ISTANBUL UNIVERSITY
FORESTRY FACULTY
TEST REPORT

16/11/2016
İstanbul

Arslan Foreign Trade Industry Corporation / İzmir

SUBJECT: Your application regarding test report on linear thermal expansion coefficient of ARLINE® hollow wood plastic composite decks to Istanbul University, Forestry Faculty with the petition with the number of 106894 on 19.09.2016.

TEST METHODS: The linear thermal expansion coefficient of ARLINE® hollow wood plastic composite decks produced by Arslan Foreign Trade Industry Corporation in İzmir, Turkey, based on the EN 15534-1.

EN 15534-1 (2014): Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) - Part 1: Test methods

TEST RESULTS

The test results performed on the ARLINE® hollow wood plastic composites are presented in Table 1.

Table 1: The linear thermal expansion coefficient results of ARLINE® hollow wood plastic composite decks.

Test Type	Standard	Unit	Product type		Standard value
			14024	14025	
Linear thermal expansion coefficient (between 60 °C and -20 °C)	DIN 53752	K^{-1}	34.10^{-6}	42.10^{-6}	$\leq 50.10^{-6}$

* the values speficied in EN 15534-4 (2014).

This test report was prepared by Prof.Dr. Nadir AYRILMIS.

Prof.Dr. Nadir AYRILMIS
Wood Composite Research Engineer, Ph.D.
Department of Wood Mechanics and Technology
Forestry Faculty, Istanbul University
Istanbul TURKEY

Contact information:
Tel: +90 212 338 24 00 / 25083
GSM: +90 537 226 93 50
Email: nadiray@istanbul.edu.tr

ISTANBUL UNIVERSITY
FORESTRY FACULTY
TEST REPORT

16/11/2016
İstanbul

Arslan Foreign Trade Industry Corporation / İzmir

SUBJECT: Your application regarding test report on bending strength of ARLINE® hollow wood plastic composite decks to Istanbul University, Forestry Faculty with the petition with the number of 106894 on 19.09.2016.

TEST METHODS: The bending strength of ARLINE® hollow wood plastic composite decks produced by Arslan Foreign Trade Industry Corporation in İzmir, Turkey, based on the EN ISO 15534-1.

EN 15534-1 (2014): Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) - Part 1: Test methods

TEST RESULTS

The test results performed on the ARLINE® hollow wood plastic composites are presented in Table 1.

Table 1: Bending strength of ARLINE® hollow wood plastic composite decks.

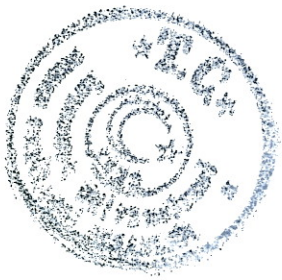
Test Type			Standard	Unit	Product type		Standard value
					14024	14025	
Bending strength (3 point)	Span (inside to inside)	300 mm	EN 310	N/mm^2	23,2	27,6	-
		350 mm	EN 310	N/mm^2	21,1	26,9	-
		400 mm	EN 310	N/mm^2	21,3	26,3	-

* the values speficied in EN 15534-4 (2014).

This test report was prepared by Prof.Dr. Nadir AYRILMIS.

Prof.Dr. Nadir AYRILMIS
Wood Composite Research Engineer, Ph.D.
Department of Wood Mechanics and Technology
Forestry Faculty, Istanbul University
Istanbul TURKEY

Contact information:
Tel: +90 212 338 24 00 / 25083
GSM: +90 537 226 93 50
Email: nadiray@istanbul.edu.tr



ISTANBUL UNIVERSITY
FORESTRY FACULTY
TEST REPORT

16/11/2016
İstanbul

Arslan Foreign Trade Industry Corporation / İzmir

SUBJECT: Your application regarding test report on density measurement of ARLINE® hollow wood plastic composite decks to Istanbul University, Forestry Faculty with the petition with the number of 106894 on 19.09.2016.

TEST METHODS: The density measurement of ARLINE® hollow wood composite decks produced by Arslan Foreign Trade Industry Corporation in İzmir, Turkey, based on the EN 15534-1.

EN 15534-1 (2014): Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) - Part 1: Test methods

TEST RESULTS

The test results performed on the ARLINE® hollow wood plastic composites are presented in Table 1.

Table 1: The density results of ARLINE® hollow wood plastic composite decks.

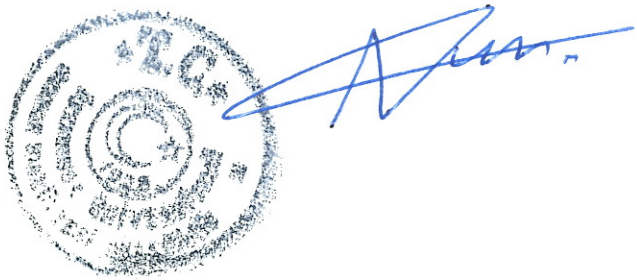
Test Type	Standard	Unit	Product type		Standard value
			14024	14025	
Density	EN ISO 1183-1	g/cm^3	1,129	1,125	-

* the values speficied in EN 15534-4 (2014).

This test report was prepared by Prof.Dr. Nadir AYRILMIS.

Prof.Dr. Nadir AYRILMIS
Wood Composite Research Engineer, Ph.D.
Department of Wood Mechanics and Technology
Forestry Faculty, Istanbul University
Istanbul TURKEY

Contact information:
Tel: +90 212 338 24 00 / 25083
GSM: +90 537 226 93 50
Email: nadiray@istanbul.edu.tr



ISTANBUL UNIVERSITY
FORESTRY FACULTY
TEST REPORT

16/11/2016
İstanbul

Arslan Foreign Trade Industry Corporation / İzmir

SUBJECT: Your application regarding test report on falling mass impact resistance of ARLINE® hollow wood plastic composite decks to Istanbul University, Forestry Faculty with the petition with the number of 106894 on 19.09.2016.

TEST METHODS: The falling mass of ARLINE® hollow wood plastic composite decks produced by Arslan Foreign Trade Industry Corporation in İzmir, Turkey, based on the EN 15534-1.

EN 15534-1 (2014): Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) - Part 1: Test methods

TEST RESULTS

The test results performed on the ARLINE® hollow wood plastic composites are presented in Table 1.

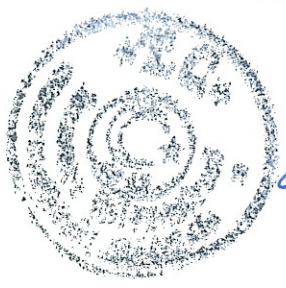
Table 1: The falling mass results of ARLINE® hollow wood plastic composite decks.

Test Type		Standard	Unit	Product type		Standard value
				14024	14025	
Falling mass impact resistance	*H*: (700 ± 5) mm *M*s: (1 000 ± 5) g	EN 477	mm	no failure with a crack; the depth of residual indentation 0,35 mm	no failure with a crack; the depth of residual indentation 0,29 mm	None of 10 test specimens shall show a failure with a crack length ≥ 10 mm or a depth of residual indentation ≥ 0,5 mm.

* the values speficied in EN 15534-4 (2014).

This test report was prepared by Prof.Dr. Nadir AYRILMIS.

Prof.Dr. Nadir AYRILMIS
Wood Composite Research Engineer, Ph.D.
Department of Wood Mechanics and Technology
Forestry Faculty, Istanbul University
Istanbul TURKEY



Contact information:
Tel: +90 212 338 24 00 / 25083
GSM: +90 537 226 93 50
Email: nadiray@istanbul.edu.tr

ISTANBUL UNIVERSITY
FORESTRY FACULTY
TEST REPORT

16/11/2016
İstanbul

Arslan Foreign Trade Industry Corporation / İzmir

SUBJECT: Your application regarding test report on slip resistance of ARLINE® hollow composite decks to Istanbul University, Forestry Faculty with the petition with the number of 106894 on 19.09.2016.

TEST METHODS: The dry and wet slip resistance of ARLINE® hollow wood plastic composite decks produced by Arslan Foreign Trade Industry Corporation in İzmir, Turkey, based on the EN ISO 15534-1.

EN 15534-1 (2014): Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) - Part 1: Test methods

TEST RESULTS

The test results performed on the ARLINE® hollow wood plastic composites are presented in Table 1.

Table 1: Slip resistance of ARLINE® hollow wood plastic composite decks.

Test Type			Standard	Unit	Product type		Standard values
					14024	14025	
Slip resistance (pendulum method)	Dry	Top	CEN/TS 15676	Value	55	69	≥ 36
		Bottom	CEN/TS 15676	Value	54	46	≥ 36
	Wet	Top	CEN/TS 15676	Value	45	55	≥ 36
		Bottom	CEN/TS 15676	Value	22	21	≥ 36

* the values speficied in EN 15534-4 (2014).

This test report was prepared by Prof.Dr. Nadir AYRILMIS.

Prof.Dr. Nadir AYRILMIS
Wood Composite Research Engineer, Ph.D.
Department of Wood Mechanics and Technology
Forestry Faculty, Istanbul University
Istanbul TURKEY

Contact information:
Tel: +90 212 338 24 00 / 25083
GSM: +90 537 226 93 50
Email: nadiray@istanbul.edu.tr

ISTANBUL UNIVERSITY
FORESTRY FACULTY
TEST REPORT

16/11/2016
İstanbul

Arslan Foreign Trade Industry Corporation / İzmir

SUBJECT: Your application regarding test report on flame spread of ARLINE® hollow wood plastic composite decks to Istanbul University, Forestry Faculty with the petition with the number of 106894 on 19.09.2016.

TEST METHODS: The flame spread of ARLINE wood plastic composite decks produced by Arslan Foreign Trade Industry Corporation in İzmir, Turkey, based on the EN ISO 11925-2 and EN 15534-1.

EN 15534-1 (2014): Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) - Part 1: Test methods for characterisation of compounds and products.

TEST RESULTS

The test results performed on the ARLINE® hollow wood plastic composites are presented in Table 1.

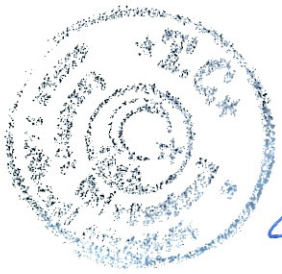
Table 1: Flame spread of ARLINE® hollow wood plastic composite decks.

Test Type		Standard	Unit	Product type		Standard value*
				14024	14025	
Flame spread	The flame application duration is 15 sec. after the flame application the flame spread reaches the reference mark of 150 mm within a duration of 20 sec	ISO 11925-2 t = 15 s (20 s)	mm	110 mm	105 mm	Fs (flame spread) ≤ 150 mm

* the value speficied in EN ISO 11925-2 (2010).

This test report was prepared by Prof.Dr. Nadir AYRILMIS.

Prof.Dr. Nadir AYRILMIS
Wood Composite Research Engineer, Ph.D.
Department of Wood Mechanics and Technology
Forestry Faculty, Istanbul University
Istanbul TURKEY



Contact information:
Tel: +90 212 338 24 00 / 25083
GSM: +90 537 226 93 50
Email: nadiray@istanbul.edu.tr

ISTANBUL UNIVERSITY
FORESTRY FACULTY
TEST REPORT

16/11/2016
İstanbul

Arslan Foreign Trade Industry Corporation / İzmir

SUBJECT: Your application regarding test report on dimensional stability of ARLINE® hollow composite decks in wet conditions to Istanbul University, Forestry Faculty with the petition with the number of 106894 on 19.09.2016.

TEST METHODS: The dimensional stability in wet conditions of ARLINE® hollow wood plastic composite decks produced by Arslan Foreign Trade Industry Corporation in İzmir, Turkey, based on the EN ISO 15534-1.

EN 15534-1 (2014): Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) - Part 1: Test methods

TEST RESULTS

The test results performed on the ARLINE® hollowwood plastic composites are presented in Table 1.

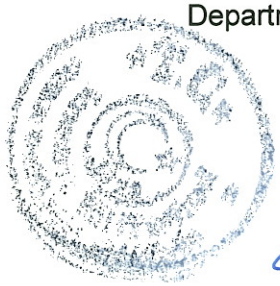
Table 1: Dimensional stability of ARLINE® hollow wood plastic composite decks.

Test Type		Standard	Unit	Product type		Standard value*
				14024	14025	
Dimensional stability and water absorption after 28 days immersion in normal water (23 °C)	Water absorption	EN 317	%	4,91	4,4	≤ 7
	Thickness swelling	EN 317	%	1,32	1,56	≤ 4
	Expansion in Width	EN 317	%	0,25	0,34	≤ 0.8
	Expansion in Length	EN 317	%	0,1	0,17	≤ 0.4
Water absorption after boiling in water for 5 h	Water absorption	EN 1087-1	%	2,28	2,13	≤ 7

* the values speficied in EN 15534-4 (2014).

This test report was prepared by Prof.Dr. Nadir AYRILMIS.

Prof.Dr. Nadir AYRILMIS
Wood Composite Research Engineer, Ph.D.
Department of Wood Mechanics and Technology
Forestry Faculty, Istanbul University
Istanbul TURKEY



Contact information:
Tel: +90 212 338 24 00 / 25083
GSM: +90 537 226 93 50
Email: nadiray@istanbul.edu.tr

ISTANBUL UNIVERSITY
FORESTRY FACULTY
TEST REPORT

16/11/2016
İstanbul

Arslan Foreign Trade Industry Corporation / İzmir

SUBJECT: Your application regarding test report on maximum load at break and deflection of ARLINE® hollow composite decks to Istanbul University, Forestry Faculty with the petition with the number of 106894 on 19.09.2016.

TEST METHODS: The maximum load at break and deflection of ARLINE® hollow wood plastic composite decks produced by Arslan Foreign Trade Industry Corporation in İzmir, Turkey, based on the EN ISO 15534-1.

EN 15534-1 (2014): Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) - Part 1: Test methods

TEST RESULTS

The test results performed on the ARLINE® hollow wood plastic composites are presented in Table 1 and Table 2.

Table 1: Maximum load at break of ARLINE® hollow wood plastic composite decks.

Test Type			Standard	Unit	Product type		Standard value
					14024	14025	
maximum load at break	Span (inside to inside)	300 mm	EN 310	N	4562	4991	≥ 3300
		350 mm	EN 310	N	3673	4196	≥ 3300
		400 mm	EN 310	N	3148	3595	≥ 3300

* the values speficied in EN 15534-4 (2014).

Table 2. Deflection values of ARLINE® hollow wood plastic composite decks under 500 N load.

Test Type			Standard	Unit	Product type		Standard value
					14024	14025	
Deflection under 500 N load	Span (inside to inside)	300 mm	EN 310	mm	0,99	0,89	≤ 2,0 mm
		350 mm	EN 310	mm	1,33	1,17	≤ 2,0 mm
		400 mm	EN 310	mm	1,67	1,64	≤ 2,0 mm

* the values speficied in EN 15534-4 (2014).

This test report was prepared by Prof.Dr. Nadir AYRILMIS.

Prof.Dr. Nadir AYRILMIS
Wood Composite Research Engineer, Ph.D.
Department of Wood Mechanics and Technology
Forestry Faculty, Istanbul University
Istanbul TURKEY

Contact information:
Tel: +90 212 338 24 00 / 25083
GSM: +90 537 226 93 50
Email: nadiray@istanbul.edu.tr