

THE INTERNATIONAL RESEARCH GROUP ON WOOD PROTECTION

Section 2

Testing Methodology and Assessment

Scots pine

**Natural durable timber – Soil box test
IRG/WP Durability Database**

Bongers, F.; Van der Zee, M.

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 Ferry Bongers
Email ferry.bongers@accsysplc.com
Institution Accsys Technologies
Street/PO Box PO Box 2147
City Arnhem
Zip Code 6802 CC
Country Netherlands

Author 2 Marina Van der Zee
Email m.vanderzee@shr.nl
Institution SHR (Stichting Hout Research)
Street/PO Box PO Box 497
City Wageningen
Zip Code 6700 AL
Country Netherlands

TESTED TIMBER

Trade name Scots pine heartwood
Botanical name *Pinus sylvestris* L.
Origin Germany
Number of replicates 5

REFERENCE TIMBER 1

Trade name	European beech
Botanical name	<i>Fagus sylvatica</i> L.
Origin	Germany
Number of replicates	26 and 36

REFERENCE TIMBER 2

Trade name	Scots pine sapwood
Botanical name	<i>Pinus sylvestris</i> L.
Origin	Germany
Number of replicates	31 and 41

TEST METHODS

Standard method	ENV 807 (2001)
Specimen dimension and shape	100 x 10 x 5 mm ³

RESULTS

Assessment

Material	<i>Pinus sylvestris</i> L. - Scots pine heartwood					
Exposure time	12 weeks			24 weeks		
Measure	Relative mass loss	Final moisture content	Oven-dry density	Relative mass loss	Final moisture content	Oven-dry density
Replicate ID	[%]	[%]	[kg/m ³]	[%]	[%]	[kg/m ³]
1	9.0	33.7	638	29.5	53.6	567
2	18.2	41.4	577	20.3	46.1	566
3	9.4	44.8	580	17.1	53.3	638
4	30.1	53.3	473	8.3	51.8	577
5	15.8	53.0	565	17.7	53.3	473

Assessment - References

Material	<i>Fagus sylvatica</i> L. - Beech					
Exposure time	12 weeks			24 weeks		
Measure	Relative mass loss	Final moisture content	Oven-dry density	Relative mass loss	Final moisture content	Oven-dry density
Replicate ID	[%]	[%]	[kg/m ³]	[%]	[%]	[kg/m ³]
1	42.7	133.4	603	45.4	64.6	620
2	38.5	126.2	616	42.6	57.1	601
3	38.7	123.2	656	41.5	50.2	644
4	35.6	113.3	609	50.2	106.8	616
5	43.3	143.5	619	47.4	88.5	609
6	35.8	109.7	607	47.3	83.5	607
7	36.6	116.6	635	47.7	86.3	644
8	37.9	117.9	644	42.0	106.0	634
9	33.0	94.2	612	55.4	103.4	610
10	29.8	111.3	634	48.0	84.0	623
11	39.0	112.2	589	51.5	89.4	617
12	44.6	148.6	610	46.8	89.3	631
13	32.2	112.7	625	52.0	98.6	627
14	35.6	110.5	623	41.5	44.4	641
15	40.4	132.0	626	44.1	82.7	618
16	39.6	118.0	617	52.8	108.5	607
17	35.4	121.6	699	46.8	84.5	643
18	35.0	118.7	631	35.1	53.5	593
19	38.7	121.5	618	47.6	88.5	593
20	39.9	135.0	627	50.9	115.6	610
21	39.2	113.3	597	48.8	77.9	612
22	32.8	96.4	618	40.6	69.6	614
23	41.6	127.3	596	44.9	75.8	618
24	40.0	123.6	607	46.0	66.2	575
25	38.0	113.7	586	45.7	70.9	633
26	30.3	65.8	591	38.4	47.3	629
27	29.4	56.5	615			
28	33.3	68.8	648			
29	37.5	73.4	644			
30	29.2	58.7	610			
31	33.5	69.7	681			
32	24.5	51.8	628			
33	34.0	60.3	601			
34	33.9	77.7	610			
35	35.8	84.0	639			
36	39.4	98.0	597			

<i>Material</i>	<i>Pinus sylvestris</i> L. – Scots pine sapwood					
Exposure time	12 weeks			24 weeks		
Measure	Relative mass loss	Final moisture content	Oven-dry density	Relative mass loss	Final moisture content	Oven-dry density
Replicate ID	[%]	[%]	[kg/m ³]	[%]	[%]	[kg/m ³]
1	37.1	78.5	378	45.5	51.9	493
2	19.5	57.7	468	51.3	53.2	562
3	32.7	76.1	555	48.5	50.6	389
4	44.3	84.0	383	23.1	53.6	468
5	37.4	82.8	437	47.0	52.3	383
6	36.9	81.6	457	39.8	50.9	457
7	37.8	76.5	402	37.7	47.6	396
8	35.4	73.2	396	27.6	58.5	498
9	22.9	57.1	522	40.1	49.4	377
10	24.2	62.2	498	50.7	50.0	368
11	48.0	79.1	368	49.6	45.3	412
12	36.1	73.0	377	64.5	43.9	517
13	45.4	82.0	400	50.6	48.0	400
14	48.5	87.5	368	34.9	107.1	403
15	31.5	75.1	356	61.2	54.3	398
16	47.3	80.7	412	52.5	50.8	389
17	26.3	65.9	527	32.9	57.3	401
18	49.1	82.6	517	57.1	39.2	419
19	48.4	91.4	421	29.5	63.4	373
20	48.8	79.9	400	29.9	51.8	376
21	26.3	54.7	398	53.1	69.0	395
22	53.3	97.7	398	46.4	62.6	454
23	43.1	70.0	380	35.5	47.4	358
24	50.0	86.8	389	33.7	50.4	503
25	34.0	62.6	381	40.2	51.0	481
26	34.3	63.1	414	28.5	41.9	521
27	30.8	57.8	385	47.0	70.5	493
28	36.2	63.7	388	45.2	69.0	477
29	34.0	56.7	375	44.0	82.4	539
30	16.6	47.8	559	46.4	84.2	542
31	34.3	55.5	405	49.0	83.4	574
32	31.7	52.4	365			
33	32.5	54.7	399			
34	23.3	53.6	390			
35	24.4	55.4	378			
36	25.8	53.5	522			
37	43.7	61.8	574			

Exposure time	12 weeks			24 weeks		
Measure	Relative mass loss	Final moisture content	Oven-dry density	Relative mass loss	Final moisture content	Oven-dry density
Replicate ID	[%]	[%]	[kg/m ³]	[%]	[%]	[kg/m ³]
38	48.0	71.1	539			
39	37.9	76.2	509			
40	26.8	63.5	508			
41	45.5	64.1	542			