

Test Report

Report Number:
262505-2-WL



**DANISH
TECHNOLOGICAL
INSTITUTE**

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Init.: JOSCFBAU
Order no.: 262505
Encl.: 3

Assignor: MONTANA WOOD TECHNOLOGIES, LLC, 135 Hutton Ranch Rd., Suite 103, Kalispell, MT 59901, USA

Item: Mechanical testing of SYP180°C and red oak 170°C. See enclosure B for detailed sample description.

Sampling: The product was selected by Danish Technological Institute and received at Danish Technological Institute on 17 June 2024.

Period: The test took place from 8 August 2024 to 13 August 2024.

Method: The test methods used are listed in enclosure A.

Test results: The detailed results are shown in enclosure C.

Terms: This test was conducted accredited in accordance with international requirements (ISO/IEC 17025:2017) and in accordance with the General Terms and Conditions of Danish Technological Institute. The test results solely apply to the tested item. This test report may be quoted in extract only if Danish Technological Institute has granted its written consent.

Place: Danish Technological Institute, Taastrup, Building and Construction

Signature: This document is only valid with a digital signature from Danish Technological Institute. The date of issue appears from the digital signature.

Joanna Schalnat
Consultant



DIGITALLY SIGNED DOCUMENT

23 August 2024

DANISH TECHNOLOGICAL INSTITUTE



DANAK

TEST Reg.no. 2



Methods

The following standard methods are used in this test report:

EN 322:1993 Wood-based panels - Determination of moisture content

EN 323:1993 Wood-based panels - Determination of density

EN 325:2012 Wood-based panels - Determination of dimensions of test pieces

EN 326-1:1994 Wood-based panels - Sampling, cutting and inspection - Part 1: Sampling and cutting of test pieces and expression of test results

EN 326-2 + A1:2014 Wood-based panels - Sampling, cutting and inspection - Part 2: Initial type testing and factory production control

Result

Test of Mechanical testing of SYP180°C and red oak 170°C

Sample description

Sample mark:	SYP180°C		
Grade:	SOLID	Nominal thickness:	21 mm
Identification number	14, 15, 18, 20, 23, 24	Edges	Square
Width and length	96 mm x 760 mm	Number of panels	6
Additional info:	Southern Yellow Pine, heat treated at 180°C		



Summary

Tested property		Mean	Std.dev.	COV	Char.value	Requirements
Thickness	mm:	21.73	0.11	0.5		-
Density	kg/m ³ :	596	57.1	9.6		-
Moisture content, conditioned	%:	6	0.5	7.7		



Test of Mechanical testing of SYP180°C and red oak 170°C

Sample description

Sample mark:	RedOak170°C		
Grade:	SOLID	Nominal thickness:	21 mm
Identification number	60, 61, 66, 72, 73, 85	Edges	Square
Width and length	96 mm x 760 mm	Number of panels	6
Additional info:	Red oak, heat treated at 170°C		



Summary

Tested property		Mean	Std.dev.	COV	Char.value	Requirements
Thickness	mm:	21.61	0.11	0.5		-
Density	kg/m ³ :	530	51.0	9.6		-
Moisture content, conditioned	%:	5	0.1	1.4		



Detailed results

Test of Mechanical testing of SYP180°C and red oak 170°C

Sample: SYP180°C

Wood-based panels - Determination of density

Standard: EN 323:1993

Equipment: HBM length transducers, IID 7858, IID 7859 and IID 7860 and VWR LPG-1502, IID 120892

	Width [mm]	Length [mm]	Thickness [mm]	Weight [g]	Area weight [kg/m ²]	Density [kg/m ³]
	40.28	39.66	21.76	20.43	12.8	588
	40.18	39.73	21.71	21.01	13.2	606
	40.04	39.57	21.56	22.59	14.3	661
	40.31	39.78	21.83	21.25	13.3	607
	40.12	39.76	21.64	20.96	13.1	607
	40.22	39.73	21.66	16.10	10.1	465
	40.09	39.78	21.84	21.81	13.7	626
	40.12	39.78	21.86	21.17	13.3	607
Number			8		8	8
Mean			21.73		13	596
Std.Dev.			0.11		1.2	57.1
CoV			0.50		9.6	9.6

Wood-based panels - Determination of moisture content after conditioning

Standard: EN 322:1993

Equipment: VWR LPG-1502, IID 120892

	Initial weight [g]	Final weight [g]	Moisture content [%]
	20.36	19.19	6.1
	20.92	19.70	6.2
	22.51	21.25	5.9
	21.19	19.97	6.1
	20.72	19.78	4.8
	16.11	15.23	5.8
	21.72	20.53	5.8
	21.03	19.83	6.1
Number			8
Mean			5.9
Std.Dev.			0.5
CoV			7.7



Test of Mechanical testing of SYP180°C and red oak 170°C

Sample: RedOak170°C

Wood-based panels - Determination of density

Standard: EN 323:1993

Equipment: HBM length transducers, IID 7858, IID 7859 and IID 7860 and VWR LPG-1502, IID 120892

	Width [mm]	Length [mm]	Thickness [mm]	Weight [g]	Area weight [kg/m ²]	Density [kg/m ³]
	40.05	39.58	21.74	19.70	12.4	572
	40.10	39.74	21.45	21.09	13.2	617
	40.12	39.63	21.59	15.85	10	462
	39.92	39.60	21.75	16.27	10.3	473
	39.98	39.63	21.63	17.63	11.1	514
	40.04	39.67	21.59	18.73	11.8	546
	39.95	39.57	21.47	17.39	11	512
	44.29	39.60	21.62	20.56	11.7	542
Number			8		8	8
Mean			21.61		11	530
Std.Dev.			0.11		1.1	51.0
CoV			0.50		9.3	9.6

Wood-based panels - Determination of moisture content after conditioning

Standard: EN 322:1993

Equipment: VWR LPG-1502, IID 120892

	Initial weight [g]	Final weight [g]	Moisture content [%]
	19.18	18.22	5.3
	20.45	19.41	5.4
	15.50	14.72	5.3
	15.92	15.11	5.4
	17.15	16.29	5.3
	18.30	17.35	5.5
	17.06	16.18	5.4
	20.06	19.05	5.3
Number			8
Mean			5.4
Std.Dev.			0.1
CoV			1.4