	14:57	(1)

■ Gas Hazard Test Conditions

Heating Condition	Start heating with a sub-heat source (LPG) for 3 minutes first, heat with a main heat source (full heat) from 3 minutes, and end after 6 minutes (sub-heat source: 6 minutes, main heat source: 3 minutes)					
Burning surface (Client provided)	Separate display of Burning surface					
Testing Environment	Temperature (23 ± 2) ℃, Relative Humidity (50 ± 5) % R.H.					
Test Time (min)	15					
Test Mouse	Line	ICR, Female	Age	5	Weight	(18 ~ 22) g

■ Gas Hazard Test Specimen Conditions

Width (mm)	No. 1	219.6	No. 2	218.2
Length (mm)		218.2		218.2
Thickness (mm)		0.3		0.3
Mass (g)		2.9		2.9
Total density (kg/m^3)		231.1		236.7
Pretreatment	Temperature (23 ± 2) ℃, Relative Humidity (50 ± 5) % R.H.			

■ Report on the end of animal testing

Committee approval number	IAC2024-0152
Committeeapproval date	2024-01-12

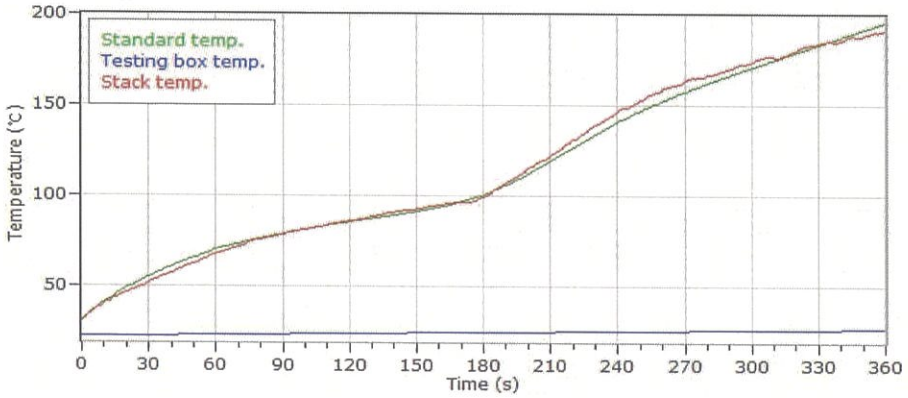
■ Standard Form Test

- Standard Form : Fiber Reinforced Calcium Silicate Board

< Exhaust Temperature >

Elapsed Time (s)	Standard Temperature (℃)	Measure Temperature (℃)	Temperature range (℃)
0.0	30	29.9	0.1
60.0	70	67.4	2.6
120.0	85	85.6	-0.6
180.0	100	98.6	1.4
240.0	140	145.9	-5.9
300.0	170	173.0	-3.0
360.0	195	190.7	4.3

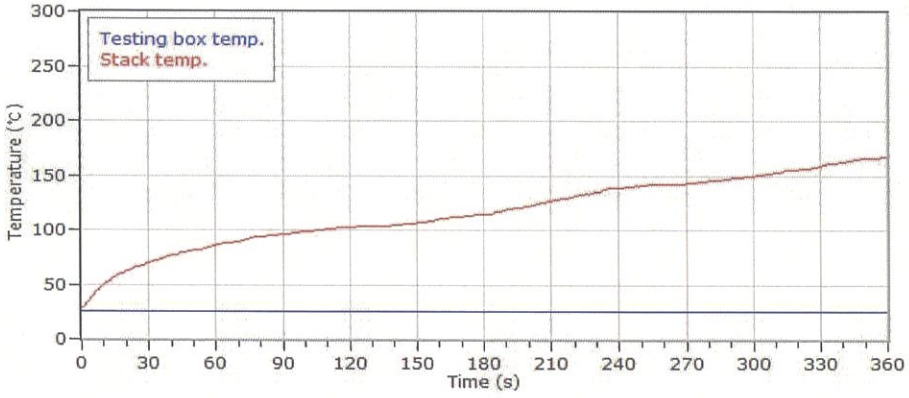
< Exhaust Temperature Curve >

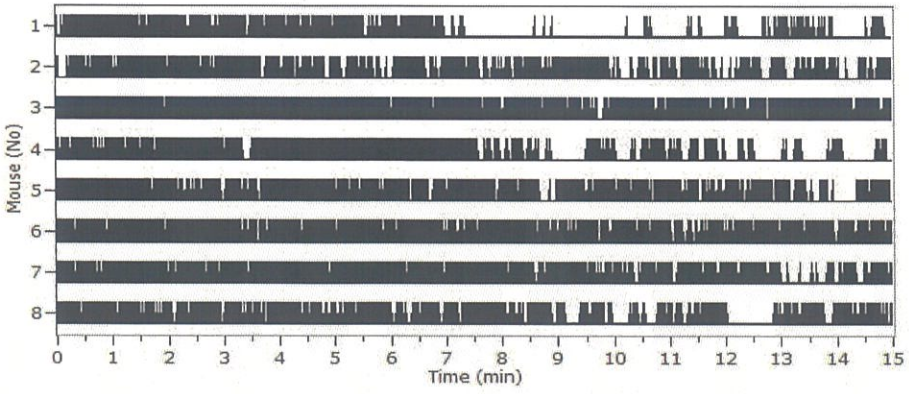


■ Hazardous gas test result(No. 1)

Elapsed Time (s)	Measure Temperature (℃)
0	28.1
60	85.4
120	102.0
180	113.3
240	138.1
300	149.1
360	167.2

Spinning box	Stop time
M1	15 min 00 s
M2	14 min 59 s
M3	15 min 00 s
M4	14 min 54 s
M5	14 min 57 s
M6	15 min 00 s
M7	14 min 59 s
M8	14 min 59 s
Average	14 min 59 s
Standard deviation	00 min 02 s
Average deed stopping time	14 min 57 s

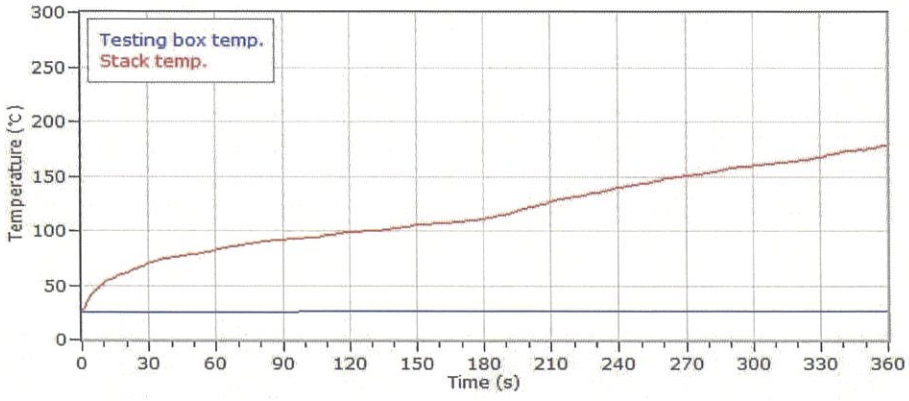


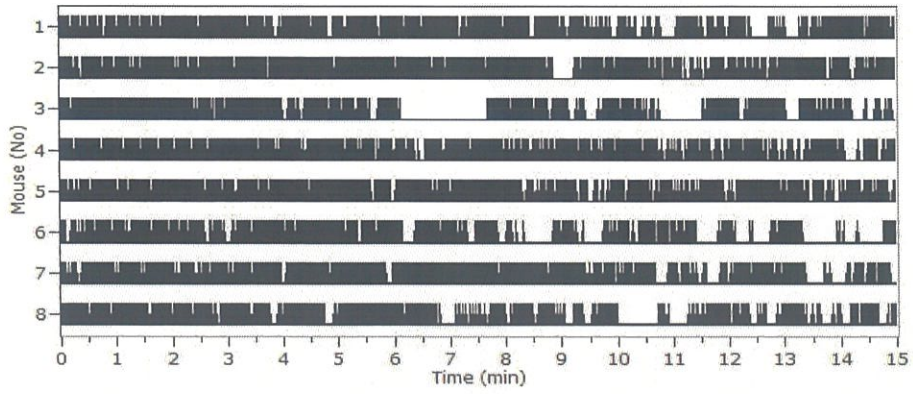


■ Hazardous gas test result(No. 2)

Elapsed Time (s)	Measure Temperature (℃)
0	27.3
60	81.4
120	97.6
180	110.3
240	138.6
300	159.0
360	177.7

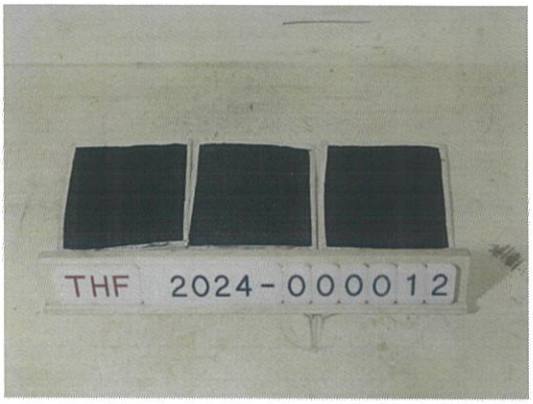
Spinning box	Stop time
M1	15 min 00 s
M2	15 min 00 s
M3	14 min 56 s
M4	15 min 00 s
M5	15 min 00 s
M6	15 min 00 s
M7	14 min 53 s
M8	14 min 59 s
Average	14 min 59 s
Standard deviation	00 min 02 s
Average deed stopping time	14 min 57 s





■ Test sample picture

< Heat release rate test >

Before	After
	

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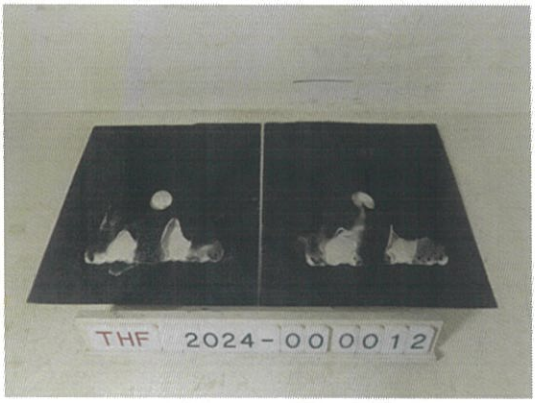
Before	After
	

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