

Fungal resistance of panel products made of or containing materials of organic origin —

Part 2: Method for determination of resistance to cellulose-decomposing microfungi

IMPORTANT NOTE. It is essential that this Part of BS 1982 is read in conjunction with Part 0, which is published separately.

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Wood Preservation Standards Policy Committee (WPC/-) to Technical Committee WPC/10, upon which the following bodies were represented:

- Association of Consulting Scientists
- British Pest Control Association
- British Wood Preserving and Damp-proofing Association
- Chemical Industries Association
- Department of the Environment (Building Research Establishment)
- Timber Research and Development Association

This British Standard, having been prepared under the direction of the Wood Preservation Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 28 October 1990

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Foreword

This Part of BS 1982 has been prepared under the direction of the Wood Preservation Standards Policy Committee. BS 1982 was published in 1968 as a single standard including three test methods. This revision provides a fuller consideration of the possible hazards to organic based panel products and has been divided into Parts to allow each method to be kept up-to-date separately. The following Parts supersede BS 1982:1968 which is withdrawn.

- *Part 0: Guide to methods for determination;*
- *Part 1: Method for determination of resistance to wood-rotting Basidiomycetes;*
- *Part 2: Method for determination of resistance to cellulose-decomposing microfungi;*
- *Part 3: Methods for determination of resistance to mould or mildew.*

The soil burial procedure in this Part has been modified from the corresponding method in the 1968 edition by the introduction of preconditioning of the test samples at 50 °C. The incubation period has been extended from 12 to 16 weeks. The use of edge-sealed test samples has been introduced to assess the effect of attack through the edges. The test for the effect of moisture in the absence of fungal attack using sterile soil has been deleted. A test for the water holding capacity of the soil substrate used has been added.

WARNING. This standard calls for the use of substances and/or procedures that may be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

The procedures described in this standard are intended to be carried out by qualified or other suitably trained and/or supervised personnel.

Attention is also drawn to the comments on health and safety in Part 0 of this standard and to the caution in clause 2 of this Part.

Technical Committee 38 Durability of wood and wood-based products of the European Committee for Standardization (CEN) has just commenced work, under a mandate from the Commission of the European Economic Community (EEC), on the classification of biological hazards and durability of timber, performance of treated timber, and the performance testing of preservatives. With the publication of European Standards arising from this work, this Part of BS 1982 will be amended, revised or withdrawn so as to remove any conflicting aspects.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 1982 describes a method for subjecting panel products to attack by cellulose-decomposing microfungi and assessing the significance of the results obtained.

The method is applicable to rigid sheet materials which do not disintegrate upon exposure to moisture alone. It is applicable to the determination of the inherent resistance of such panel products to attack by cellulose-decomposing microfungi or the resistance to such attack conferred by the use of preserving chemicals during manufacture or subsequently.

The method of test is designed solely to meet the above objectives and is not intended to simulate any form of conditions in service. The test results in themselves cannot be used directly to predict service life in practice.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Principle

Samples of the panel products to be tested are exposed to attack by microfungi by partial burial in a natural garden soil or in prepared semi-sterilized "compost". These substrates are used to supply the inoculum of microfungi and the additional nutrients they require to permit rapid attack of ligno-cellulose. Substrate moisture contents are adjusted to provide conditions suitable for fungal growth in the test samples.

Controls of specified timber species are used to monitor the suitability of the substrate moisture content and the decaying activity of the microflora in it. After prescribed periods of incubation the extent of fungal attack is primarily assessed by determining the loss in mass of the test samples and controls.

NOTE In some tests mass loss may not be a wholly satisfactory criterion and may need to be supplemented by visual observations.

CAUTION. The test procedures involve handling and working with micro-organisms from natural populations which may present a health risk. Therefore, it is important that personnel trained in microbiology should perform those parts of the test involving handling infected test specimens. It is essential that such personnel are familiar with the general recommendations on personnel safety given in BS 2011-2.2J, in particular National appendix Z, and have appropriate equipment and facilities available.

3 Materials and reagents

3.1 Biological materials

3.1.1 Timber stock: species. The following shall be used for the test beech (*Fagus sylvatica* L.)

3.1.2 Timber stock: wood quality. Use sound, straight-grained wood without knots. The beech shall be even-grained, free from tyloses and discoloration and having a growth rate of not less than 2 and not more than 6 annual rings per centimetre.

NOTE Wood that has been floated, water-stored, chemically treated or steamed is not acceptable. Wood that has been kiln dried at temperatures below 60 °C is allowed. Information on these treatments should be obtained from the supplier.

Prior to conversion to the final dimensions for immediate use, the timber shall be conditioned to a moisture content of 12 % to 15 % (m/m) on a dry mass basis.

3.1.3 Soil substrate. Natural top soil or a prepared soil of pH 6 to 8 and not containing added agrochemicals. It shall have a water holding capacity (WHC) greater than 25 % (m/m) when determined by the method in Appendix A.

NOTE A horticultural soil of the John Innes No. 1 type has been found to be suitable.

If a natural soil is used, it shall have the turf or the top 50 mm removed and shall not be taken from a depth below 200 mm from the surface. It shall be passed through a sieve of nominal aperture size 12.5 mm to remove stones and larger soil particles. Prior to use the soil shall be stored in closed, moisture-proof containers.

3.2 Other materials and reagents

Water complying with grade 3 of BS 3978 shall be used throughout.

3.2.1 Edge-sealant (see 7.2.3), comprising the fungicide dichlofluanid at a concentration of 0.3 % (m/m) in beeswax.

NOTE The fungicide is taken into solution in the minimum volume of white spirit and then dispersed in the molten beeswax. During preparation and use of the sealant the minimum temperature required to achieve liquidity (approximately 65 °C) should be used.

CAUTION. It is essential that the precautions normally employed with toxic chemicals are used during preparation and use and subsequently during handling of edge-sealed materials.