



AB 023



Instytut Techniki Budowlanej

Research Laboratories Team
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TEST REPORT

LZM01-01807/25/Z00NZM

Client:

Ecoplank P.S.A.
ul. Piękna 11/1, 00-549 Warsaw

Product name

(as provided by the Client):

ECOPLANK boards and posts from recycled plastic

Date of issue: 30 September 2025

Building Materials Laboratory (LZM)
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1. Test Information

Product manufacturer: Ecoplank P.S.A., ul. Piękna 11/1, 00-549 Warsaw

This test report contains results of tests within the scope of accreditation and results of non-accredited tests. Results outside the scope of accreditation have been marked with the note "outside the scope of accreditation".

Test start date: 26-08-2025

Test completion date: 15-09-2025

Place of testing:

LZM Laboratory, location: ul. Ksawerów 21, 02-656 Warsaw.

2. Product

2.1. Information provided by the Client

Product: ECOPLANK boards and posts from recycled plastic

Declared scope of application: Products for the construction of surfaces for footpaths, walkways, pedestrian routes, stepping stones, steps, promenades, balconies and terraces, as well as fences and small architecture elements.

3. Test Object and Sample

3.1. Information provided by the Client

Name: ECOPLANK boards and posts from recycled plastic

ECOPLANK boards and posts were made from a mixture of recycled synthetic plastics: polyethylene and polypropylene.

3.2. Information obtained from laboratory inspection

Receipt of test object into laboratory:

Date: 10-07-2025

Receipt protocol: LZM00-01807/25/Z00NZM

Condition of test object:

Samples were delivered in a condition and quantity appropriate for testing.

Description of test object:

Samples delivered for testing:

- boards in grey colour, dimensions (150×32) mm, length 3870 mm – 10 pcs.,
- boards in black colour, dimensions (150×32) mm, length 1 m – 2 pcs.,
- boards in teak colour, dimensions (150×32) mm, length 1 m – 2 pcs.,
- boards in gold colour, dimensions (150×32) mm, length 1 m – 2 pcs.,
- joists, dimensions (90×90) mm, length 3870 mm – 3 pcs.,
- screws – 60 pcs.

Storage of test object:

During the period between receipt in the laboratory and the start of conditioning, samples were stored under laboratory conditions (temp. $23 \pm 2^\circ\text{C}$ and $50 \pm 5\%$ RH).

4. Test Results

Up – expanded measurement uncertainty (related to the accuracy of the measuring equipment used), at an expansion probability of approx. 95% and expansion factor $k=2$.

The uncertainty value relates to individual test results. The uncertainty value cannot be attributed directly to the property level of a given product, as the laboratory does not have knowledge of the variability of its population, but only of the tested sample.

4.1. Slip Resistance

4.1.1. Test Method

CEN/TS 15676:2007

The execution of the test, environmental conditions and accuracy of measuring instruments used are in accordance with the requirements of the above standard.

A pendulum test device with a wide slider – Slider 57 (CEN), dimensions 25×76 mm was used. Tests were conducted both dry and wet, along the profile. Due to the declared two-sided nature of the boards, the test was performed on each usable surface separately. Testing was performed on the top face (ribbed) and bottom face (smooth).

4.1.2. Results

Table 1. Slip resistance results (dry) for ECOPLANK board (150×32) mm

No.	PTV Slip Resistance (dry, along the plank)	
	Top face (ribbed)	Bottom face (smooth)
1	69	71
2	69	74
3	66	73
4	69	73
5	70	72
6	69	70
7	68	69
8	66	72
9	67	72
10	68	71
Average	68	72
Up = 3 PTV		

Table 2. Slip resistance results (wet) for ECOPLANK board (150×32) mm

No.	PTV Slip Resistance (wet, along the plank)	
	Top face (ribbed)	Bottom face (smooth)
1	19	24
2	19	24
3	21	26
4	20	25
5	19	24
6	22	22
7	21	24
8	18	24
9	20	22
10	19	23
Average	20	24
Up = 3 PTV		

4.2. Resistance to Hard Body Impact

4.2.1. Test Method

PN-EN 15534-1+A1:2017

The execution of the test, environmental conditions and accuracy of measuring instruments used are in accordance with the requirements of the above standard.

Testing was performed after conditioning samples at +23°C and after conditioning for 1 hour at –20°C. The impact energy was 7 J. Testing was performed on the top face (ribbed) and bottom face (smooth).

4.2.2. Results

Table 3. Impact resistance results for ECOPLANK boards (150×32) mm (temp. +23°C)

No.	Impact Resistance [mm]				Test Result
	Top face (ribbed)		Bottom face (smooth)		
	Indentation	Crack length	Indentation	Crack length	
1	0.082	—	0.030	—	No damage
2	0.091	—	0.036	—	No damage
3	0.069	—	0.054	—	No damage
4	0.067	—	0.052	—	No damage
5	0.069	—	0.031	—	No damage
6	0.089	—	0.046	—	No damage
7	0.042	—	0.076	—	No damage
8	0.085	—	0.067	—	No damage
9	0.070	—	0.034	—	No damage
10	0.044	—	0.071	—	No damage
Damage = delamination/crack ≥10 mm or indentation >0.5 mm					
Up = 0.004 mm					

Table 4. Impact resistance results for ECOPLANK boards (150×32) mm (temp. –20°C)

No.	Impact Resistance [mm]				Test Result
	Top face (ribbed)		Bottom face (smooth)		
	Indentation	Crack length	Indentation	Crack length	
1	0.048	—	0.034	—	No damage
2	0.086	—	0.074	—	No damage
3	0.064	—	0.036	—	No damage
4	0.068	—	0.029	—	No damage
5	0.048	—	0.037	—	No damage
6	0.080	—	0.036	—	No damage
7	0.091	—	0.031	—	No damage
8	0.064	—	0.039	—	No damage
9	0.080	—	0.035	—	No damage
10	0.069	—	0.029	—	No damage
Damage = delamination/crack ≥10 mm or indentation >0.5 mm					
Up = 0.004 mm					

4.3. Flexural Strength

4.3.1. Test Method

PN-EN ISO 178:2019-06

The execution of the test, environmental conditions and accuracy of measuring instruments used are in accordance with the requirements of the above standard.

Flexural strength testing was performed in a three-point bending test. Beams 80 mm long, width 10.07–10.19 mm, thickness 3.83–4.06 mm, at 2 mm/min with a 64 mm support span.

Immediately before testing, samples were conditioned for 24 hours at (23±2)°C and (50±5)%.

4.3.2. Results

Table 5. Flexural strength test results for the material of ECOPLANK board (150×32) mm

Sample No.	Flexural Strength [MPa]
1	20.3
2	20.2
3	20.1
4	20.4
5	21.6
6	20.3
Average value	20.5
Up = 0.2 MPa	

4.4. Flexural Modulus of Elasticity

Test outside the scope of accreditation.

4.4.1. Test Method

PN-EN ISO 178:2019-06

The execution of the test, environmental conditions and accuracy of measuring instruments used are in accordance with the requirements of the above standard.

Flexural modulus testing was performed in a three-point bending test. Beams 80 mm long, width 10.07–10.19 mm, thickness 3.83–4.06 mm, at 2 mm/min with a 64 mm support span.

Immediately before testing, samples were conditioned for 24 hours at (23±2)°C and (50±5)%.

4.4.2. Results

Table 6. Flexural modulus test results for the material of ECOPLANK board (150×32) mm

Sample No.	Flexural Modulus of Elasticity [MPa]
1	691
2	723
3	705
4	705
5	766
6	724
Average value	719
Up = 0.2 MPa	

4.5. Compressive Properties

4.5.1. Test Method

PN-EN ISO 604:2006

The execution of the test, environmental conditions and accuracy of measuring instruments used are in accordance with the requirements of the above standard.

Compressive properties testing was performed on cuboids 10.00 mm long, width 10.04–10.18 mm, thickness 3.91–4.10 mm, on a class 1 testing machine at 1 mm/min.

Immediately before testing, samples were conditioned for 24 hours at (23±2)°C and (50±5)%.

4.5.2. Results

Table 7. Compressive properties test results for the material of ECOPLANK board (150×32) mm

Sample No.	Compressive Strength at 10% strain [MPa]	Compressive Modulus [MPa]
1	20.6	423
2	20.8	505
3	21.0	522
4	20.9	505
5	20.6	514
6	21.6	566
Average value	20.9	506
Up = 0.2 MPa		

4.6. Resistance to Artificial Ageing

4.6.1. Test Method

PN-EN ISO 4892-2:2013-06

The execution of the test, environmental conditions and accuracy of measuring instruments used are in accordance with the requirements of the above standards.

Xenon lamp ageing was performed under the following conditions:

- Exposure: per PN-EN ISO 4892-2:2013, Method A (spray cycle 18/102, BST 65°C, RH 50%, avg. temp. Cht 38°C, irradiance 60 W/m²),
- Exposure time: 300 h,
- Equipment type: Xenotest Q-SUN (xenon arc discharge lamp with external filter).

Material durability was determined based on the colour difference between samples before and after ageing.

4.7. Colour Change

Test outside the scope of accreditation.

4.7.1. Test Method

PN-ISO 7724-1:2003, PN-ISO 7724-2:2003, PN-ISO 7724-3:2003

Colour difference of board material subjected to artificial ageing vs. unaged material, determined per PN-ISO 7724-2:2003 and PN-ISO 7724-3:2003 using a spectrophotometer:

- measurement surface and specular component: M/SCI,
- illuminant: D65,
- observer: 10°.

4.7.2. Results

Table 8. Colour difference results: aged vs. unaged board surfaces

Colour: teak										
No.	Colour components unaged surface			Colour components aged surface			ΔL^*	Δa^*	Δb^*	ΔE^*_{ab}
	L*	a*	b*	L*	a*	b*				
1	59.76	20.09	15.59	60.60	19.97	16.00	0.84	-0.13	0.42	0.94
2	59.76	20.09	15.59	60.56	20.40	16.40	0.80	0.31	0.81	1.18
3	59.76	20.09	15.59	59.77	20.51	16.28	0.01	0.42	0.69	0.81
										0.98
Up = 0.30 for ΔE^*_{ab}										

Table 9. Colour difference results: aged vs. unaged board surfaces

Colour: black										
No.	Colour components unaged surface			Colour components aged surface			ΔL^*	Δa^*	Δb^*	ΔE^*_{ab}
	L*	a*	b*	L*	a*	b*				
1	34.14	0.58	-0.28	33.39	0.60	-0.46	-0.75	0.02	-0.17	0.77
2	34.14	0.58	-0.28	32.96	0.56	-0.62	-1.18	-0.02	-0.34	1.22
3	34.14	0.58	-0.28	33.37	0.60	-0.57	-0.77	0.02	-0.29	0.82
										0.94
Up = 0.30 for ΔE^*_{ab}										

Table 10. Colour difference results: aged vs. unaged board surfaces

Colour: gold										
No.	Colour components unaged surface			Colour components aged surface			ΔL^*	Δa^*	Δb^*	ΔE^*_{ab}
	L*	a*	b*	L*	a*	b*				
1	63.13	9.46	32.92	63.26	9.58	26.43	0.13	0.13	-6.49	6.49
2	63.13	9.46	32.92	64.19	9.20	25.24	1.06	-0.26	-7.68	7.76
3	63.13	9.46	32.92	63.25	9.69	25.27	0.12	0.24	-7.66	7.66
										7.30
Up = 0.30 for ΔE^*_{ab}										

5. Disclaimers

The Testing Laboratory declares that the test results relate exclusively to the received sample.

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This report was issued in 3 copies, of which 2 were received by the Client and one remains at ITB.

Responsible for testing

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END OF REPORT
