



BSI Standards Publication

**Durability of wood and wood-based products —
Accelerated ageing of treated wood prior to
biological testing — Leaching procedure**

National foreword

This British Standard is the UK implementation of EN 84:2020. It supersedes BS EN 84:1997, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/515, Wood preservation.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Durability of wood and wood-based products - Accelerated ageing of treated wood prior to biological testing - Leaching procedure

Durabilité du bois et des produits dérivés - Épreuves de vieillissement accéléré des bois traités avant essais biologiques - Épreuve de délavage

Dauerhaftigkeit von Holz und Holzprodukten - Beschleunigte Alterung von behandeltem Holz vor biologischen Prüfungen - Auswaschbeanspruchung

This European Standard was approved by CEN on 24 February 2020.

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European foreword

This document (EN 84:2020) has been prepared by Technical Committee CEN/TC 38 “Durability of wood and wood-based products”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2021, and conflicting national standards shall be withdrawn at the latest by February 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 84:1997. Data using the 1997 edition of EN 84 may still be used.

Compared to EN 84:1997 the following modifications have been made:

- change of title;
- inclusion of untreated wood, modified wood and wood-based panel products in the Scope;
- addition of Clause 3 Terms and definitions, and renumbering of subsequent clauses and cross-references;
- inclusion of a statement regarding the maximum period of time permitted between the completion of the leaching procedure and the start of the biological test;
- inclusion of a requirement that this period of time be stated in the biological test report.

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1 Scope

This document specifies a method for leaching, applicable to test specimens of wood or wood-based products which are subsequently subjected to biological tests.

This document is applicable to:

- a) the pre-conditioning of test specimens prior to their being subjected to a biological test; or
- b) assessment of loss of effectiveness by comparing the performance in a biological test of treated test specimens subjected to this procedure with others that have not undergone any leaching procedure.

NOTE The method can also be used for pre-conditioning of untreated wood, modified wood and wood-based panel products, whether they received preservative treatment or not.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/ui>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Principle

Impregnation with water under vacuum, followed by immersion in water for a specified period, of test specimens that have been prepared for biological testing against fungi or insects, using the appropriate standard methods.

5 Material and apparatus

5.1 Material

Water, complying with grade 3 of EN ISO 3696.

5.2 Apparatus

5.2.1 Conditioning chamber controlled at a temperature of $(20 \pm 2)^\circ\text{C}$ and $(65 \pm 5)\%$ relative humidity for conditioning the test specimens.

5.2.2 Test vessels of material that does not react with the preservative product under test:

- either of glass, especially for the organic solvent products;
- or of plastic materials for products that are likely to attack glass.

The capacity of the test vessels shall be such that they can contain, in addition to the test specimens, the volume of water specified in 7.1.2.

5.2.3 Vacuum desiccator, fitted with a stopcock.

5.2.4 Vacuum pump fitted with a pressure gauge and capable of maintaining a pressure of minimum 4 kPa.

5.2.5 Weights, of a material which does not react with the treated blocks, water or the test vessel, for ballasting the test specimens.

5.2.6 Ordinary laboratory equipment.

6 Test specimens

6.1 Definition and origin

The test specimens and their preparation are defined in the standards concerning the biological tests to which they are intended to be subjected.

The leaching procedure shall be carried out after the end of the preparation of test specimens for testing described in the relevant biological test standard. This includes any treatment and subsequent conditioning period where relevant.

6.2 Number of test specimens

The number of test specimens shall allow the relevant biological tests to be carried out in accordance with the instructions in the appropriate standards, bearing in mind that in some tests the leaching procedure shall be applied to control specimens as well as to test specimens.

The control specimens may be of the following kinds where required by the relevant test standard:

- check test specimens that will not be subjected to attack by biological agents after the leaching procedure. These will serve as controls for changes in mass in those tests in which this factor is taken into consideration;
- untreated control or reference species specimens which, after leaching, are subjected to the test by biological agents to check any variation in the behaviour of the reference species.

7 Procedure

7.1 Leaching

7.1.1 Impregnation with water

Place the test specimens in the test vessels (see 5.2.2). Do not place in the same vessel test specimens of different species, specimens treated with different products or with different concentrations or loadings of the same product, specimens from wood modified using different processes or to different extents, or both test and control specimens. Ballast them with weights (see 5.2.5) to prevent them from floating. Pour sufficient water (see 5.1) into the test vessels to cover the groups of test specimens and to ensure that the test specimens remain covered throughout the impregnation.

Place the test vessels in the vacuum desiccator (see 5.2.3); establish a vacuum corresponding to a pressure of 4 kPa and maintain this for a minimum of 20 min before release.

Leave the test specimens in the vessels for minimum 2 h.

Empty the water from the vessels.

7.1.2 Immersion in water

Refill each vessel with fresh water (see 5.1) to a ratio of approximately five volumes of water to one volume of wood (e.g. 100 ml of water per test specimen of 50 mm × 25 mm × 15 mm).

NOTE It is not necessary to continue to ballast the test specimens as they will not float after the impregnation procedure. This cannot apply if e.g. wood-based panel product test specimens are being processed.

Allow the test specimens to remain immersed in water for 14 days at the temperature specified (see 5.2.1) with nine changes of the water as follows:

- change the water at the end of the first and second day of immersion;
- change the water a further seven times in the remaining 12 days at intervals of not less than one day and not more than three days.

7.2 Drying

Stand the test specimens in the conditioning (see 5.2.1), on one of their narrow sides on a non-absorbent support of material which does not react with the treated specimens and taking care to leave a gap of at least 10 mm between individual test specimens, allowing a free flow of air around the test specimens.

Allow the test specimens to stand for at least two weeks or until constant mass, i.e. until two consecutive weighings 24 h apart are the same $\pm 0,1$ g.

8 Destination of the test specimens after the leaching procedure

The test specimens are suitable for use in biological tests in accordance with the appropriate standards, commencing from the clause describing the procedure for exposing the test specimens to the test organisms (insects or fungi).

For practical reasons it may not be possible to conduct the biological test immediately after the completion of the leaching procedure. The test blocks can be subjected to the start of the biological test up to a maximum of 12 months following the completion of the leaching procedure.

9 Reference to this document in biological test reports

Quote the leaching procedure by giving the following information in the biological test reports:

- a) quote the leaching procedure by giving the number of this document (i.e. EN 84:2020);
- b) state the period of time between the completion of the leaching procedure and the start of the biological test;
- c) the temperature and relative humidity conditions in which the test blocks were kept prior to the start of the biological test;
- d) any deviation from the method described in this document.

Bibliography

- [1] EN 599-1, *Durability of wood and wood-based products — Efficacy of preventive wood preservatives as determined by biological tests — Part 1: Specification according to use class*

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