

**THE INTERNATIONAL RESEARCH GROUP ON WOOD PROTECTION**

**Section 2**

**Testing Methodology and Assessment**

**Douglas fir**

**Natural durable timber – Field test results  
IRG/WP Durability Database**

Brischke, C.; Meyer, L.

**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](http://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** 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

**Author 2** Linda Meyer  
Email meyer@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 Douglas fir  
Botanical name *Pseudotsuga menziesii* Franco.  
Origin Germany  
Number of replicates 10  
Sampling (optional)

Timber quality (optional)

## REFERENCE TIMBER

Trade name Scots pine sapwood

Botanical name *Pinus sylvestris* L.

Origin Sweden

Number of replicates 10

Sampling (optional)

Timber quality (optional)

## TEST METHODS

Standard method Graveyard test - EN252 (1989)

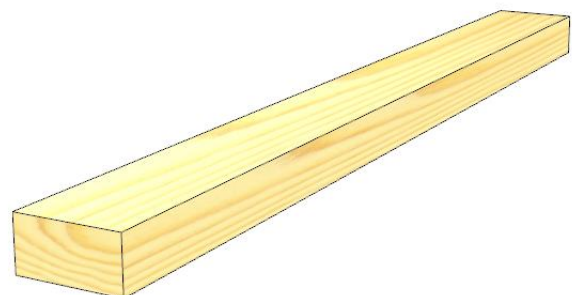
Alteration of standard (optional) Test field soil was covered with a bark mulch layer of approximately 5 cm thickness

Non-standard method

Reference EN 252 (1989) Field test method for determining the relative protective effectiveness of a wood preservative in ground contact. European Committee for Standardization

Specimen dimension and shape 25 x 50 x 500 mm<sup>3</sup>

Sketch of specimen (optional)



Rating scheme 0 (sound), 1 (slight decay), 2 (moderate decay), 3 (severe decay), 4 (failure) after EN 252 (1989)

Address of test site Herrenhäuser Straße 2, 30419 Hannover

Geographic coordinates (optional)

52°39'51,34"N, 9°70'19,17"E

Start of test

June 15 2008

Last evaluation

September 15 2011

Status of test

terminated

## RESULTS

### Assessment

| Material     | <i>Pseudotsuga menziesii</i> Franco. |            |            |            |            |            |
|--------------|--------------------------------------|------------|------------|------------|------------|------------|
| Date         | 15.09.2008                           | 18.12.2008 | 16.03.2009 | 15.06.2009 | 15.09.2009 | 16.12.2009 |
| Assessment   | 1                                    | 2          | 3          | 4          | 5          | 6          |
| Replicate ID | [0-4]                                | [0-4]      | [0-4]      | [0-4]      | [0-4]      | [0-4]      |
| 1            | 0                                    | 1          | 1          | 2          | 4          | 4          |
| 2            | 0                                    | 0          | 0          | 0          | 0          | 0          |
| 3            | 0                                    | 0          | 0          | 2          | 4          | 4          |
| 4            | 0                                    | 0          | 0          | 1          | 2          | 3          |
| 5            | 0                                    | 0          | 0          | 3          | 4          | 4          |
| 6            | 0                                    | 0          | 0          | 0          | 4          | 4          |
| 7            | 0                                    | 0          | 0          | 1          | 4          | 4          |
| 8            | 1                                    | 1          | 1          | 1          | 2          | 3          |
| 9            | 0                                    | 0          | 0          | 0          | 3          | 4          |
| 10           | 1                                    | 1          | 1          | 1          | 4          | 4          |

| Material     | <i>Pseudotsuga menziesii</i> Franco. |            |            |            |            |            |
|--------------|--------------------------------------|------------|------------|------------|------------|------------|
| Date         | 17.03.2010                           | 17.06.2010 | 22.09.2010 | 16.03.2011 | 15.06.2011 | 15.09.2011 |
| Assessment   | 7                                    | 8          | 9          | 10         | 11         | 12         |
| Replicate ID | [0-4]                                | [0-4]      | [0-4]      | [0-4]      | [0-4]      | [0-4]      |
| 1            | 4                                    | 4          | 4          | 4          | 4          | 4          |
| 2            | 1                                    | 1          | 3          | 3          | 3          | 4          |
| 3            | 4                                    | 4          | 4          | 4          | 4          | 4          |
| 4            | 4                                    | 4          | 4          | 4          | 4          | 4          |
| 5            | 4                                    | 4          | 4          | 4          | 4          | 4          |
| 6            | 4                                    | 4          | 4          | 4          | 4          | 4          |
| 7            | 4                                    | 4          | 4          | 4          | 4          | 4          |
| 8            | 3                                    | 3          | 3          | 4          | 4          | 4          |
| 9            | 4                                    | 4          | 4          | 4          | 4          | 4          |
| 10           | 4                                    | 4          | 4          | 4          | 4          | 4          |

## Decay types

| Material     | <i>Pseudotsuga menziesii</i> Franco. |            |            |            |            |            |
|--------------|--------------------------------------|------------|------------|------------|------------|------------|
| Date         | 15.09.2008                           | 18.12.2008 | 16.03.2009 | 15.06.2009 | 15.09.2009 | 16.12.2009 |
| Assessment   | 1                                    | 2          | 3          | 4          | 5          | 6          |
| Replicate ID |                                      |            |            |            |            |            |
| 1            |                                      | S          | S          | S          |            |            |
| 2            |                                      |            |            |            |            |            |
| 3            |                                      |            |            | W          | W          | W          |
| 4            |                                      |            |            | W          | S          | SB         |
| 5            |                                      |            |            | SW         | S          | S          |
| 6            |                                      |            |            |            | SW         | SW         |
| 7            |                                      |            |            | SW         | W          | W          |
| 8            | S                                    | S          | S          | S          | S          | W          |
| 9            |                                      |            |            |            | SW         | B          |
| 10           | S                                    | S          | S          | S          | SB         | SB         |

| Material     | <i>Pseudotsuga menziesii</i> Franco. |            |            |            |            |            |
|--------------|--------------------------------------|------------|------------|------------|------------|------------|
| Date         | 17.03.2010                           | 17.06.2010 | 22.09.2010 | 16.03.2011 | 15.06.2011 | 15.09.2011 |
| Assessment   | 7                                    | 8          | 9          | 10         | 11         | 12         |
| Replicate ID |                                      |            |            |            |            |            |
| 1            |                                      |            |            |            |            |            |
| 2            | S                                    | S          | S          | S          | S          | S          |
| 3            | W                                    | W          | W          | W          | W          | W          |
| 4            | SB                                   | SB         | SB         | SB         | SB         | SB         |
| 5            | S                                    | S          | S          | S          | S          | S          |
| 6            | SW                                   | SW         | SW         | SW         | SW         | SW         |
| 7            | W                                    | W          | W          | W          | W          | W          |
| 8            | W                                    | W          | W          | W          | W          | W          |
| 9            | B                                    | B          | B          | B          | B          | B          |
| 10           | SB                                   | SB         | SB         | SB         | SB         | SB         |

W = White rot, B = Brown rot, S = Soft rot

## Assessment Reference

| Material     | <i>Pinus sylvestris</i> L. |            |            |            |            |            |
|--------------|----------------------------|------------|------------|------------|------------|------------|
| Date         | 15.09.2008                 | 18.12.2008 | 16.03.2009 | 15.06.2009 | 15.09.2009 | 16.12.2009 |
| 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          | 1          | 4          | 4          |
| 2            | 0                          | 0          | 0          | 0          | 4          | 4          |
| 3            | 0                          | 0          | 0          | 0          | 4          | 4          |
| 4            | 0                          | 0          | 0          | 0          | 4          | 4          |
| 5            | 0                          | 0          | 0          | 1          | 4          | 4          |
| 6            | 0                          | 0          | 0          | 4          | 4          | 4          |
| 7            | 1                          | 1          | 1          | 4          | 4          | 4          |
| 8            | 0                          | 0          | 0          | 2          | 3          | 4          |
| 9            | 0                          | 0          | 0          | 4          | 4          | 4          |
| 10           | 0                          | 0          | 0          | 1          | 4          | 4          |

| Material     | <i>Pinus sylvestris</i> L. |            |            |            |            |            |
|--------------|----------------------------|------------|------------|------------|------------|------------|
| Date         | 17.03.2010                 | 17.06.2010 | 22.09.2010 | 16.03.2011 | 15.06.2011 | 15.09.2011 |
| Assessment   | 7                          | 8          | 9          | 10         | 11         | 12         |
| Replicate ID | [0-4]                      | [0-4]      | [0-4]      | [0-4]      | [0-4]      | [0-4]      |
| 1            | 4                          | 4          | 4          | 4          | 4          | 4          |
| 2            | 4                          | 4          | 4          | 4          | 4          | 4          |
| 3            | 4                          | 4          | 4          | 4          | 4          | 4          |
| 4            | 4                          | 4          | 4          | 4          | 4          | 4          |
| 5            | 4                          | 4          | 4          | 4          | 4          | 4          |
| 6            | 4                          | 4          | 4          | 4          | 4          | 4          |
| 7            | 4                          | 4          | 4          | 4          | 4          | 4          |
| 8            | 4                          | 4          | 4          | 4          | 4          | 4          |
| 9            | 4                          | 4          | 4          | 4          | 4          | 4          |
| 10           | 4                          | 4          | 4          | 4          | 4          | 4          |

## Decay types reference

| Material     | <i>Pinus sylvestris</i> L. |            |            |            |            |            |
|--------------|----------------------------|------------|------------|------------|------------|------------|
| Date         | 15.09.2008                 | 18.12.2008 | 16.03.2009 | 15.06.2009 | 15.09.2009 | 16.12.2009 |
| Assessment   | 1                          | 2          | 3          | 4          | 5          | 6          |
| Replicate ID |                            |            |            |            |            |            |
| 1            |                            |            |            |            | W          | W          |
| 2            |                            |            |            |            | W          | W          |
| 3            |                            |            |            |            | W          | W          |
| 4            |                            |            |            |            | WS         | WS         |
| 5            |                            |            |            | S          | W          | W          |
| 6            |                            |            |            | WB         | W          | W          |
| 7            | S                          | S          | S          | WB         | W          | W          |
| 8            |                            |            |            | S          | S          | S          |
| 9            |                            |            |            | WB         | W          | W          |
| 10           |                            |            |            | S          | S          | S          |

| Material     | <i>Pinus sylvestris</i> L. |            |            |            |            |            |
|--------------|----------------------------|------------|------------|------------|------------|------------|
| Date         | 17.03.2010                 | 17.06.2010 | 22.09.2010 | 16.03.2011 | 15.06.2011 | 15.09.2011 |
| Assessment   | 7                          | 8          | 9          | 10         | 11         | 12         |
| Replicate ID |                            |            |            |            |            |            |
| 1            | W                          | W          | W          | W          | W          | W          |
| 2            | W                          | W          | W          | W          | W          | W          |
| 3            | W                          | W          | W          | W          | W          | W          |
| 4            | WS                         | WS         | WS         | WS         | WS         | WS         |
| 5            | W                          | W          | W          | W          | W          | W          |
| 6            | W                          | W          | W          | W          | W          | W          |
| 7            | W                          | W          | W          | W          | W          | W          |
| 8            | S                          | S          | S          | S          | S          | S          |
| 9            | W                          | W          | W          | W          | W          | W          |
| 10           | S                          | S          | S          | S          | S          | S          |

W = White rot, B = Brown rot, S = Soft rot

## REFERENCES

- Brischke C, Meyer L, Olberding S (2013) Durability of wood exposed in ground–Comparative field trials with different soil substrates. International Biodeterioration & Biodegradation. <http://dx.doi.org/10.1016/j.ibiod.2013.06.022>
- Olberding S (2010) Untersuchung verschiedener Standortparameter auf die Gebrauchsdauer von Holz im Erdkontakt. Master thesis, Leibniz University Hannover, Faculty of Architecture and Landscape Science, Hannover