

TEST REPORT



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Report No. : THF-2026-000218

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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 : 2026.03.13

2. Test target product

- Sample Name : SafeRoll VP 4+
- Applied Range : Inside Finishing materials
- Product No. :

3. Test Standard : Ministry of Land, Infrastructure and Transport Notice No. 2023-24 (2023) Standards for Quality Recognition and Management of Building Materials, etc.

4. Purpose of the report : QUALITY CONTROL

5. Test period : 2026. 03. 13. ~ 2026. 04. 13.

6. Test Environment : Temperature : (15~30) °C, Humidity : (20~80) % R.H.

7. Test Results : Suitability for the test results pursuant to subparagraphs 1 and 2 of Article 23 of the Ministry of Land, Infrastructure and Transport Notice No. 2023-24 of the quality of building materials

- 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. The copy and the electronic file of the test report are only for reference.

Confirm	Prepared by	Technical Manager
	Name : Ha Young Kwon <i>Ha Young Kwon</i>	Name : Shin Ho-chul <i>Shin Ho-chul</i>

Issue Date : 2026. 04. 13

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			
Inside Finishing materials	Non-combustibility test	Mass reduction rate	%	8.38	9.00	9.36	30 % or below	(1)	A
		The difference between maximum furnace temperature and final equilibrium temperature	°C	2.8	2.0	2.6	20 K or below		
	Gas Hazard Test	Average deed stopping time	min:s	14:57	14:31	-	than 9 min or more		

- * Performance test was done according to the Article 23, (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 23, (1) of 「Notice No. 2023-24 of the Ministry of Land, Infrastructure and Transport」.
- * Suitable to gas hazard test results according to Article 23, (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
- * Non-combustible materials performance criteria in the Article 23(1) and (2) of the 「Ministry of Land, Transport and Maritime Affairs, Notification No. 2023-24」.
 - 1) The difference between maximum furnace temp and final equilibrium temp should be 20 K or below(If equilibrium is not reached for 20 minutes, the average temperature for the final 1 minute is set to the final equilibrium temperature.)
 - 2) The mass reduction rate of the test specimen after heating should be 30% or below.
 - 3) 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	2026. 04. 07.
Testing Environment	Temperature (23 ± 7) °C, Relative Humidity (50 ± 30) % R.H.	
Test Time (min)	20	

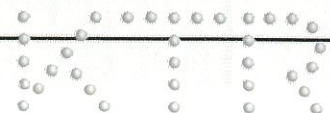
■ Heat release rate test conditions

	No. 1	No. 2	No. 3
Diameter (mm)	44.80	44.79	44.62
Thickness (mm)	49.91	49.58	49.51
Initial Mass (g)	1.91	2.00	2.03
Final Mass (g)	1.75	1.82	1.84
Maximum furnace Temperature (°C)	766.5 / 771.6	767.3 / 771.2	769.3 / 776.8
Final equilibrium Temperature (°C)	764.8 / 767.8	765.8 / 768.6	768.7 / 772.2
The difference between maximum furnace temp. and final equilibrium temp. (°C)	1.7 / 3.8	1.5 / 2.6	0.6 / 4.6
Total density (kg/m ³)	24.29	25.61	26.23
Core density (kg/m ³)	-	-	-
Pretreatment	Temperature (23 ± 2) °C, Relative Humidity (50 ± 5) % R.H.		
	(60 ± 5) °C		

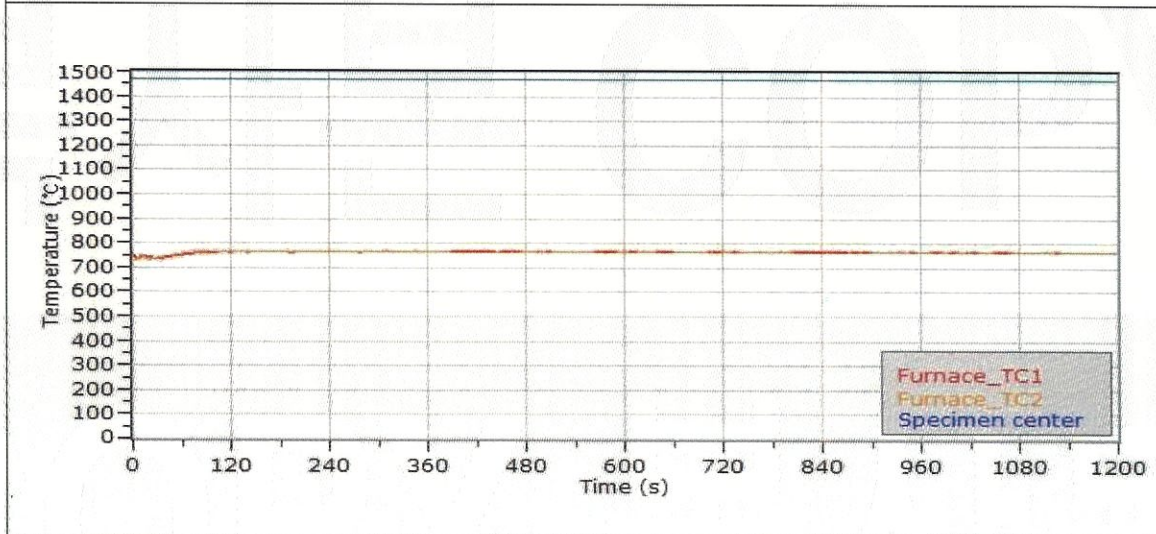
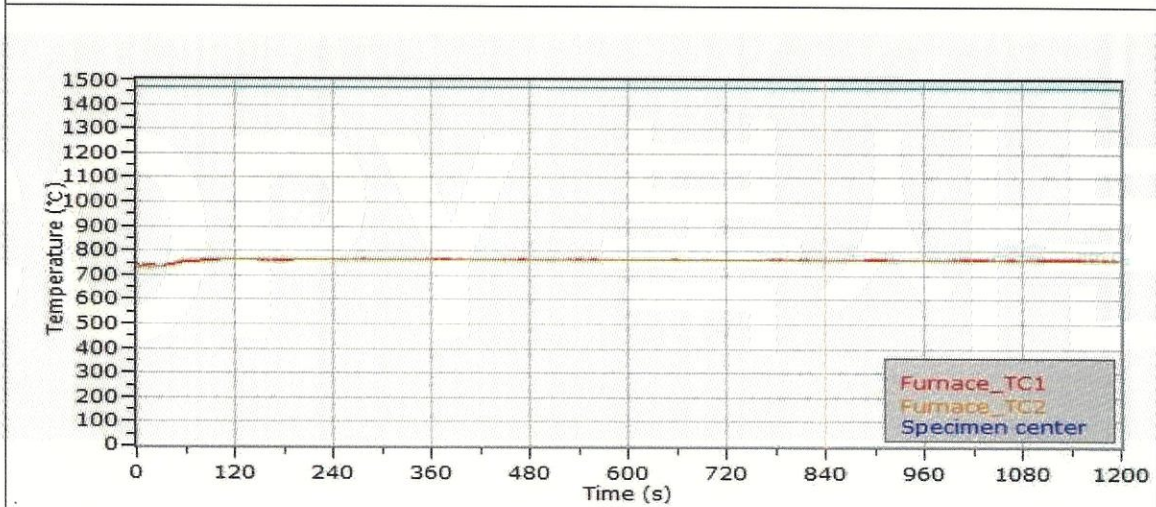
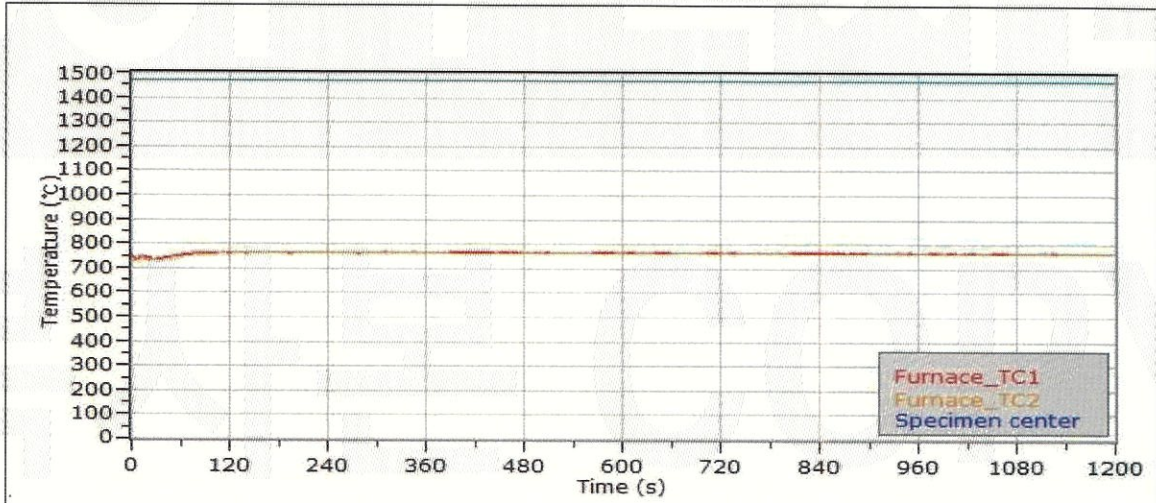
■ Composition of specimen

Composition	Quality of the material	Manufacturer	Model	Thickness (mm)
표면재(가열면)	은박	동원씨디에프(주)	V(불연방습)	0.21 mm
단열재	그라스울	생고뱅이소바코리아	포플러스	25 mm

Composition	
	-> 표면재(0.21 mm)(가열면)
	-> 그라스울(25 mm)



■ Non-combustibility Test Temperature Graph



■ Gas Hazard test result

Test Items	Unit	Test result		Test Method
		No. 1	No. 2	
Average deed stopping time of Test Mouse	min:s	14 : 57	14 : 31	(1)

Date of Test 2026. 04. 08.

■ Gas Hazard Test Conditions

Heating Condition	After heating for 6 minutes with auxiliary heat source (LPG), heat again for 3 minutes with main heat source (electric heat)				
Burning surface (Client provided)	Separate display of Burning surface				
Testing Environment	Temperature (23 ± 7) °C, Relative Humidity (50 ± 30) % 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	219.40	No. 2	219.99
Length (mm)		218.87		218.28
Thickness (mm)		29.09		32.16
Mass (g)		30.15		31.02
Total density (kg/m ³)		23.02		21.38
Pretreatment	Temperature (23 ± 2) °C, Relative Humidity (50 ± 5) % R.H.			

■ Report on the end of animal testing

Committee approval number	IAC2026-0475
Committee approval date	2026. 04. 01.



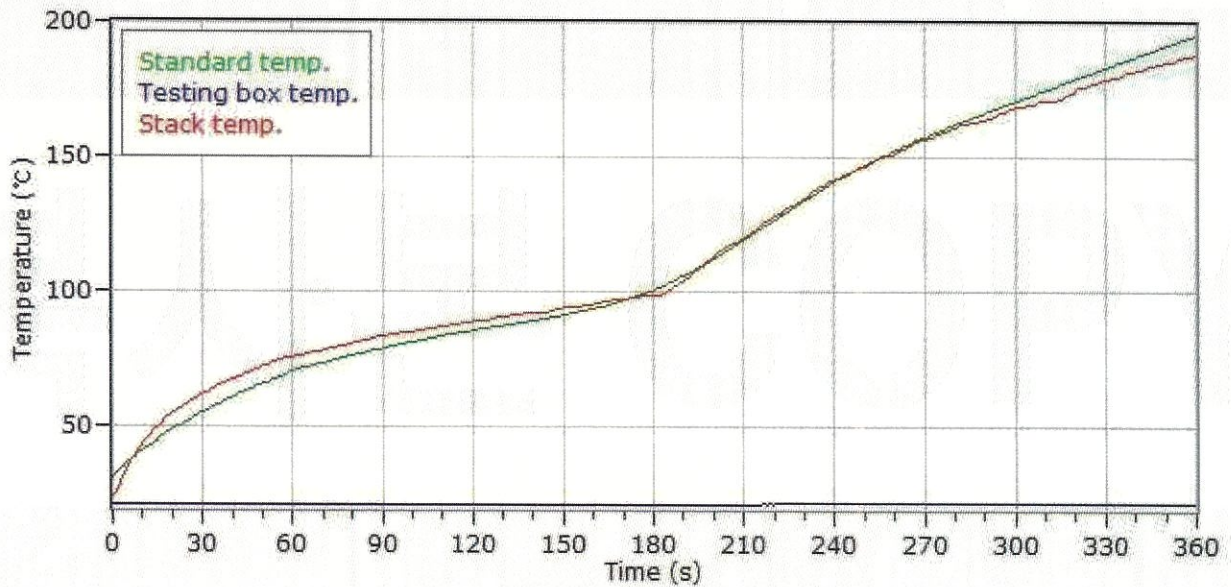
■ Standard Form Test

- Standard Form : Fiber Reinforced Calcium Silicate Board

< Exhaust Temperature >

Elapsed Time (s)	Standard Temperature (°C)	Measure Temperature (°C)	Temperature range (°C)
0.0	30	24.0	-6.0
60.0	70	75.1	5.1
120.0	85	88.4	3.4
180.0	100	98.1	-1.9
240.0	140	141.1	1.1
300.0	170	167.5	-2.5
360.0	195	187.6	-7.4

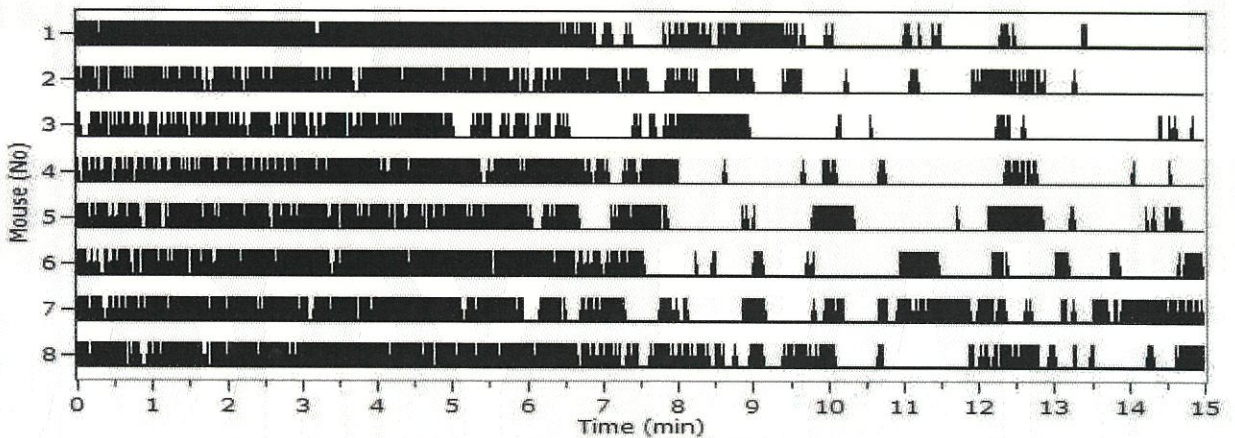
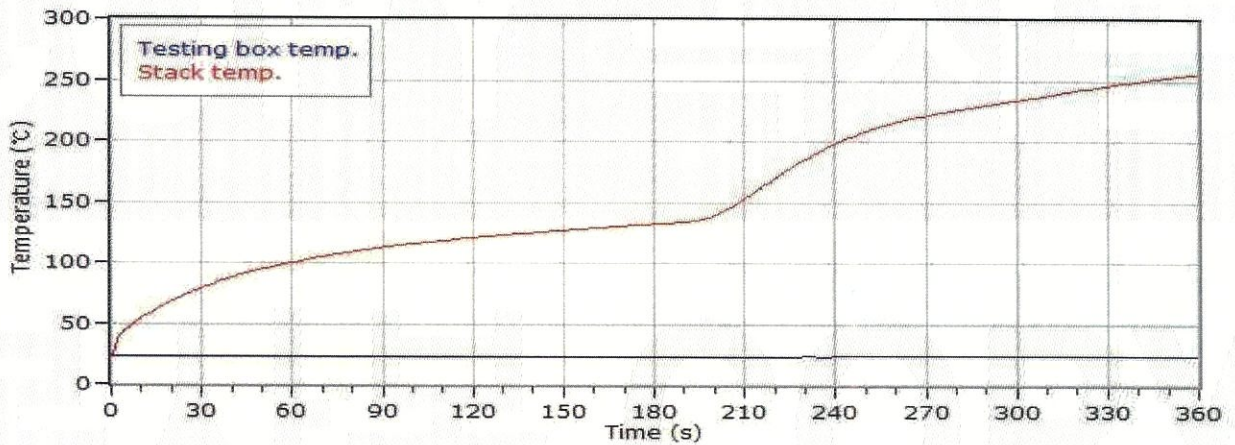
< Exhaust Temperature Curve >



■ Hazardous gas test result(No. 1)

Elapsed Time (s)	Measure Temperature (°C)
0	23.2
60	99.1
120	119.8
180	131.5
240	197.4
300	233.7
360	255.0

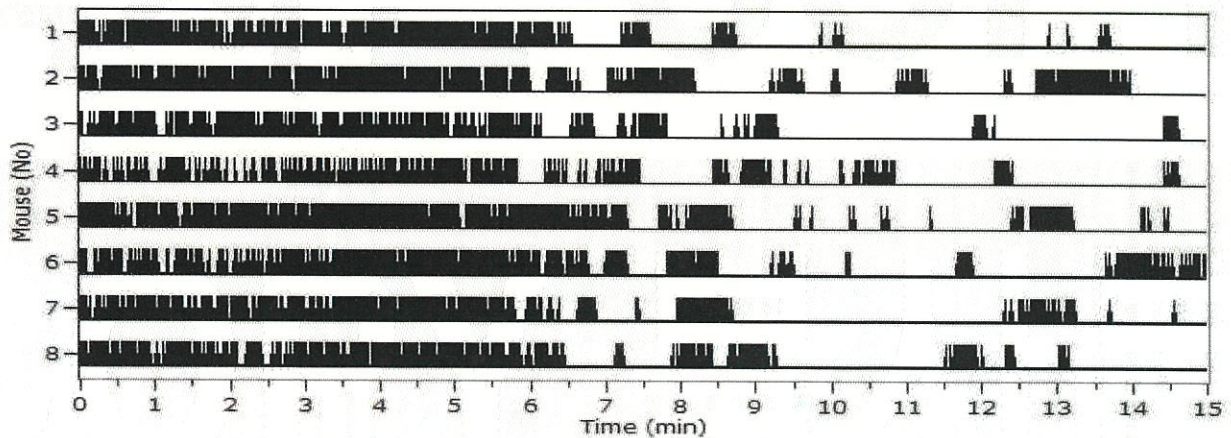
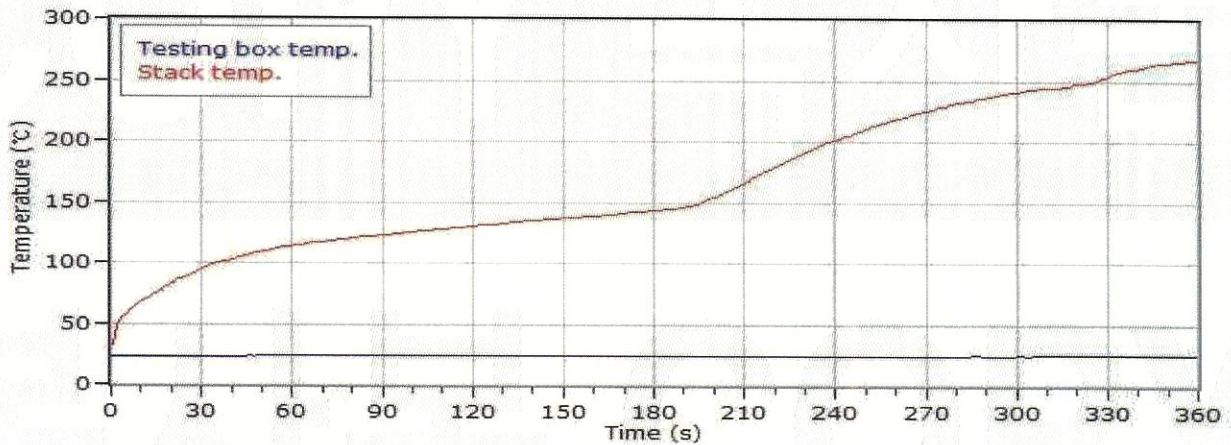
Spinning box	Stop time
M1	13 min 26 s
M2	13 min 18 s
M3	14 min 51 s
M4	14 min 33 s
M5	14 min 41 s
M6	14 min 58 s
M7	15 min 00 s
M8	15 min 00 s
Average	14 min 28 s
Standard deviation	00 min 39 s
Average deed stopping time	13 min 49 s



■ Hazardous gas test result(No. 2)

Elapsed Time (s)	Measure Temperature (°C)
0	32.0
60	113.2
120	129.8
180	142.6
240	200.3
300	240.4
360	267.3

Spinning box	Stop time
M1	13 min 43 s
M2	13 min 59 s
M3	14 min 38 s
M4	14 min 38 s
M5	14 min 29 s
M6	15 min 00 s
M7	14 min 34 s
M8	13 min 09 s
Average	14 min 16 s
Standard deviation	00 min 34 s
Average deed stopping time	13 min 42 s

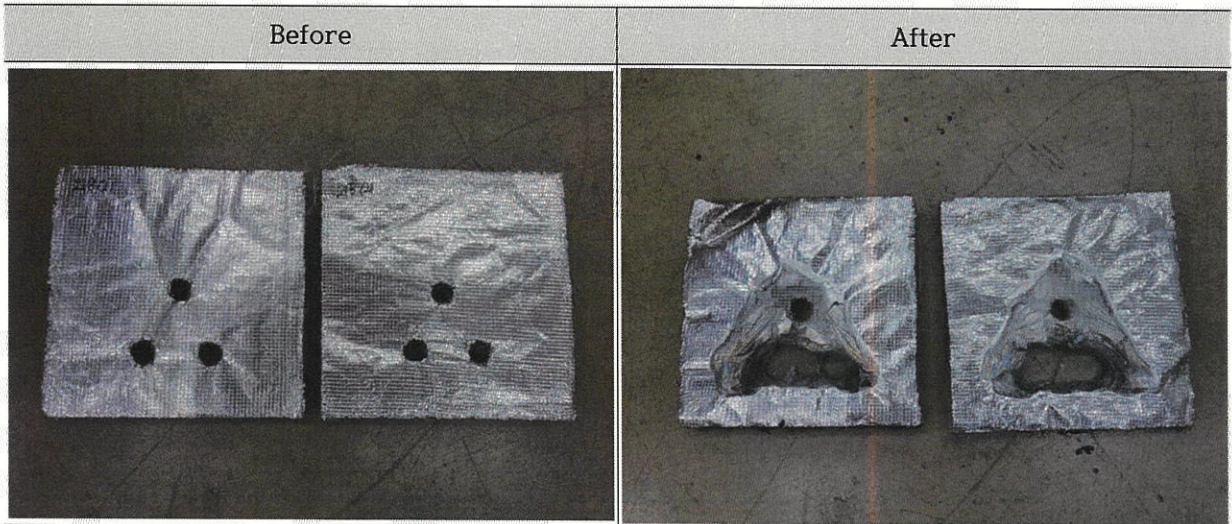


■ Test sample picture

< Non-combustibility Test >



< Gas Hazard Test >



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