IRG/WP/DDB 14-00015

THE INTERNATIONAL RESEARCH GROUP ON WOOD PROTECTION

Section 2 Testing Methodology and Assessment

# American white oak

# Natural durable timber – Laboratory test results
# IRG/WP Durability Database

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## 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**

| | |
|---|---|
| Submission Date | 26.03.2014 |

**AUTHORS**


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**TESTED TIMBER**

| | |
|---|---|
| Trade name | American white oak |
| Botanical name | *Quercus alba* L. |
| Origin | North America |
| Number of replicates | 30 |

**REFERENCE TIMBER**

| | |
|---|---|
| Trade name | European beech & Scots pine sapwood |
| Botanical name | *Fagus sylvatica* L. & *Pinus sylvestris* L. |
| Origin | Eastern Europe & Northern Europe |
| Number of replicates | 10 |

**TEST METHODS**

| | |
|---|---|
| Standard method | Basidiomycetes test – CEN/TS 15083-1 (2005) |

| | |
|---|---|
| Leaching/Ageing procedure | none |
| Sterilisation | Gamma treatment |
| Specimen dimension and shape | 50 x 25 x 15 mm³ |
| Start of test | April 4 2013 |
| Last evaluation | July 26 2013 |

## RESULTS

### Assessment

| **Material** | ***Quercus alba* L.** | | | | | |
|---|---|---|---|---|---|---|
| **Test fungus** | ***Coniophora puteana*** | | ***Coriolus versicolor*** | | | |
| **Measure** | **Relative mass loss** | **Final moisture content** | **Relative mass loss** | **Final moisture content** | | |
| **Replicate ID** | [%] | [%] | [%] | [%] | [-] | [-] |
| **1** | 6.7 | 71.7 | 3.9 | 68.3 | | |
| **2** | 8.5 | 58.9 | 4.0 | 66.9 | | |
| **3** | 3.1 | 69.2 | 4.1 | 65.1 | | |
| **4** | 6.5 | 75.2 | 4.4 | 60.3 | | |
| **5** | 2.7 | 66.1 | 4.3 | 68.8 | | |
| **6** | 4.5 | 86.1 | 4.0 | 65.6 | | |
| **7** | 2.2 | 44.9 | 3.9 | 53.5 | | |
| **8** | 6.7 | 55.3 | 4.2 | 51.0 | | |
| **9** | 15.5 | 45.5 | 5.1 | 71.2 | | |
| **10** | 10.8 | 53.2 | 4.0 | 63.9 | | |
| **11** | 4.1 | 68.6 | 4.1 | 61.9 | | |
| **12** | 1.6 | 52.0 | 3.9 | 65.3 | | |
| **13** | 4.3 | 79.9 | 4.0 | 66.8 | | |
| **14** | 4.9 | 71.7 | 3.8 | 62.1 | | |
| **15** | 2.9 | 49.7 | 4.1 | 58.8 | | |
| **16** | 23.3 | 46.8 | 4.0 | 62.4 | | |
| **17** | 5.4 | 78.1 | 4.4 | 46.6 | | |
| **18** | 4.9 | 79.5 | 4.0 | 53.6 | | |
| **19** | 2.0 | 71.5 | 5.4 | 60.4 | | |
| **20** | 5.3 | 80.3 | 4.1 | 59.5 | | |
| **21** | 9.3 | 52.0 | 3.7 | 71.5 | | |
| **22** | 6.3 | 61.6 | 3.6 | 70.0 | | |
| **23** | 6.8 | 72.4 | 3.8 | 69.4 | | |
| **24** | 7.5 | 50.5 | 4.8 | 71.8 | | |
| **25** | 13.4 | 58.4 | 4.0 | 70.0 | | |

| **Material** | ***Quercus alba* L.** | | | | | |
|---|---|---|---|---|---|---|
| **Test fungus** | ***Coniophora puteana*** | | ***Coniophora puteana*** | | | |
| **Measure** | **Relative mass loss** | **Final moisture content** | **Relative mass loss** | **Final moisture content** | | |
| **Replicate ID** | [%] | [%] | [%] | [%] | [-] | [-] |
| **26** | 3.2 | 66.6 | 4.0 | 72.7 | | |
| **27** | 5.6 | 57.2 | 4.3 | 67.3 | | |
| **28** | 15.5 | 46.2 | 4.4 | 69.8 | | |
| **29** | 15.0 | 42.2 | 3.8 | 58.0 | | |
| **30** | 9.6 | 43.3 | 3.7 | 58.9 | | |

**Assessment Reference**

| **Material** | ***Pinus sylvestris* L.** | | | | | |
|---|---|---|---|---|---|---|
| **Test fungus** | ***Coniophora puteana*** | | | | | |
| **Measure** | **Relative mass loss** | **Final moisture content** | | | | |
| **Replicate ID** | [%] | [%] | [-] | [-] | [-] | [-] |
| **1** | 29.5 | 89.7 | | | | |
| **2** | 34.7 | 70.5 | | | | |
| **3** | 26.3 | 63.4 | | | | |
| **4** | 34.8 | 98.9 | | | | |
| **5** | 46.9 | 76.9 | | | | |
| **6** | 31.3 | 88.0 | | | | |
| **7** | 27.0 | 64.4 | | | | |
| **8** | 43.0 | 73.5 | | | | |
| **9** | 26.1 | 92.0 | | | | |
| **10** | 39.4 | 86.5 | | | | |

| **Material** | ***Fagus sylvatica* L.** | | | | | |
|---|---|---|---|---|---|---|
| **Test fungus** | ***Coriolus versicolor*** | | | | | |
| **Measure** | **Relative mass loss** | **Final moisture content** | | | | |
| **Replicate ID** | [%] | [%] | [-] | [-] | [-] | [-] |
| **1** | 21.8 | 41.6 | | | | |
| **2** | 21.8 | 45.7 | | | | |
| **3** | 21.5 | 30.8 | | | | |
| **4** | 21.5 | 29.9 | | | | |
| **5** | 21.8 | 41.9 | | | | |
| **6** | 21.7 | 42.1 | | | | |
| **7** | 21.4 | 70.9 | | | | |
| **8** | 21.8 | 61.3 | | | | |
| **9** | 21.7 | 41.6 | | | | |
| **10** | 21.9 | 43.8 | | | | |