4679-8370-4703-6507

TEST REPORT

No. : CT21-115537E

1. Client

Name : SEOHAN ANTAMIN

Address : 51, Aenggogae-ro 622beon-gil, Namdong-gu, Incheon, Republic of Korea

Date of Receipt : 2021.11.03

2. Specimen

Specimen Name : **AOP 8 ㎜**

Model Name : -

Product Number : -

3. Test Standard : **MOLIT(Ministry of Land, Infrastructure and Transport) Notification No. 2020-1053**

4. Use of Report : For quality control

5. Test Period : 2021.11.03 ~ 2021.11.19

6. Test Condition : Refer to the next page

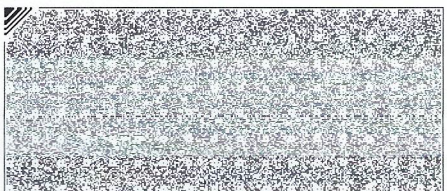
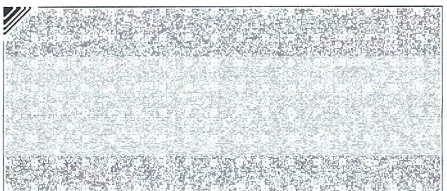
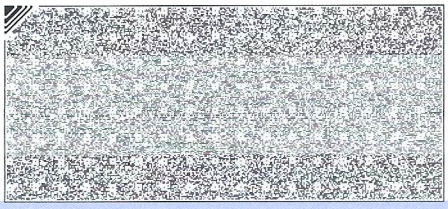
7. Test Results : **MOLIT(Ministry of Land, Infrastructure and Transport) Notification No. 2020-1053 Semi-noncombustible PASS**

Confirmation	Tested by Name	OH DONGUK	Technical Officer Name	CHOI, Joung Yoo

Issue Date : 2021.11.19

Korea Conformity Laboratories President Jo, Yung Tae

※ This test report is valid for 1 year from the date of issue.

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7. Test Results

Test item			Unit	Test results 1st	2nd	3rd	Criteria	Test method	Location
Front	Heat Release Test	Total heat released	MJ/㎡	4.9	4.3	5.7	Below 8	(1)	A
		Duration of consecutive HRR exceeding 200 kW/㎡	s	0	0	0	Under 10		
		Occurrence(Y/N) of hazard when setting fire on the specimen	-	No	No	No	No		
	Gas Toxicity Test	Average time of laboratory mouse stopped moving	min:sec	13:25	14:26	-	Over 9:00		
Side	Heat Release Test	Total heat released	MJ/㎡	3.0	2.8	3.0	Below 8		
		Duration of consecutive HRR exceeding 200 kW/㎡	s	0	0	0	Under 10		
		Occurrence(Y/N) of hazard when setting fire on the specimen	-	No	No	No	No		

※ According to 『Article 5, Clause ②, Paragraph 2. 나 of MOLIT(Ministry of Land, Infrastructure and Transport) Notification No. 2020-1053』, if each side of the facade finish material has different quality and, thus, shows different performance, test should be conducted three times for the front, back and side respectively. - Front and Side(As both Front and back have the same quality, test Front only)

※ The tested specimen complies with the criteria stipulated in MOLIT Notification No. 2020-1053 on Semi-Noncombustible materials.

※ According to Article 6, Clause 4 of MOLIT Notification No. 2020-1053, this test report is valid for 1 year from the date of issue.

※ Heat release test (side) - The result of the total amount of heat released per unit area is the result calculated by the side area of 9.4 ㎝ * 0.8 ㎝ = 7.5 ㎠.

※ Test method
(1) MOLIT(Ministry of Land, Infrastructure and Transport) Notification No. 2020-1053

※ Location
A. 73, Yangcheong 3-gil, Ochang-eup, Cheongwon-Gu, Cheongju-Si, Chungbuk, Korea

※ Note
This report is accredited by KOLAS.
Our report apply only to the standards or procedures identified and to the sample(s) tested unless otherwise specified. The test results are not indicative of representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products. The results of using only a portion of this report cannot be guaranteed. The authenticity of this test report can be checked on KCL website(www.kcl.re.kr).

※ The above test certificate is the accredited test results by Korea Laboratory Accreditation Scheme, which signed the ILAC-MRA.

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TEST REPORT

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■ Heat Release Test Conditions

Test date	Nov. 19, 2021

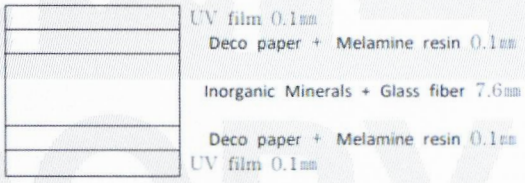
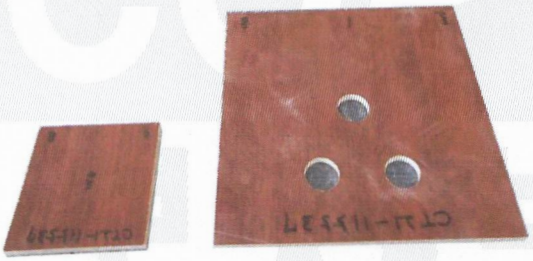
Heating side of specimen (requested by client)	Heated surface is specified[Front(=Back)/Side]
Test condition	Temp. (20.4 ~ 22.0) ℃, Humidity (47 ~ 51) % R.H.
Test duration (min)	10
C-factor ($m^{1/2} \cdot g^{1/2} \cdot K^{1/2}$)	0.041 175
External heat flux (kW/㎡)	50 ± 1
Flow rate of exhaust system (㎥/s)	0.024 ± 0.002

■ Test Specimen Specification

Width (㎜)	**Specimen 1**	99.0	**Specimen 2**	99.1	**Specimen 3**	99.0
Length (mm)		98.8		98.8		98.8
Thickness (㎜)		7.7		7.7		7.7
Mass (g)		141.4		141.9		140.9
Density (kg/㎥)		1 877.4		1 882.2		1 870.8
Density of core material (kg/㎥)		-		-		-
Pretreatment	Temp. (23 ± 2) ℃, Humidity (50 ± 5) % R.H.					

■ Test Specimen Configuration and Photograph

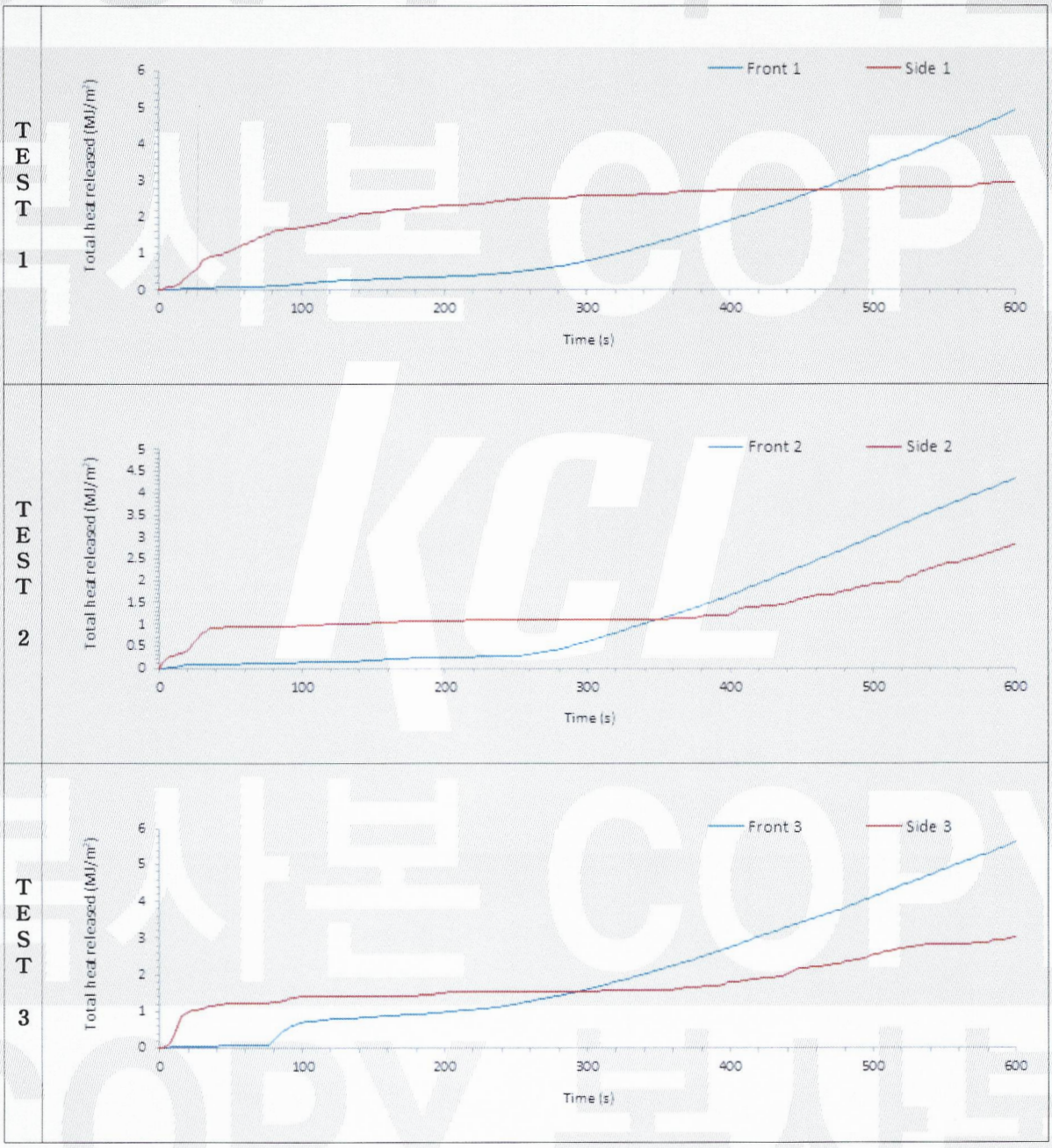
Composition	Material	Manufacturer	Model Name	Thickness
Surface material	UV film	Rohm	-	0.1 ㎜
	Deco paper + Melamine resin		-	0.1 ㎜
Core	Inorganic minerals + Glass fiber	SEOHAN ANTAMIN		7.6 ㎜
Surface material	Deco paper + Melamine resin		-	0.1 ㎜
	UV film	Rohm	-	0.1 ㎜

Configuration	Photograph
	

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■ Total Heat Release Curve



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■ Gas Toxicity Test Results

Test date	Nov. 15, 2021		
Test item	Unit	Test results	Test method
		1st	2nd	
Average time of laboratory mouse stopped moving	min:sec	13:25	14:26	(1)

■ Gas Toxicity Test Conditions

Heating condition	After heating with an auxiliary heat source(LPG) for 3 minutes, use the main heat source(furnace) to heat for additional 3 minutes.					
Heating side of specimen (requested by client)	Heated surface is specified[Front(=Back)/Side]					
Test condition	Temp. (17.1 ~ 17.1) ℃, Humidity (45 ~ 46) % R.H.					
Test duration (min)	15					
Laboratory mouse	Type	ICR group female	Age	5 weeks	Weight	(18 ~ 22) g

■ Test Specimen Specification

Width (㎜)	Specimen 1	219.0	Specimen 2	219.0
Length (mm)		219.0		218.7
Thickness (㎜)		7.6		7.7
Mass (g)		691.6		693.6
Density (kg/㎥)		1 897.4		1 880.7
Pretreatment	Temp. (23 ± 2) ℃, Humidity (50 ± 5) % R.H.			

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TEST REPORT

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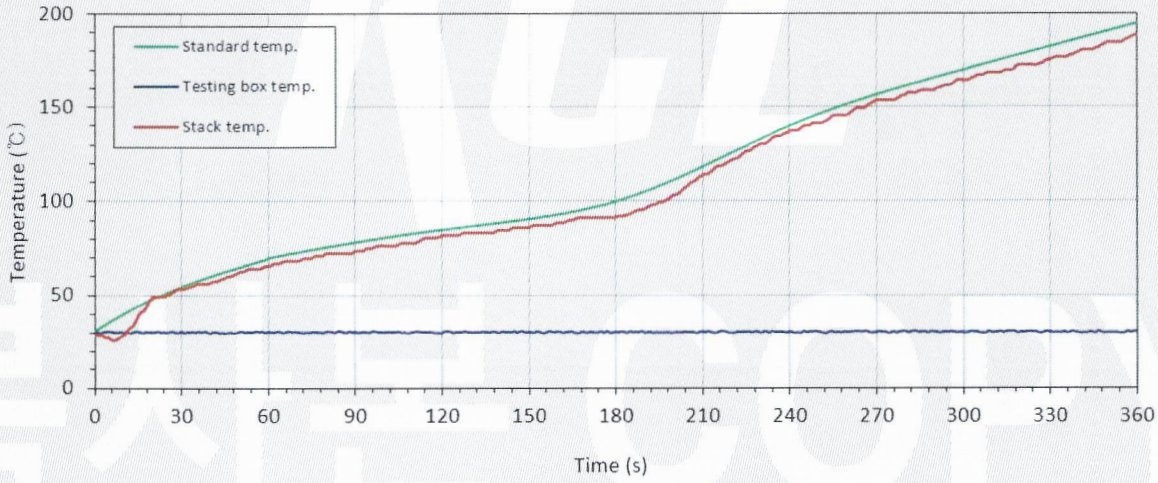
■ **Standard Sample Test**

- Specimen: Fiber-reinforced calcium silicate board

< Exhaust Temperature>

Elapsed Time (s)	Standard Temp. (℃)	Measured Temp. (℃)	Temp. Deviation (℃)
0.0	30.0	29.0	-1.0
60.0	70.0	65.6	-4.4
120.0	85.0	81.8	-3.2
180.0	100.0	91.4	-8.6
240.0	140.0	137.1	-2.9
300.0	170.0	164.5	-5.5
360.0	195.0	188.8	-6.2

< Exhaust Temperature Curve >



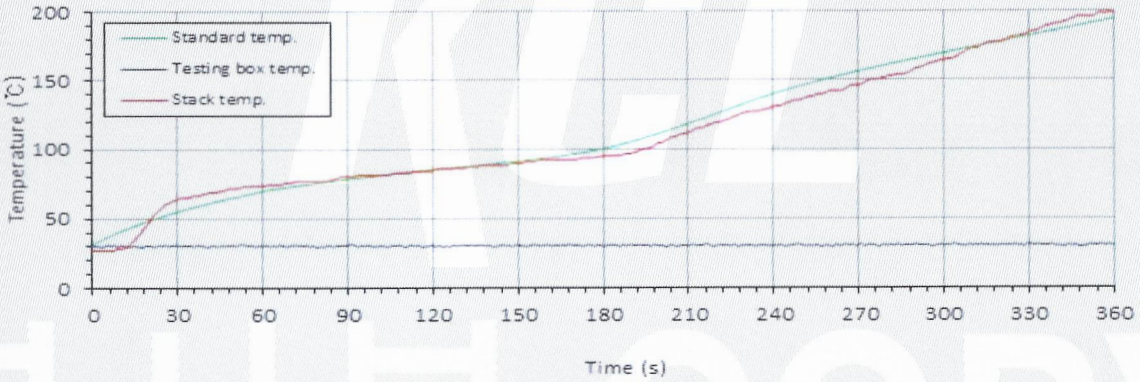
TEST REPORT

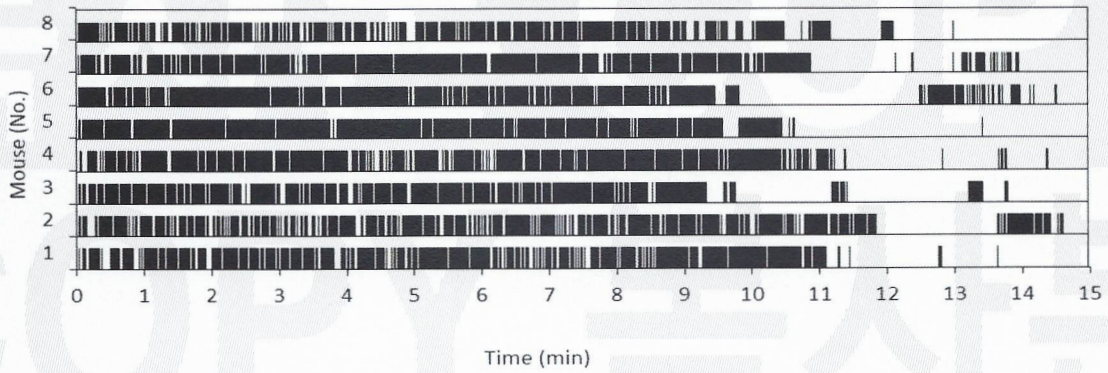
No. : CT21-115537E

■ Gas Toxicity Test Results (Specimen 1)

Elapsed time (s)	Measured temp. (℃)
0	27.8
60	73.8
120	84.6
180	95.4
240	131.1
300	165.1
360	199.4

Treadmill	Time of stop moving
M1	13 min 40 s
M2	14 min 39 s
M3	13 min 49 s
M4	14 min 25 s
M5	13 min 27 s
M6	14 min 33 s
M7	13 min 59 s
M8	13 min 01 s
Average	13 min 57 s
Standard deviation	00 min 32 s
Average time of stop moving	13 min 25 s





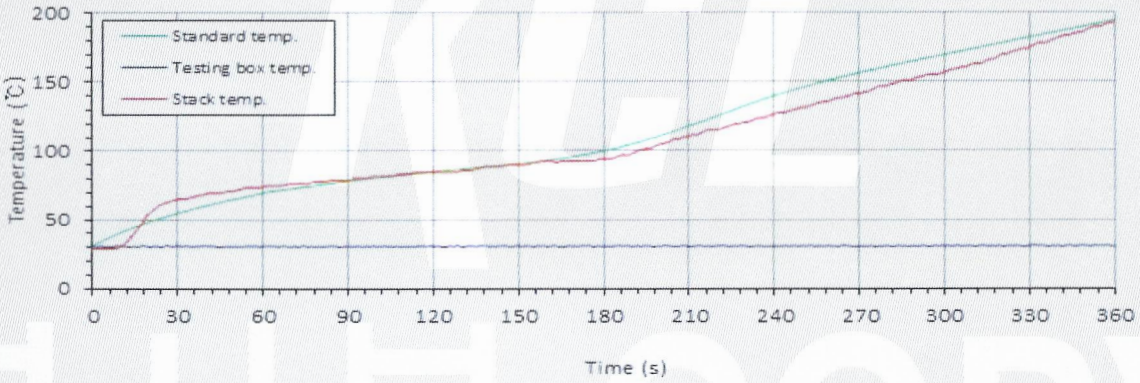
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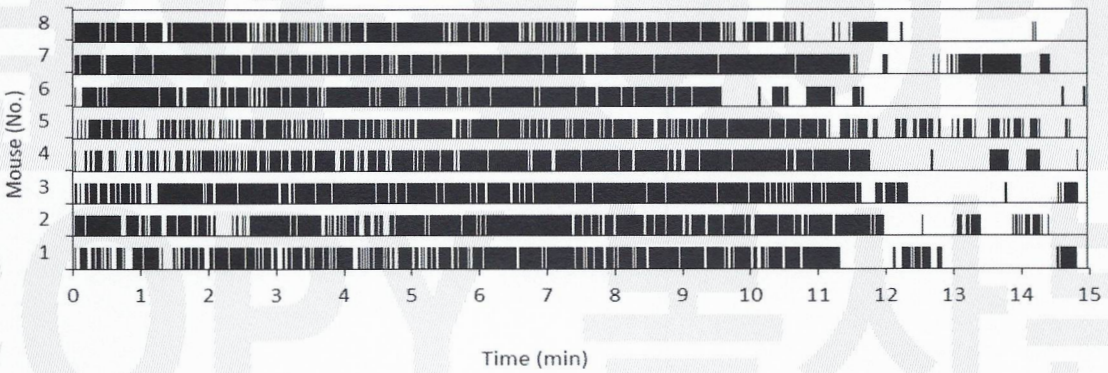
No. : CT21-115537E

■ Gas Toxicity Test Results (Specimen 2)

Elapsed time (s)	Measured temp. (℃)
0	29.2
60	73.9
120	84.5
180	94.1
240	126.7
300	157.0
360	193.3

Treadmill	Time of stop moving
M1	14 min 51 s
M2	14 min 26 s
M3	14 min 52 s
M4	14 min 52 s
M5	14 min 45 s
M6	14 min 59 s
M7	14 min 28 s
M8	14 min 15 s
Average	14 min 41 s
Standard deviation	00 min 15 s
Average time of stop moving	14 min 26 s



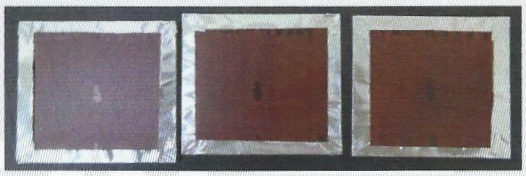
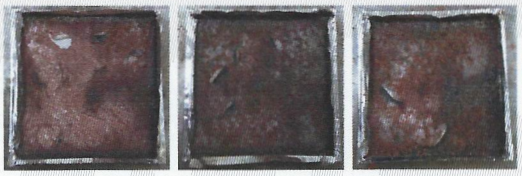


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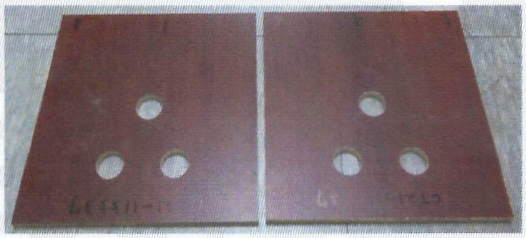
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■ Photograph of Specimen Before/After Test

< Heat release test >

	Photograph of Specimen Before Test	Photograph of Specimen After Test
Front		
Side		

< Gas toxicity test >

Photograph of Specimen Before Test	Photograph of Specimen After Test
	

----- End of Report -----