



Test Report

No. VNHL2604008422HG

Date: April 28, 2026

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HTPLY VIETNAM COMPANY LIMITED

5TH FLOOR, NO. 564 NGUYEN VAN CU STREET, BO DE WARD, HANOI CITY, VIETNAM

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

SGS Job No. : VNHL2604008422HG
 Sample Description : EUCALYPTUS MARINE PLYWOOD
 Color : RED LIGHT
 Characteristic : WOOD SPECIES:100% EUCALYPTUS
 : GLUE: PHENOLIC
 Country of Origin : VIETNAM
 Country of Destination : EU, MIDLE EAST, AMERICA

As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

Sample Receiving Date : APRIL 08, 2026
 Final Confirmed Date : APRIL 08, 2026
 Testing Period : APRIL 08, 2026 TO APRIL 28, 2026
 Test Requested : PLEASE REFER TO THE RESULT SUMMARY.
 Test Results : PLEASE REFER TO NEXT PAGE(S).

Result Summary

Test Requested	Conclusion
Formaldehyde emission by chamber method	See Result
Density	See Result
Bending test	See Result
Swelling in thickness after immersion in water for 24 h	See Result
Moisture content	See Result
Bonding quality – As client’s requirement	See Result

Signed for and on behalf of
SGS Vietnam LTD



Ung Thanh Van
Hardline SBU Manager

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Test Result:**Formaldehyde emission by chamber method**

Test Method: With reference to EN 717-1:2004. Analysis was performed by UV-VIS.

Test Item	Result (mg/m ³)	Reporting Limit (mg/m ³)
	1	
Formaldehyde emission (in air)	ND	0.04

Sample Description:

1 LIGHT BROWN COMPOSITE WOOD (PLYWOOD)

- Note:
1. mg/m³ = milligram per cubic meter
 2. ND = Not Detected
 3. 0.1 mL/m³ = 0.124 mg/m³
- Class E1 Requirement: ≤ 0.124 mg/m³ air
Class E2 Requirement: > 0.124 mg/m³ air

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Characteristic	Unit	Test method	Test result	
1. Density (*)	kg/m ³	BS EN 323 : 1993	616	
2. Moisture content (*)	%	BS EN 322 : 1993	7.3	
3. Bending test (*) (a)		BS EN 310 : 1993	LD	TD
• Bending strength	N/mm ²		56.0	33.1
• Modulus of elasticity in bending	N/mm ²		7187	4388
4. Swelling in thickness after immersion in water for 24 h (*)	%	BS EN 317 : 1993	4.1	
Characteristic	Test method	Test result		Remark
5. Bonding quality (*) (b) (Shear strength)	BS EN 314-2 : 1993 - Class 3 & BS EN 314-1 : 2004	Mean shear strength (f_v) (N/mm ²)	Mean apparent cohesive wood failure percentage (%)	
• Pre-treatment 5.1.1		1.32	40	Accept
• Pre-treatment 5.1.3		0.85	55	Accept
• Pre-treatment 5.1.4		0.92	55	Accept

Requirements: The relationship between the mean percentage of apparent cohesive wood failure and the mean shear strength given in Table 2 - BS EN 314-2 : 1993.

Mean shear strength f_v (N/mm ²)	Mean apparent cohesive wood failure w (%)
$0.2 \leq f_v < 0.4$	≥ 80
$0.4 \leq f_v < 0.6$	≥ 60
$0.6 \leq f_v < 1.0$	≥ 40
$1.0 \leq f_v$	no requirement

Sample Description:
A EUCALYPTUS MARINE PLYWOOD

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- Note:
1. Lab environmental conditions: $(20 \pm 2) ^\circ\text{C}$; $(65 \pm 5) \% \text{RH}$.
 2. (a) Span: 360 mm. Test speed: 10 mm/min.
 3. (b) Pre-treatments:
 - 5.1.1 Immersion for 24 h in water at $(20 \pm 3) ^\circ\text{C}$.
 - 5.1.3 Immersion for 4 h in boiling water, then drying in the ventilated drying oven for 16 h to 20 h at $(60 \pm 3) ^\circ\text{C}$, then immersion in boiling water for 4 h, followed by cooling in water at $(20 \pm 3) ^\circ\text{C}$ for at least 1 h.
 - 5.1.4 Immersion for (72 ± 1) h in boiling water, followed by cooling in water at $(20 \pm 3) ^\circ\text{C}$ for at least 1 h.
- Remark: (*) The test was accredited ISO 17025:2017 by VILAS.
The test results are considered as conform to specification based on the general consideration simple acceptance as stated in ISO/IEC GUIDE 98-4:2012.

Test details of Bonding quality:

1. Immersion for 24 h in water at $(20 \pm 3) ^\circ\text{C}$

Specimen No.	l_1	b_1	F	f_v	Wood failure
	(mm)	(mm)	(N)	(N/mm ²)	(%)
1	25.31	24.98	1066.3	1.69	20
2	24.79	25.27	875.0	1.4	30
3	25.07	25.15	757.8	1.2	30
4	25.03	25.35	539.7	0.85	30
5	25.16	24.72	702.7	1.13	20
6	25.31	24.8	910.7	1.45	60
7	24.87	24.91	905.4	1.46	80
8	25.11	25.27	1098.8	1.73	30
9	24.99	25.02	491.6	0.79	80
10	24.75	24.95	928.6	1.5	10
Average	25.04	25.04	827.7	1.32	40

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2. Immersion for 4 h in boiling water, then drying in the ventilated drying oven for 16 h to 20 h at $(60 \pm 3)^\circ\text{C}$, then immersion in boiling water for 4 h, followed by cooling in water at $(20 \pm 3)^\circ\text{C}$ for at least 1 h

Specimen No.	l_1	b_1	F	f_v	Wood failure
	(mm)	(mm)	(N)	(N/mm ²)	(%)
1	25.31	24.80	345.6	0.55	40
2	24.93	25.39	369.2	0.58	30
3	24.90	25.41	751.3	1.19	50
4	25.15	24.77	627.1	1.01	50
5	24.86	25.15	498.9	0.8	50
6	24.92	24.70	328.9	0.53	70
7	25.22	25.26	815.4	1.28	80
8	24.80	25.17	325.4	0.52	40
9	24.92	24.99	857.0	1.38	70
10	24.74	25.10	420.6	0.68	80
Average	24.98	25.07	533.9	0.85	55

3. Immersion for (72 ± 1) h in boiling water, followed by cooling in water at $(20 \pm 3)^\circ\text{C}$ for at least 1 h

Specimen No.	l_1	b_1	F	f_v	Wood failure
	(mm)	(mm)	(N)	(N/mm ²)	(%)
1	25.14	25.25	834.3	1.31	80
2	25.36	25.40	432.4	0.67	90
3	25.26	25.43	959.3	1.49	70
4	25.30	25.17	767.9	1.21	60
5	25.07	25.25	936.7	1.48	80
6	25.20	25.11	395.1	0.62	50
7	25.14	25.36	371.0	0.58	70
8	25.10	24.90	368.7	0.59	20
9	25.36	25.04	390.8	0.62	20
10	25.26	25.42	372.8	0.58	20
Average	25.22	25.23	582.9	0.92	55

Note: Note: l_1 : shear length; b_1 : shear width; F : breaking force; f_v : shear strength.

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PHOTO OF SUBMITTED SAMPLE FOR TESTING



REPORT RESULTS REFER TO SUBMITTED SAMPLE(S) ONLY

End of Report

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