

HYUNDAE SHEET

11F 1101 U-TOWER, 767, Sinsu-ro
Suji-gu, Yongin-si, Gyeonggi-do
Korea

The following sample(s) was/were submitted and identified by/on behalf of the client as:-

SGS File No.	: AYFN20-29632
Sample Description	: Hyundai Interior Antibacterial sheet
Item no./Lot No.	: -
SGS Ref No.	: AYHA20-08964
Test Period	: 2020. 07. 29 to 2020. 08. 18
Purpose of Test Report	: Data for reference
Test Results	: For further details, please refer to following page (s)
Report Comments	: The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report is not related to Korea Laboratory Accreditation and KS Q ISO/IEC 17025. Verify for authenticity and validity in web site : https://twap.sgs.com/sgsrsts_cloud



CometLab

Technical Manager / SGS KOREA

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Test Report

No. F690101/LF- CTSAYFN20-29632

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Results:**Antimicrobial Activity (JIS Z 2801:2010E)**

Test microorganisms	Initial bacteria number (CFU/film)	Control (CFU/film)	Result(s)			
			Sample (CFU/film)		Antimicrobial activity	
					R	Percentage (%)
<i>Escherichia coli</i> ATCC 8739	2.4×10^5	1.4×10^8	1st	<25	6.7	>99.9%
			2nd	<25	6.7	>99.9%
			3rd	<25	6.7	>99.9%
<i>Staphylococcus aureus</i> ATCC 6538P	2.2×10^5	4.1×10^7	1st	<25	6.2	>99.9%
			2nd	<25	6.2	>99.9%
			3rd	<25	6.2	>99.9%
<i>Klebsiella pneumoniae</i> ATCC 4352	2.2×10^5	1.8×10^8	1st	<25	6.9	>99.9%
			2nd	<25	6.9	>99.9%
			3rd	<25	6.9	>99.9%

<Remark>

1) Inoculum Concentration :

Escherichia coli : 2.4×10^5 CFU/film*Staphylococcus aureus* : 2.2×10^5 CFU/film*Klebsiella pneumoniae* : 2.2×10^5 CFU/film

2) Method: JIS Z-2801 methods- Pour plate method

3) Dilution Medium : 1/500 Nutrient broth (BD)

4) Inoculations : 35 °C, 24 hr

5) Incubation : 35 °C, 48 hr

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Picture of Sample as Received :



AYFN20-29632

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Test Report

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- Antimicrobial Activity of Photo: *Escherichia coli* -



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- Antimicrobial Activity of Photo: *Klebsiella pneumoniae* -



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- Antimicrobial Activity of Photo: *Staphylococcus aureus* -



*** End of Report ***

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TEST REPORT

1. No : CT15-051420

2. Client :

○ Name : HYUNDAE SHEET

○ Address : 10F SeoGeon Tower, 178, Pangyoyeok-ro, Bundang-Gu, Seongnam-si, Gyeonggi-do

○ Date of Receipt : 2015.04.30

○ TESTING PERIOD : 2015.04.30 ~ 2015.05.13

3. Use of Report :

4. Test Sample : INFEEL(Interior Film)

5. Method :

(1) KS Q ISO 8124-3:2013

(2) KS M 0032:2009

(3) KS M 1991:2011

Reissuance (R1)

Date : 2015.05.13

Affirmation	Tested By Name : Lee Se-Jin	Technical Manager Name : Jin Beom Cho
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 quality of the quality of the lot from which the sample was taken or of apparently identical or similar products.		

2015.05.13

Korea Conformity Laboratories

President

Song Jae Bin

Jae Bin Song

Address : 153-B03 199, Gasan digital 1-ro, Gaumcheon-gu, Seoul, Korea 82-2-2102-2500

Result Inquiry : Chemical Analysis Center 82-2-2102-2678

TEST REPORT

No : CT15-051420

6. Test Results

1) INFEEL (Interior Film)

Test item(s)	Unit	Test method	Test Results	Testing Environment
Pb	mg/kg	(1)	Not detected (detection limit 5)	-
Ba	mg/kg	(1)	Not detected (detection limit 5)	-
As	mg/kg	(1)	Not detected (detection limit 2)	-
Se	mg/kg	(1)	Not detected (detection limit 5)	-
Hg	mg/kg	(1)	Not detected (detection limit 2)	-
Sb	mg/kg	(1)	Not detected (detection limit 5)	-
Cd	mg/kg	(1)	Not detected (detection limit 5)	-
Cr	mg/kg	(1)	Not detected (detection limit 2)	-
Pb	mg/kg	(2)	Not Detected (detection limit 5)	-
Cd	mg/kg	(2)	Not Detected (detection limit 0.2)	-
Bis(2-ethylhexyl)phthalate(DEHP)	mg/kg	(3)	Not detected (detection limit 10)	-
Dibutylphthalate(DEHP)	mg/kg	(3)	Not detected (detection limit 10)	-
Butylbenzylphthalate(DEHP)	mg/kg	(3)	Not detected (detection limit 10)	-

— End of Report —

TEST REPORT

APPLICANT : HYUNDAESHEET
BUYER :

KATRI NO : SPKD16-00007005
RECEIVED DATE : DEC. 19, 2016
ISSUED DATE : DEC. 23, 2016
PAGE(S) : 1 OF 1

APPLICANT'S PROVIDED SAMPLE DESCRIPTION :
ONE(1) SAMPLE OF WALLPAPER

STYLE NO. : HYUNDAE INTERIOR FILM(INFEEL)

TEST ITEM	TEST RESULT		REQUIREMENTS
	#1		
Formaldehyde Release (mg/L) : Qualify Safety Indication Subject Standards Part 43 4.1.2	< 0.1		≤ 2
<p><Note> 1. Detection Limit : 0.1 mg/L 2. Instrument : UV/VIS Spectrophotometer</p>			
Phthalate plasticizer (%) : Qualify Safety Indication Subject Standards Part 43 4.1.5			
Di-(2-ethylhexyl)phthalate(DEHP) 117-81-7	< 0.01		≤ 0.1
Butylbenzyl phthalate(BBP) 85-68-7	< 0.01		
Dibutyl phthalate(DBP) 84-74-2	< 0.01		
<p><Note> 1. Detection Limit : 0.01 % 2. Instrument : GC-MS</p>			

#1



Park, Hyung Gun
Director General



COPY

TEST REPORT

APPLICANT : HYUNDAESHEET
BUYER :

KATRI NO : SPHA19-00001174
RECEIVED DATE : NOV. 12, 2019
ISSUED DATE : NOV. 26, 2019
PAGE(S) : 1 OF 1

APPLICANT'S PROVIDED SAMPLE DESCRIPTION :
ONE(1) SAMPLE OF FILM

STYLE NO. : Hyundai interior film (infeel)

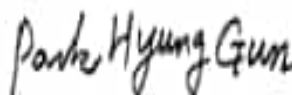
TEST ITEM	TEST RESULT
	#1
Color Fastness to Light : Test method submitted by the applicant's request	
Appearance	No significant deformation and discoloration
* Note) 1. Test equipment : ATLAS WEATHER-O-METER CI5000 2. Test Duration : 200 h (Client's request) 3. Intensity of irradiation : $(65.5 \pm 2.5) \text{ W/m}^2$ (300 ~ 400 nm) 4. Black panel Condition : $(89 \pm 3) ^\circ\text{C}$, R.H. : $(50 \pm 5) \%$ 5. Filter : Boro silicate (inner) / Soda lime (outer) 6. Evaluation : Appearance (Client's request)	

#1

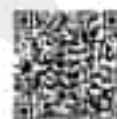
Tested by Name : Noh Seong Hyuk



Technical Manager : Kim Chan Woo



Park, Hyung Gun
Director General

Location of Test : Deokcheon48-ro 19, Anyang-dong, Manan-gu, Anyang-si, Gyeonggi-do, Korea

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TEST REPORT

APPLICANT : HYUNDAESHEET
BUYER :

KATRI NO : SPHA19-00001173
RECEIVED DATE : NOV. 12, 2019
ISSUED DATE : NOV. 27, 2019
PAGE(S) : 1 OF 2

APPLICANT'S PROVIDED SAMPLE DESCRIPTION :
ONE(1) SAMPLE OF FILM

STYLE NO. : Hyundai interior film (infeel)

TEST ITEM	TEST RESULT
	#1
Tensile Strength (N/10 mm) : KS T 1028:2018	
Length	47.5
Width	43.3
Tearing Strength (N) : KS T 1028:2018	
Length	1.87
Width	1.65
Elongation (%) : KS T 1028:2018	
Length	204
Width	180

- Continues -



Park, Hyung Gun
Director General

Tested by Name : Tae Sung Jun

EH

Technical Manager : Kim Chan Woo




Location of Test : Deokcheon48-ro 19, Anyang-dong, Manan-gu, Anyang-si, Gyeonggi-do, Korea

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KATRI NO : SPHA19-00001173

PAGE(S) : 2 OF 2

TEST ITEM	TEST RESULT
	#1
Dimensional Stability (mm) : Applicant' s Requested Test Method	
Length	0.21
Width	0.19
* Note) Cut the center of the test specimen to 100 mm in width and length, and then pre-treat [(60 ± 1) °C, 48 h]. After sample treated (23 ± 1) °C, (50 ± 2) % R.H., Measure the maximum gap in the cutting point of specimen.(However, depth cut by knife should not touch back paper)	
Peel strength (N/10 mm) : KS T 1028:2018	
180 ° Peel strength	
After 30 min.	12.16
After 24 hours	13.36
60 °C, 72 hours	9.99
Pencil Hardness : KS M ISO 15184:2012	
	2H
* Note) 1. Test pencil : Mitsubishi pencil uni 2. Test equipment : Pencil hardness tester 221 D	
Abrasion Resistance : KS M ISO 9352:2012	
	No crack of surface.
* Note) 1. Wheels : CS-10 2. Load : 1 000 g / Wheel 3. Test Cycles : 1 000 Cycles	
	#1

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2015

This is to certify that:

Hyundai Sheet Co., Ltd.
1101, U-tower
767, Sinsu-ro
Suji-gu, Yongin-si
Gyeonggi-do
16827
Republic of Korea

Holds Certificate No:

FM 556081

and operates a Quality Management System which complies with the requirements of ISO 9001:2015 for the following scope:

The design and manufacture of polyvinyl chloride sheet.



For and on behalf of BSI:

Michael Lam, Managing Director Assurance - APAC

Original Registration Date: 2010-01-18

Latest Revision Date: 2023-08-29

Effective Date: 2023-09-16

Expiry Date: 2026-09-15

Page: 1 of 2



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Certificate No: **FM 556081**

Location

Hyundae Sheet Co., Ltd.
1101, U-tower
767, Sinsu-ro
Suji-gu, Yongin-si
Gyeonggi-do
16827
Republic of Korea

Registered Activities

The design, sales and purchasing activities.

Hyundae Sheet Co., Ltd.
93, Maejari-gil
Opo-eup
Gwangju-si
Gyeonggi-do
12798
Republic of Korea

The manufacture of polyvinyl chloride sheet.

Original Registration Date: 2010-01-18

Latest Revision Date: 2023-08-29

Effective Date: 2023-09-16

Expiry Date: 2026-09-15

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ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2015

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1101, U-tower
767, Sinsu-ro
Suji-gu, Yongin-si
Gyeonggi-do
16827
Republic of Korea

Holds Certificate No:

EMS 557083

and operates an Environmental Management System which complies with the requirements of ISO 14001:2015 for the following scope:

The design and manufacture of polyvinyl chloride sheet.

For and on behalf of BSI:



Chris Cheung, Head of Compliance & Risk - Asia Pacific

Original Registration Date: 2010-01-29

Latest Revision Date: 2021-08-25

Effective Date: 2021-09-06

Expiry Date: 2024-09-05

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Certificate No: **EMS 557083**

Location

Hyundae Sheet Co., Ltd.
1101, U-tower
767, Sinsu-ro
Suji-gu, Yongin-si
Gyeonggi-do
16827
Republic of Korea

Registered Activities

The design, sales and purchasing activities.

Hyundae Sheet Co., Ltd.
93, Maejari-gil
Opo-eup
Gwangju-si
Gyeonggi-do
12798
Republic of Korea

The manufacture of polyvinyl chloride sheet.

Original Registration Date: 2010-01-29

Latest Revision Date: 2021-08-25

Effective Date: 2021-09-06

Expiry Date: 2024-09-05

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