

THE INTERNATIONAL RESEARCH GROUP ON WOOD PROTECTION

Section 2

Testing Methodology and Assessment

Wax treated Scots pine

**Water repellent treated timber – Field test results
IRG/WP Durability Database**

Melcher, E.; Brischke, C.

Disclaimer

The responsibility for the data presented in this paper falls to the authors exclusively. The data presented are raw test data and intended to get used for scientific purposes only.

**IRG SECRETARIAT
Box 5609
SE-114 86 Stockholm
Sweden
www.irg-wp.org**

AIMS AND SCOPE OF THE IRG-WP DURABILITY DATABASE

The overall aim of the IRG-WP durability data base is the allocation of wood durability test results for comparative studies and re-analyses. The data base shall serve as pool for service life prediction and modelling and shall contribute to an enhanced understanding of wood durability. It is an open web-based platform for scientific exchange in the field of wood durability and wood protection.

It is NOT the aim of the data base to promote or denigrate any product or material. The data base will contain raw data only; no statistical evaluation will be included. Thus it will be the exclusive responsibility of the user to interpret the test results published in the data base.

For each data set, the full range of information about the test method, the test material, and other relevant parameters, is required to guarantee reliability of the data. For this reason every data set submitted is reviewed and checked for completeness of all relevant data.

The database allows submission of assessment data from all kinds of standardized and non-standardized wood durability tests.

Records of the IRG/WP Durability data base shall be cited as in the following example:

Brischke C., Meyer L. (2013) Douglas fir. Natural durable timber - Field test results. IRG/WP Durability Database. Stockholm: The International Research Group on Wood Protection, IRG/WP/DDB 13-00001.

INFORMATION

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AUTHORS

Corresponding author

Eckhard Melcher

Email eckhard.melcher@ti-bund.de

Institution Thünen Institute of Wood Research

Street/PO Box Leuschnerstraße 91d

City Hamburg

Zip Code 21031

Country Germany

Author 2

Christian Brischke

Email brischke@ibw.uni-hannover.de

Institution Leibniz University Hannover, Faculty of
Architecture and Landscape Sciences

Street/PO Box Herrenhäuser Straße 8

City Hannover

Zip Code 30419

Country Germany

TESTED TIMBER

Trade name Wax treated Scots pine

Botanical name *Pinus sylvestris* L.

Origin Germany

Treatment process Rüping process

Water repellent Wax, dripping point 108 °C

Dimension and shape of specimens for impregnation	Lap-joint specimens according to CEN/TS 12037 (2003)
Sealing	End grain sealed with polyurethane
Process parameters	45 min pre-pressure at 300 kPa, pressure for 120 min in pre-heated wax (20 K above melting point of wax) at 800 kPa, afterwards 45 min conditioning at same temperature without pressure
Number of replicates	41
Sampling	Exclusively sapwood

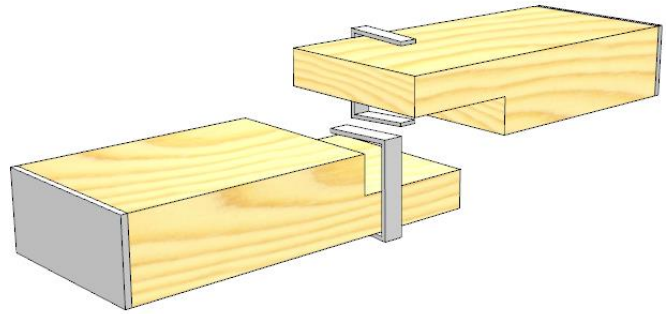
REFERENCE TIMBER

Trade name	Scots pine sapwood
Botanical name	<i>Pinus sylvestris</i> L.
Origin	Germany
Number of replicates	41

TEST METHODS

Standard method	Lap-joint test according to CEN/TS 12037 (2003)
Alteration of standard (optional)	
Non-standard method	
Reference	CEN/TS 12037 (2003) Wood preservatives - Field test method for determining the relative protective effectiveness of a wood preservative exposed out of ground contact - Horizontal lap-joint method. European Committee for Standardization
Specimen dimension and shape	38 x 85 x 180 mm ³

Sketch of specimen (optional)



Rating scheme

0 (sound), 1 (slight decay), 2 (moderate decay), 3 (severe decay), 4 (failure) after EN 252 (1989); upper surface, bottom surface and lap area were assessed separately, here only the worst rating is indicated.

Address of test site

Leuschnerstraße 91, 21031 Hamburg-Lohbrügge

Geographic coordinates (optional)

53°50'37,36''N, 10°20'49,03''E

Start of test

August 2005

Last evaluation

September 2013

Status of test

Still running

RESULTS

Assessment

Material	Wax treated Scots pine sapwood					
Date	19.07.2006	10.07.2007	08.10.2008	20.08.2009	21.09.2010	06.09.2011
Assessment	1	2	3	4	5	6
Replicate ID	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]
1	0	0	0	0	0	0
2	0	0	0	0	0	1
3	0	0	0	0	1	1
4	0	0	0	0	0	1
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	1
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	1
13	0	0	0	0	0	1
14	0	0	0	0	1	1
15	0	0	0	0	1	1
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	1
22	0	0	0	0	0	0
23	0	0	0	0	0	1
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	2
27	0	0	0	0	0	2
28	0	0	0	0	1	1
29	0	0	0	0	0	0
30	0	0	0	0	0	1

Material	Wax treated Scots pine sapwood					
Date	19.07.2006	10.07.2007	08.10.2008	20.08.2009	21.09.2010	06.09.2011
Assessment	1	2	3	4	5	6
Replicate ID	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]
31	0	0	0	0	0	1
32	0	0	0	0	1	1
33	0	0	0	0	0	1
34	0	0	0	0	0	1
35	0	0	0	0	0	1
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	1
40	0	0	0	0	0	1
41	0	0	0	0	0	0
42	0	0	0	0	0	0

Material	Wax treated Scots pine sapwood					
Date	31.10.2012	04.09.2013				
Assessment	7	8	9	10	11	12
Replicate ID	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]
1	1	1				
2	1	2				
3	0	1				
4	1	2				
5	0	2				
6	0	2				
7	0	0				
8	1	1				
9	0	1				
10	1	2				
11	1	2				
12	1	1				
13	1	2				
14	1	2				
15	1	2				
16	1	2				
17	1	2				
18	1	1				
19	1	2				
20	1	2				

Material	Wax treated Scots pine sapwood					
Date	31.10.2012	04.09.2013				
Assessment	7	8	9	10	11	12
Replicate ID	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]
21	1	2				
22	1	2				
23	1	2				
24	1	2				
25	1	2				
26	2	2				
27	2	2				
28	2	2				
29	1	2				
30	2	2				
31	2	2				
32	1	2				
33	2	2				
34	2	2				
35	2	2				
36	1	2				
37	1	2				
38	1	2				
39	1	2				
40	1	2				
41	1	2				
42	1	1				

Assessment Reference

Material	<i>Pinus sylvestris</i> L.					
Date	19.07.2006	10.07.2007	08.10.2008	20.08.2009	21.09.2010	06.09.2011
Assessment	1	2	3	4	5	6
Replicate ID	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]
1	0	0	1	1	1	2
2	0	0	1	1	3	4
3	0	0	1	1	1	2
4	0	0	0	1	1	2
5	0	0	0	0	1	2
6	0	0	0	1	1	1
7	0	0	0	1	1	2
8	0	1	1	1	1	2
9	0	0	1	1	1	4
10	0	0	0	0	1	2

Material	<i>Pinus sylvestris</i> L.					
Date	19.07.2006	10.07.2007	08.10.2008	20.08.2009	21.09.2010	06.09.2011
Assessment	1	2	3	4	5	6
Replicate ID	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]
11	0	1	1	1	1	1
12	0	0	0	0	1	2
13	0	0	1	1	2	2
14	0	0	0	0	1	2
15	0	0	1	1	2	4
16	0	0	0	1	1	2
17	0	1	1	1	1	2
18	0	0	0	0	1	2
19	0	0	1	2	2	4
20	0	0	0	1	2	3
21	0	0	0	1	1	3
22	0	0	0	0	1	2
23	0	0	0	0	1	2
24	0	0	1	1	1	2
25	0	0	0	0	1	2
26	0	0	0	0	0	1
27	0	1	2	2	2	3
28	0	0	0	1	2	2
29	0	0	0	1	1	2
30	0	0	0	0	2	2
31	0	0	0	0	2	2
32	0	0	0	1	1	2
33	0	0	0	0	2	2
34	0	0	1	1	2	2
35	0	0	0	1	2	3
36	0	0	0	0	2	3
37	0	0	0	0	2	2
38	0	0	0	1	1	2
39	0	0	0	0	2	3
40	0	0	1	0	2	3
41	0	0	0	0	1	3

Material	<i>Pinus sylvestris</i> L.					
Date	31.10.2012	04.09.2013				
Assessment	7	8	9	10	11	12
Replicate ID	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]	[0-4]
1	4	4				
2	4	4				
3	3	3				
4	3	4				
5	3	3				
6	2	3				
7	3	3				
8	3	3				
9	4	4				
10	3	4				
11	2	2				
12	3	3				
13	3	4				
14	3	4				
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16	3	3				
17	3	4				
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21	3	3				
22	2	3				
23	3	3				
24	3	3				
25	2	3				
26	2	4				
27	3	3				
28	3	3				
29	3	4				
30	3	3				
31	3	3				
32	3	3				
33	3	3				
34	3	3				
35	3	4				
36	4	4				
37	3	3				
38	3	3				
39	3	3				
40	4	4				
41	3	3				

REFERENCES

Brischke C., Melcher E. (2014) Field performance of wax impregnated wood. Stockholm: The International Research Group on Wood Protection, IRG/WP/14-30649.