XCC
FORCE+
PLUS




Sunlit Shore


Driftwood Grey


Forest Haze


Moonlight Marsh


Amber Sunset


Misty Meadow


Autumn Bark


Late Horizon

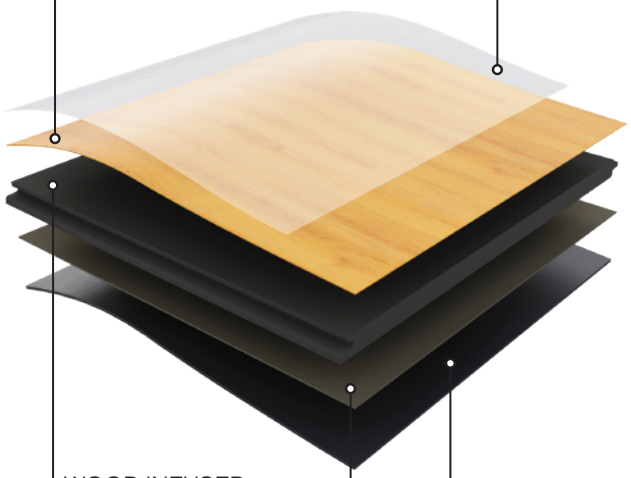
PARKAY FLOORS®

SCAN » INFO & LIVE
parkayfloors.com

XCC FORCE +

SCRATCH PROOF PROTECTIVE
ALUMINIUM
OXIDE COAT

MELAMINE
DECORATIVE
LAYER



WOOD INFUSED
HIGH DENSITY
CARBONYTE CORE

Exclusive ultrahigh density
waterproof wood composite core.

SOUNDPROOF
TEXTURED PAD

BALANCE
RIGID LAYER

XCC + PAD

2mm PAD Attached

Unilin Click

EIR

Commerial Warranty
5 Years Commercial Warranty

Residential Warranty
25 Years Residential Warranty

100% Waterproof
WP

Strong as Ceramic AC4
S

Noble with Wood
N

Plastic Free Core
PF

PARKAY FLOORS®

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XCC FORCE +

PRODUCT DESCRIPTION		
Size	Overall Thickness	8 mm
Top Layer	Type	Overlay + Decor Melamine Impregnated Paper
	Thickness	0.1 mm
Core	Type	High Density Fiber Board
	Thickness	5.8 mm
	Color	Grey
	Density	> 860 kg / m3
Balanced Layer	Type	Melamine Impregnated Paper
	Thickness	0.1 mm
Backing	Type	IXPE
	Thickness	0.2mm
Bevel		4 sides painted micro bevel
Locking System		Unilic
Type of Installation		Floating

DIMENSIONAL TOLERANCE	
Thickness Tolerance	+/- 0.2 mm
Width Tolerance	+/- 0.1 mm
Length Tolerance	+/- 0.5 mm
Height Tolerance	Handscraped Texture ≤ 0.30 mm, Others Texture ≤ 0.15 mm
Gap Between Planks	≤ 0.10 mm
Cupping Up	≤ 0.15% of the Planks Width
Cupping Down	≤ 0.2% of the Planks Width
End Lift	≤ 0.5% of the Planks Length
Bowling	≤ 1.0% of the Planks Length
Squareness	≤ 0.25 mm / 305 mm

	NORM	TEST METHOD	REQUIREMENT	TEST RESULTS	CONCLUSION
CHEMICAL COMPOSITION					
Formaldehyde Emission	CARB	ASTM D6007	≤ 0.11 PPM	0.02	Meet CARB Phase 2 Requirement
VOC	Decret No2011-321	ISO 16000	TVOC < 1000 µg / m3	27.8	VOC A
Ortho-Phthalates	Prop 65	Spectrometry	Ortho-Phtalate Free	Not Detected	Ortho-Phthalate Free, Comply with Prop 65
PHISICAL PROPERTIES					
Swelling After Submersion in Water	EN 13329	EN 13329	≤ 18%	≤ 6.5%	Class 33, Heavy Commercial
	NALFA LF 01-2011	NALFA LF 01-2011	≤ 16%	≤ 6.5%	Class 3, Commercial
Impact Sound Reduction (IIC)	-	ASTM E492-09	-	IIC = 69	PASS
Sound Transmission Reduction (STC)	-	ASTM E90-09	-	STC = 68	PASS
Reaction to Fire	EN 14041	EN 13051-1	-	PASS	Class Bfl -S1
SURFACE PROPERTIES					
Wear Resistance	EN 13329	EN 13329	≥ 4000 Cycles	4200	AC4, Class 32, General Commercial
	NALFA LF 01-2011	NALFA LF 01-2011	≥ 4000 Cycles	4200	Commercial
Static Load (250LBS / 115KG)	NALFA LF 01-2011	ASTM F970	≥ 8 Mpa	10	Class 4, Heavy Commercial
Impact Resistance (Big Ball)	NALFA LF 01-2011	NALFA LF 01-2011	≥ 1400 mm	1100	Class 2, Light Commercial
Impact Resistance (Small Ball)	NALFA LF 01-2011	NALFA LF 01-2011	≥ 500 mm (19.7 in)	750	Class 4, Heavy Commercial
Slipperiness	EN14041	EN 13893	DryCOF ≥ 0.3	0.43	Class DS
	-	ASTM C1028	≥ 0.5	NA	NA
	-	D 51130	≥ R9	NA	NA
Colour Fastness to Light	EN 13329	SO 105-B02:1994, Method 3a	≥ Grade 6	≥ 6	PASS
	NALFA LF 01-2011	NALFA LF 01-2011	Slight Change Only	Slight Change Only	Class 4, Heavy Commercial
Resistance to staining	EN 13329	EN 438-2	Group 1 and 2: Grade 5, Group 3 : Grade 4	Group 1 and 2: Grade 5, Group 3 : Grade 4	Class 34, Heavy commercial
	NALFA LF 01-2011	NALFA LF 01-2011	Slight Change Only	No Change	Class 4, Heavy Commercial

INSTALLATION INSTRUCTIONS

1. Flooring needs to be acclimated. Stored flat and fully supported during shipping and storage. Allow product, in an unopened package, to condition in the room where installation is to take place at a constant temperature between 68°F and 77°F or 20° – 25°C for a period of 48 hours prior to installation.

2. Check flooring for possible defects prior to the installation. Complaints can only be accepted before installation. Slight variations in color and textures are designed to enhance its natural appearance. Mixing planks, from 3 to 4 different boxes creates a more realistic look.

3. Be aware that when exposed to excessive temperatures and direct sunlight flooring will expand and contract causing problems with the locking system. Please consider these exposures when choosing the area to install your flooring.

4. Flooring is not recommended to be installed in facilities with walkers, wheelchairs or extended care use, or in facilities with movement of heavy displays, racks, dentist chairs etc. Do not fix or place any extremely heavy object on top of this floor. All these types of installations and cases may exert extreme stress and compromise the locking system of the flooring. Chair mats must be used under office chairs.

5. Subfloors must be clean of debris, structurally sound, solid, stable, level, plumb, to ensure no more than 3/16" unevenness per 10-foot span.

6. Subfloors presenting vapor emotions between 2.5% to 5% (CM-Method), must install a 6mil Polyplastic block before laying the cushioned underlayment. All concrete subfloors must use plastic block for extra moisture protection. Parkay Floors recommends "Polyguard 6" as the ideal poly block to protect against moisture.

7. Flooring can be installed over existing firm floors (Linoleum, PVC), non-grout separation tile floors, but all wood or laminate floors must be removed.

8. Since this floor requires a floating installation, a minimum expansion gap of 1/2" must be left along the entire perimeter of the area and fixtures, to allow expansion.

9. Any flooring area exceeding 1,225 Square Feet and/or 35 Linear Feet must use transition moldings.

10. A maximum of 10% sheen variation in between planks is consider normal.

11. Flooring is not recommended to be installed over any electrical radiant heating systems. Only radiant heated system using water are recommended. Max heating temperate must not exceed 81°F. These Instructions must be followed:

   - Before installing, make sure to test the heating system at its maximum capacity to force out any residual moisture and to make sure it's working properly.
   - Moisture content on screed must not exceed 1.5%.
   - Shut down the heating system at least 48 hours prior to installation.
   - Keep room temperate between 68°F and 77°F during the installation.
   - After flooring is install, turn on the heating system gradually, from minimum to maximum within 1-hour period.

INSTALLATION INSTRUCTIONS

12. Agree with the client on which direction the floor boards should run since this influences the visual size ratio of the space.

13. Pre-plan the floor by measuring the room first. If the width of the last row is less than 2" (5cm) saw the first and the last plank in equal width.

14. Snap the lines on the substrate to identify the layout reference points. Planks should be set using this reference to ensure boards are aligned and will lock together correctly.

15. The use of pull bar and tapping block is recommended to ensure a successful install.

16. Flooring provides a very tight fit. Proper care must be used to ensure all seams are tight at end of install. An unprofessional installation or use of improper tools can result in damage to the Click profiles. Do not lean boxes or planks on a vertical position against the floor, since it might brake the click system.

17. If more than 5% of the product pulled out of the cartons is showing defects, stop the installation immediately and contact your, Parkay Floors® representative.

18. Product cannot be used for exterior applications. Never install on ceilings or countertops.

Flooring can have slight color variations in between production runs. Before starting the installation, it is best to check the production run # which is indicated on the label on the carton. If you find that you have cartons from different production runs, it is highly recommended that you open cartons and install a mix of planks from each different production run on your floor. This will result in a more natural looking floor.

STEPS TO FOLLOW

S1 Start with the first plank in the left corner of the room, tongue-side facing out from the wall to the length and to the right on the width. Work from left to right.
› Add spacers in between the plank and the wall to create a 1/2" expansion gap.

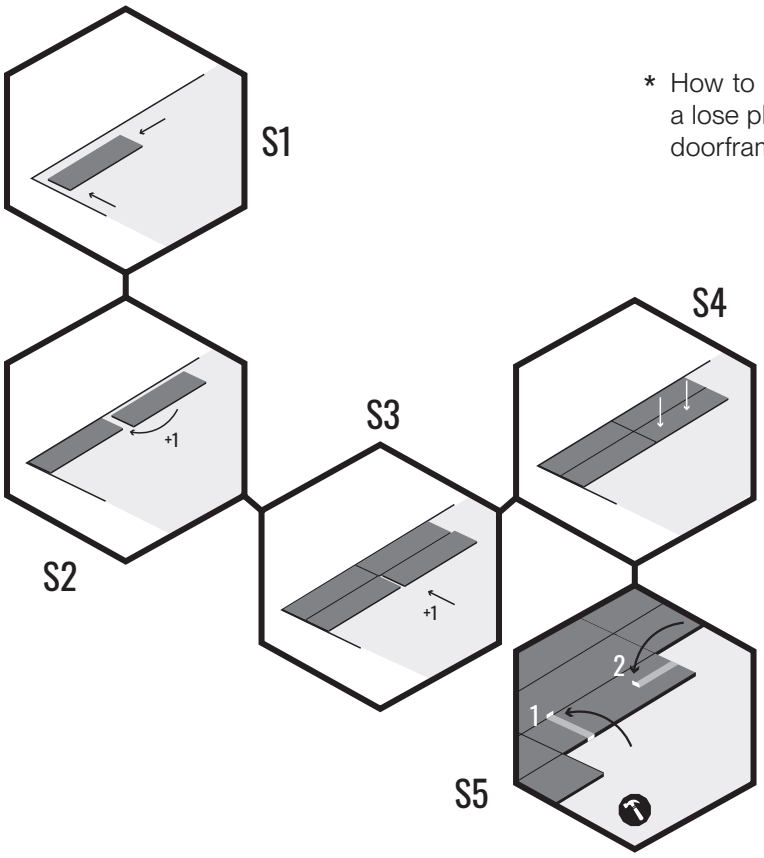
S2 Position the following planks as an exact extension of the first one.
› Cut to fit the last plank of the row. To do this you can use a miter saw to cut thru the plank at the appropriate point.

S3 Begin the second row with the cut-off end to start the next and subsequent rows. Allow at least a 8" stagger for the end seams. For positioning the planks together, starting with the first board in the row, raise the plank at a 45-degree angle, insert the lengthways tongue into the lengthways groove and lower the sheet while holding the two together until they are flat and tightly together. Close the join using hand pressure or tapping block or pull bar.

S4 Lever the next plank in place from the front side, so that only a very short distance remains for it to be pushed into the lengthways connection.

S5 Raise the plank slightly and push it into the lengthways tongue, first close to the front connection then the rest. Make sure seams are tight on ends and sides using a pull bar or tapping block before proceeding. Continue the installation to the last row of planks, as described.

People can walk on the flooring immediately after the installation. Remove the wedges. Nail or screw moldings to the wall, never to the floor.



* How to shorten doorframes: Position a lose plank facing down close to the doorframe and cut with a jamb saw.

MAITENANCE

Clean regularly with a damp mop with a laminate floor cleaner, available at your local market. Do not spray excessively, pour liquid directly or leave moisture standing on the laminate floor. Always use chair protectors under furniture and on chair legs. Teflon protectors are best.

25 YEARS RESIDENTIAL / 5 YEARS LIGHT COMMERCIAL WARRANTY

Our 5 years limited light commercial warranty is for five years from the date of purchase, and first installation of the product. When complied with the aforementioned your floor will be free from manufacturing defects, and will not wear through when installed and maintained according to instructions supplied with each carton. This warranty applies only to the original end user with a proof of purchase. Warranty is non transferable. Floors must have been installed by a licensed and insured professional to be able to process any claim. This warranty covers the replacement or refund of the material only, no labor. Claims for wear must show a minimum dime size area. High-heeled shoes, rolling carts, furniture and chairs without protective pads can damage the floor and such areas will not be covered by this warranty.

Warranty covers against: Staining, Wear, Fading as a result or natural or artificial light, damage by moisture from everyday household spills and manufacturing defects. Floor will only be replaced for one of the same monetary value.

If more than 5% of the product pulled out of the cartons is showing defects, stop the installation immediately and contact your Parkay Floors® representative. Transition moldings are not covered under this warranty. Scratches and loss of gloss are not considered a wear-through issue. Up to 10% gloss variance is considered completely normal between planks.

This warranty excludes damage by natural disasters. This warranty excludes floors in contact with moisture trapped beneath the floor. The general warranty is pro rata (25 years for flooring). A pro rata warranty is one that provides for a refund or credit that decreases according to a set formula as the warranty period progresses. A claim process takes up to 90 days to process, from the date Parkay Floors® is contacted. We require a detailed description with images of the issue that clearly show the problem. Contact Parkay Floors® dealer no later than 15 days after the discovery of the defect. Your dealer will arrange for proper inspection and coordinate a resolution of your claim.

Parkay Floors® reserves the right to modify the contents of this warranty at any and without previous notice. Please refer to our website to obtain the latest version of our warranty.

For service under thais warranty or technical questions, please go to www.parkayfloors.com or contact your local retailer.

Describe the problem with your floors specialist, in many cases, the retailer can provide you with a solution.

XCC FORCE

TESTS & CERTIFICATIONS

TEST REPORT

No. : XMIN2211009436CM

Date : Dec 14, 2022

Sample Name	:	LAMINATE FLOORING
Product Specification	:	1220*197*6mm
Material and Mark	:	HDF

Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

****

Date of Receipt	:	Nov 28, 2022
Testing Start Date	:	Nov 28, 2022
Testing End Date	:	Dec 14, 2022
Test result(s)	:	For further details, please refer to the following page(s) (Unless otherwise stated the results shown in this test report refer only to the sample(s) tested)

Signed for
SGS-CSTC Standards Technical
Services Co.，Ltd Xiamen Branch
Testing Center

Bryan Hong
Authorized signatory

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TEST REPORT

Summary of Results:

No.	Test Item	Test Method	Result
1	Determination of Impact Sound Insulation Class	ASTM E492-09(2016)$^{\varepsilon 1}$ ASTM E989-21	IIC = 69
2	Airborne sound transmission loss test and class	ASTM E90-09(2016) ASTM E413-16	STC = 68

Original Sample Photo:



Sample A

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TEST REPORT

No. : XMIN2211009436CM
Date : Dec 14, 2022

Sample Description:

Flooring (see the photo), Total Thickness:6.0 mm, surface density: about 5.5 kg/m²

Test Condition:

Project description	:	No decoration of sample surface and installation assembled directly. The test specimen was covered on a 150mm concrete floor with a drop ceiling, testing area 11.3m², the drop ceiling construction showed in following Drop ceiling: 288mm cavity filled with 50mm glass wool, 12mm gypsum boards.
Test Equipment	:	RTA840 system
Test Environment	:	Source room volume 125m³, receiving room volume 100m³, air temperature 20.1 °C, air humidity 32.4%

SGS-CSTC Standards Technical Services Co., Ltd. Xiamen Branch Testing Center (Commercial Construction Material Laboratory)

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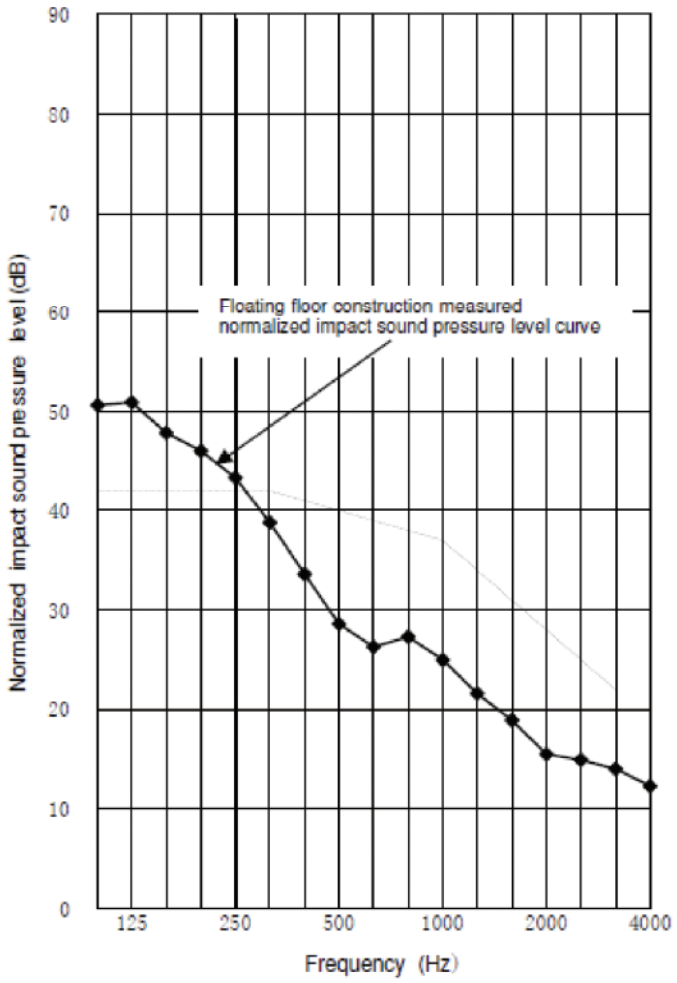
1. Test item: Determination of Impact Sound Insulation Class

Test conducted: ASTM E492-09(2016)$^{\varepsilon 1}$, ASTM E989-21

Test result(s):

Frequency spectrum

f Hz	*Ln* dB
100	50.6
125	50.9
160	47.8
200	46.0
250	43.3
315	38.8
400	33.6
500	28.6
630	26.3
800	27.3
1000	25.0
1250	21.6
1600	18.9
2000	15.5
2500	14.9
3150	14.0
4000	12.3
IIC = 69	



Remark: L_n as the weighted normalized impact sound pressure level

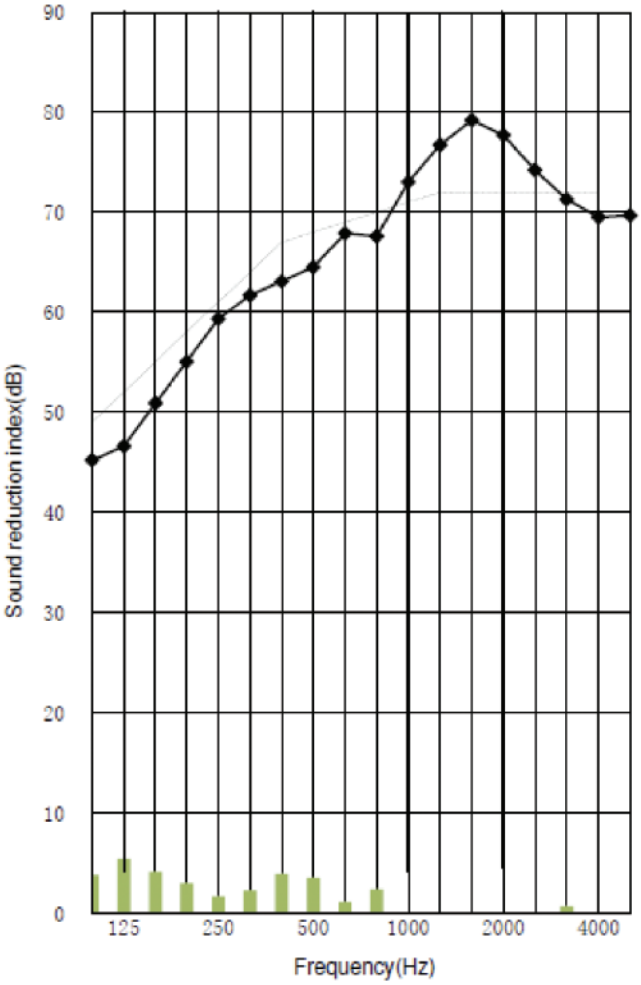
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2. Test item: Airborne sound transmission loss test and class
Test conducted: ASTM E90-09(2016), ASTM E413-16

Test result(s):

Frequency spectrum

f Hz	*TL* dB
100	45.2
125	46.6
160	50.9
200	55.0
250	59.3
315	61.7
400	63.1
500	64.5
630	67.9
800	67.6
1000	73.0
1250	76.7
1600	79.2
2000	77.7
2500	74.2
3150	71.3
4000	69.5
5000	69.7
STC = 68	

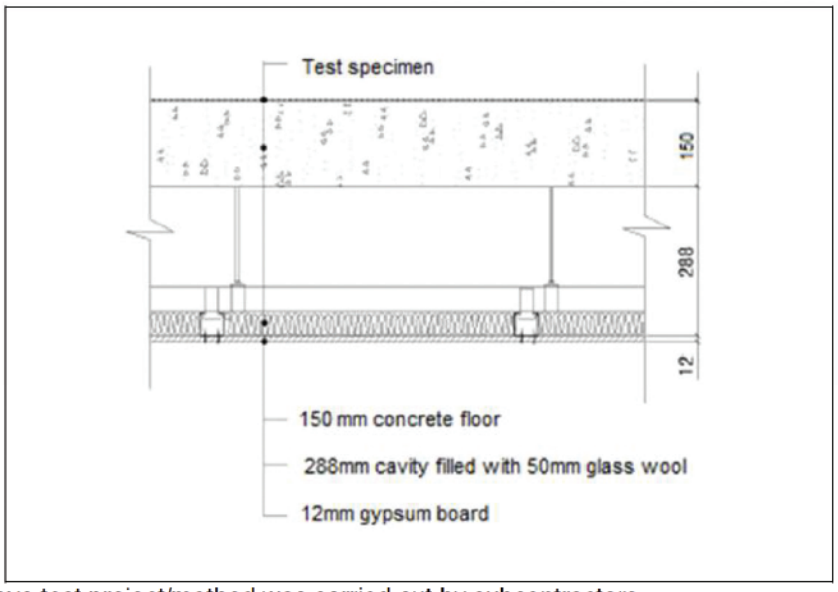


Remark: *TL* is the transmission loss.

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TEST REPORT

The constructional drawing of the floor/ceiling assembly system



Note: The above test project/method was carried out by subcontractors.

******** End of report*******

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Test Report

No. CANMLC2224144901 Date: 14 Dec 2022 Page 1 of 4

Sample Name : Laminate Flooring
Specification : 1215*195*6.0mm
Manufacturer : FR
The above sample(s) and information were provided by the client.

SGS Job No. : XMIN2211009281CM - XM
Date of Sample Received : 10 Nov 2022
Testing Period : 10 Nov 2022 - 30 Nov 2022
Test Requested : Selected test(s) as requested by the client.
Test Method(s) : Please refer to next page(s).
Test Result(s) : Please refer to next page(s).

Result Summary :

Test Requested	Conclusion
Final Regulation Order – Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Product (CARB ATCM), title 17, California Code of Regulation, section 93120.2 (a) – Formaldehyde Emission Test for Composite Wood Products	PASS
US EPA 40 CFR 770, Toxic Substances Control Act (TSCA) Title VI – Formaldehyde Emission Test for Composite Wood Products	PASS

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Jany Zhong
Approved Signatory

scan to see the report
CANMLC2224144901

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Test Result(s) :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN22-241449.001	"Laminate Flooring"

Remarks :

(1) 1 mg/kg = 0.0001%
(2) MDL = Method Detection Limit
(3) ND = Not Detected (< MDL)
(4) "-" = Not Regulated

Formaldehyde Emission

Test Method : With reference to ASTM D6007-14, analysis was performed by UV-Vis. Conditioning for 7 days at 24°C and 50% relative humidity.

Test Item(s)	Unit	MDL	*001*
Background	ppm	0.01	ND
Formaldehyde Emission	ppm	0.01	0.02
Formaldehyde Emission (Corrected)	ppm	0.01	0.02

Notes :

1. ppm = parts of formaldehyde per million parts air
2. ND = Not Detected
3. MDL = Method Detection Limit
4. Formaldehyde Emission (Corrected) is Formaldehyde concentration corrected to 25℃ and 50% Relative Humidity.

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5. Maximum Permissible Limit according to Section 93120.2,Title 17,California Code of Regulation:

Formaldehyde Emission Standards for Hardwood Plywood (HWPW), Particleboard (PB), and Medium Density Fiberboard (MDF)				
HWPW-VC	HWPW-CC	PB	MDF	Thin MDF
0.05	0.05	0.09	0.11	0.13
VC = Veneer Core; CC = Composite Core				

6. Maximum Permissible Limit according to TSCA Title VI, 40 CFR Part 770, Code of Federal Regulations:

Formaldehyde Emission Standards for Hardwood Plywood (HWPW), Particleboard (PB), and Medium Density Fiberboard (MDF)				
HWPW-VC	HWPW-CC	PB	MDF	Thin MDF
0.05	0.05	0.09	0.11	0.13
VC = Veneer Core; CC = Composite Core				

ATTACHMENTS:

Sample Conditioning / Parameters			
Average Temperature (°C)	24.0	Average Relative Humidity (%)	50.0
Range of Temperature (°C)	21.0-27.0	Range of Relative Humidity (%)	45.0-55.0
Sampling Time (hour)	168	Formaldehyde background (ppm)	< 0.1
Sample Details and Apparatus			
Chamber Dimensions (m)	1.578 x 0.8 x 0.8 (Nominal)		
Chamber Volume (m^3)	1.0	Chamber Load Ratio (m^2/m^3)	1.4259(Hardwood Plywood Wall Paneling) 0.6399(Particleboard, Hardwood Plywood Panels) 0.3937(MDF) 0.1968(Particleboard Door Core)
Chamber Q/A Ratio (±2%)	1.172 (Particleboard, Hardwood Plywood Panels) / 1.905 (MDF) / 0.526 (Hardwood Plywood Wall Paneling) / 3.811 (Particleboard Door Core)		
Sample Size	35 cm x 68 cm (Hardwood Plywood Wall Paneling) 32.3 cm x 33 cm (Particleboard, Hardwood Plywood Panels) 25.6 cm x 25.6 cm (MDF) 18.1 cm x 18.1 cm (Particleboard Door Core)		
Number of Samples	3	Number of Exposed Surfaces	6
Sampling Parameters of Emission Test			
Average Temperature (°C)	25.0	Average Relative Humidity (%)	50.0
Range of Temperature (°C)	24.0-26.0	Range of Relative Humidity (%)	46.0-54.0
Air-sampling Time (min)	30	Sampling Time in Chamber (min)	240
Air-sampling Rate (L/min)	1.0	Formaldehyde background (ppm)	< 0.01

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019.

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Sample photo:



CAN22-241449.001



SGS authenticate the photo on original report only

*** End of Report ***

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Sample name:	LAMINATE FLOORING
Specification:	1220*197*6mm
Material:	HDF

The above sample(s) and information were submitted and identified on behalf of the clients.

SGS Job No.:	XMIN2211009435CM
Date of arrival at laboratory:	29 Nov 2022
Test period:	29 Nov 2022 - 29 Dec 2022
Test Requested:	Please refer to next page(s).
Test Method:	Please refer to next page(s).
Test Results:	Please refer to next page(s).

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Jany Zhong

Jany Zhong
Approved Signatory

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Test Part Description:

Specimen No.	SGS Sample ID	Description
SN1	CAN22-257913.001	"Laminate Flooring"

Test requirement

Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers (Emission testing method for California Specification 01350), Version 1.2 (January 2017)

Summary of the test method

The product specimen was prepared from the supplied product sample and was placed directly into the conditioning environment and maintained at controlled conditions of air flow rate, temperature and relative humidity for 10 days. At the end of this period, the specimen was transferred directly to a small-scale chamber. The chamber conditions for the 24h, 48h, and 96h test period are summarized in table 4. Air samples were collected from the chamber at 24h, 48h and 96h after initiating the test. Samples for the analysis of individual VOCs and TVOC were collected on sample tube containing TenaxTA/Carbograph5TD. Samples for the analysis of formaldehyde and acetaldehyde were collected on DNPH sampling tube. VOC sorbent tube samples were analyzed by thermal desorption GC/MS. Target VOCs were quantified using calibration curves prepared with pure standards. Non-listed VOCs were quantified based on their Total-Ion-Current responses using toluene as the calibration reference. TVOC was calculated using toluene as the calibration reference. Formaldehyde and acetaldehyde sorbent tube samples were analyzed by HPLC-DAD and quantified using calibration curves.

In order to evaluate products for use in the indoor environment, the estimated building concentrations can be calculated by selected building scenarios as Table 5. These scenarios include product category and parameters to be used to calculate. Finally, the Evaluation is can be done by comparing the building concentrations of target VOCs with their maximum allowable concentrations.

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Test results

Target VOCs (with CRELs) are reported in Table 1. Non-listed VOCs are reported in Table 2. The 10 VOCs having the highest emission factors (most abundant VOCs) are listed in Table 3.

Table 1. Target VOCs detected above lower limits of quantities in 96h air sample

No.	Compound Name	CAS Number	Chamber Concentration (μg/m³)			Report Limit (μg /m³)
			24h	48h	96h	
1	Acetaldehyde	75-07-0	*	*	N.D.	2
2	Benzene	71-43-2	*	*	N.D.	1.5
3	Carbon disulfide	75-15-0	*	*	N.D.	2
4	Carbon tetrachloride	56-23-5	*	*	N.D.	2
5	Chlorobenzene	108-90-7	*	*	N.D.	2
6	Chloroform	67-66-3	*	*	N.D.	2
7	Dichlorobenzene (1,4-)	106-46-7	*	*	N.D.	2
8	Dichloroethylene (1,1)	75-35-4	*	*	N.D.	2
9	Dimethylformamide (N,N-)	68-12-2	*	*	N.D.	2
10	Dioxane (1,4-)	123-91-1	*	*	N.D.	2
11	Epichlorohydrin*	106-89-8	*	*	N.D.	1.5
12	Ethylbenzene	100-41-4	*	*	N.D.	2
13	Ethylene glycol	107-21-1	*	*	N.D.	100
14	Ethylene glycol monoethyl ether	110-80-5	*	*	N.D.	2
15	Ethylene glycol monoethyl ether acetate	111-15-9	*	*	N.D.	2
16	Ethylene glycol monomethyl ether	109-86-4	*	*	N.D.	2
17	Ethylene glycol monomethyl ether acetate	110-49-6	*	*	N.D.	2
18	Formaldehyde	50-00-0	3.8	4.2	3.2	2
19	Hexane (n-)	110-54-3	*	*	N.D.	2
20	Isophorone	78-59-1	*	*	N.D.	2
21	Isopropanol	67-63-0	*	*	N.D.	2
22	Methyl chloroform	71-55-6	*	*	N.D.	2
23	Methylene chloride	75-09-2	*	*	N.D.	2
24	Methyl t-butyl ether	1634-04-4	*	*	N.D.	2
25	Naphthalene	91-20-3	*	*	N.D.	2
26	Phenol	108-95-2	*	*	N.D.	2
27	Propylene glycol monomethyl ether	107-98-2	*	*	N.D.	2
28	Styrene	100-42-5	*	*	N.D.	2
29	Tetrachloroethylene	127-18-4	*	*	N.D.	2
30	Toluene	108-88-3	*	*	N.D.	2
31	Trichloroethylene	79-01-6	*	*	N.D.	2
32	Vinyl acetate	108-05-4	*	*	N.D.	2
33-35	Xylenes (m-, o-, p-xylene combined)	95-47-6 106-42-3 108-38-3	*	*	N.D.	2
36	TVOC	-	27.8	19.8	17.3	-

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Remarks:
(1) "*" For the 24h and 48h results, only the Formaldehyde and TVOC need to report.

Table 2. Non-listed VOCs detected above lower limits of semi-quantitation in 96h air sample

No.	Compound Name	CAS number	Chamber Concentration (μg/m³)
			96h
1	Unknown		3.2
2	Pentane	109-66-0	2.3
3	Hexanal	66-25-1	3.3
4	Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(2-hydroxy-1-methylethyl)propylester	74367-33-2	3.4
5	Propanoic acid, 2-methyl-, 3-hydroxy-2,4,4-trimethylpentyl ester	74367-34-3	5.1
6			
7			
8			
9			
10			
11			
12			

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Table 3. 10 VOCs having the highest emission factors in 96h air sample

No.	Compound Name	CAS number	Chamber Concentration (μg/m^3)
			96h
1	Propanoic acid, 2-methyl-, 3-hydroxy-2,4,4-trimethylpentyl ester	74367-34-3	5.1
2	Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(2-hydroxy-1-methylethyl)propylester	74367-33-2	3.4
3	Hexanal	66-25-1	3.3
4	Unknown		3.2
5	Pentane	109-66-0	2.3
6			
7			
8			
9			
10			

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Condition and Modeling Parameters

Table 4. Chamber conditions for test period

Parmeter	Units	Value
Chamber Volume	m^3	0.05
Inlet Gas Flow Rate	m^3/h	0.05
Avg. Temperature & Range	℃	23.4
Avg. Relative humidity & Range	%	50.1
Exposed Area of test specimen	m^2	0.05
Chamber Loading Factor	m^2/m^3	1
Duration	h	96

Table 5. Parameters used for estimating air concentrations in a standard school classroom and private office

Product Type	Area or Quantity (m^2 or Unit)		Area- or Unit-Specific Air Flow Rate (m/h or m^3/h)	
	school classroom	private office	school classroom	private office
Flooring (all types)	89.2	11.1	2.14	1.86

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Evaluation results

Table 6. Comparison of Target VOCs Modeled Conc. to California Specification 01350 CRELs (following 10 days of conditioning)

No.	Compound Name	Allowable Conc. (μg/m³)	Emission Factor (μg m⁻² h⁻¹) ★	Modeled Conc. (μg/m³) 96h ▲		Exceed Allowable Conc. (Classroom/ Office)
			96h	Classroom	Office	
1	Acetaldehyde	70	N.D.	N.D.	N.D.	No/No
2	Benzene	1.5	N.D.	N.D.	N.D.	No/No
3	Carbon disulfide	400	N.D.	N.D.	N.D.	No/No
4	Carbon tetrachloride	20	N.D.	N.D.	N.D.	No/No
5	Chlorobenzene	500	N.D.	N.D.	N.D.	No/No
6	Chloroform	150	N.D.	N.D.	N.D.	No/No
7	Dichlorobenzene (1,4-)	400	N.D.	N.D.	N.D.	No/No
8	Dichloroethylene (1,1)	35	N.D.	N.D.	N.D.	No/No
9	Dimethylformamide (N,N-)	40	N.D.	N.D.	N.D.	No/No
10	Dioxane (1,4-)	1500	N.D.	N.D.	N.D.	No/No
11	Epichlorohydrin	1.5	N.D.	N.D.	N.D.	No/No
12	Ethylbenzene	1000	N.D.	N.D.	N.D.	No/No
13	Ethylene glycol	200	N.D.	N.D.	N.D.	No/No
14	Ethylene glycol monoethyl ether	35	N.D.	N.D.	N.D.	No/No
15	Ethylene glycol monoethyl ether acetate	150	N.D.	N.D.	N.D.	No/No
16	Ethylene glycol monomethyl ether	30	N.D.	N.D.	N.D.	No/No
17	Ethylene glycol monomethyl ether acetate	45	N.D.	N.D.	N.D.	No/No
18	Formaldehyde	9	3.2	1.5	1.7	No/No
19	Hexane (n-)	3500	N.D.	N.D.	N.D.	No/No
20	Isophorone	1000	N.D.	N.D.	N.D.	No/No
21	Isopropanol	3500	N.D.	N.D.	N.D.	No/No
22	Methyl chloroform	500	N.D.	N.D.	N.D.	No/No
23	Methylene chloride	200	N.D.	N.D.	N.D.	No/No
24	Methyl t-butyl ether	4000	N.D.	N.D.	N.D.	No/No
25	Naphthalene	4.5	N.D.	N.D.	N.D.	No/No
26	Phenol	100	N.D.	N.D.	N.D.	No/No
27	Propylene glycol monomethyl ether	3500	N.D.	N.D.	N.D.	No/No
28	Styrene	450	N.D.	N.D.	N.D.	No/No
29	Tetrachloroethylene	17.5	N.D.	N.D.	N.D.	No/No
30	Toluene	150	N.D.	N.D.	N.D.	No/No
31	Trichloroethylene	300	N.D.	N.D.	N.D.	No/No
32	Vinyl acetate	100	N.D.	N.D.	N.D.	No/No

检验检测专用章 Inspection & Testing Services

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33-35	Xylenes (m-, o-, p-xylene combined)	350	N.D.	N.D.	N.D.	No/No
36	TVOC	---	17.3	8.1	9.3	

Notes:

(A) ★ Calculation of Emission Factors

(1) The area specific emission rate or emission factor, EF_{Ai} (μg m^{-2} h^{-1}), at a given time, t(h), after placing a test specimen in the chamber shall be calculated using Equation I:

$$EF_{Ai} = Q \times (C_{it} - C_{i0}) / A_C \quad \text{(Equation I)}$$

The inlet flow rate, Q (m^3 h^{-1}), is the measured flow rate of air into the chamber. The chamber concentration, C_{it} (μg m^{-3}), is the concentration of a target VOC_i, formaldehyde and other carbonyl compounds measured at time t. The chamber background concentration, C_{i0} (μg m^{-3}), is the corresponding concentration measured with the chamber operating without a test specimen or with an appropriate substrate. The exposed projected surface area of the test specimen in the chamber, A_C (m^2), is determined from the measurements made at the time of specimen preparation.

(2) Volume, length, mass or unit specific emission rates or emission factors, EF_V, EF_L or EF_M ,EF_P (μg m^{-3} h^{-1}, μg m^{-1} h^{-1}, μg kg^{-1} h^{-1} or μg h^{-1}per unit), can be calculated using Equation Ⅰ by substituting the appropriate parameter used to quantify the material specimen (i.e., volume in cubic meters, length in meters, mass in kilograms or number of products tested).

(B) ▲ Calculation of Estimated Building Concentrations (Modeled Conc.)

The estimated building concentration, C_{Bi} (μg m^{-3}), of a target VOC_i shall be calculated using Equation II or Equation III.

(1) For products that have the area specific emission factor, EFA (μg m^{-2} h^{-1}), Equation II shall be used:

$$C_{Bi} = (EF_{Ai} \times A_B) / Q_B = EF_{Ai} / (Q_B / A_B) = EF_{Ai} / q_A \quad \text{(Equation II)}$$

The area specific emission rate EF_A at 336 hours (14 days) total exposure time is divided by the area specific flow rate, q_A (m h-1). The area specific flow rate, qA, is calculated as the ratio of the flow rate of outside ventilation air, Q_B (m^3 h^{-1}), to the exposed surface area of the installed material in the building, A_B (m^2).

(2) For products that only have the unit specific emission factor, EF_P (μg h^{-1} per unit), Equation III shall be used:

$$C_{Bi} = (EF_{Pi} \times N_B) / Q_B = EF_{Pi} / (Q_B / N_B) = EF_{Pi} / q_P \quad \text{(Equation III)}$$

The unit specific emission rate EF_P at 336 hours (14 days) total exposure time is divided by the unit specific flow rate, q_P (m^3 h^{-1} per unit). The unit specific flow rate, q_P, is calculated as the ratio of the flow rate of outside ventilation air, Q_B (m^3 h^{-1}), to the number of the installed products in the building, N_B.

(3) In some cases, it may be necessary to calculate the results using the volume, length or mass of a product to be installed in a building and the corresponding volume, length or mass specific emission rate.

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Table 7. Comparison of Non-Listed compound(s) Conc. to California Specification 01350 CRELs (following 10 days of conditioning)

No.	Compound Name	Emission Factor (μg m^{-2} h^{-1})	Modeled Conc. (μg/m^3) 96h	
		96h	Classroom	Office
1	Unknown	3.2	1.5	1.7
2	Pentane	2.3	1.1	1.2
3	Hexanal	3.3	1.5	1.8
4	Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(2-hydroxy-1-methylethyl)propylester	3.4	1.6	1.8
5	Propanoic acid, 2-methyl-, 3-hydroxy-2,4,4-trimethylpentyl ester	5.1	2.4	2.7
6				
7				
8				
9				
10				
11				
12				
13				
14				

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Photographs of test Specimen



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