

Methods of

Test for paints —

**Part G6: Assessment of resistance to
fungal growth**

This Part is to be read in conjunction with BS 3900-0, issued separately

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Foreword

This Part of BS 3900 has been prepared under the direction of the Pigments, Paints and Varnishes Standards Committee. It is one of a series of standards in Group G of BS 3900 which is concerned with environmental testing of paint films.

This Part describes a method for assessing the resistance to fungal growth and has been developed as a result of an extensive series of international co-operative experiments conducted under the auspices of the International Biodeterioration Research Group. The results of the cooperative study, which were published in 1984 [A F Bravery, S Barry, M Pantke and W Worley, J. Oil Colour Chemists' Association, 1984, 67(1), 2], showed that close agreement between and within the different laboratories could be achieved by experienced microbiologists.

It is assumed in the drafting of this standard that it will be used and applied by those who are appropriately qualified and experienced. The procedures described in this standard are intended to be carried out by suitably trained and/or supervised personnel. The substances and procedures described may be injurious to health if inadequate precautions are taken. This standard refers only to its technical suitability and does not absolve the user from statutory obligations relating to health and safety.

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 British Standard, having been prepared under the direction of the Pigments, Paints and Varnishes Standards Committee, was published under the authority of the Board of BSI and comes into effect on 31 July 1989

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, 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.

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Amendments issued since publication

The committees responsible for this British Standard are shown in BS 3900-0

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The following BSI references relate to the work on this standard:
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1 Scope

This Part of BS 3900 describes a method for assessing the fungal (mould) resistance of paints, varnishes and lacquers with or without fungicidal additives, applied either as part of a multi-coat system or separately.

In addition to the information given in the method certain supplementary information detailed in clause 3 is necessary before this method can be used.

WARNING When carrying out this method it is essential to avoid inhalation of spores by the operator and contamination by the spores of the laboratory. Guidance on precautions is given in Appendix A and attention is drawn to BS 2011-2.2J for more detailed advice.

NOTE 1 The method has been prepared to assess the resistance to fungal growth of paints applied in the laboratory to specified panels. The principle may also be applied to production applied coatings on sheet materials having established a criterion for assessment but a claim to comply with this Part of BS 3900 cannot be made.

NOTE 2 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 3900, the definitions given in BS 2015 apply.

3 Supplementary information

For any particular application or product, the following supplementary information shall be provided for this method of test. This information shall be derived, partly or totally, from the product specification, British Standard or other documents relating to the product under test or, where appropriate, shall be the subject of agreement between the interested parties.

- a) The material, thickness and surface preparation of the test substrate (see 5.1 and 6.1).
- b) The method of application of the test coating to the test substrate (see 6.3).
- c) The duration and conditions of drying the coating (or conditions of storing and ageing, if applicable) or conditioning before testing (see 6.4).
- d) The inoculum mixture to be used including the name and strain number of any additional fungal species against which the coating is to be tested (see 7.7).
- e) Whether a soiling medium is to be used and, if so, whether it is natural or artificial (see 7.2 and 7.4).
- f) The duration of the test (see 7.6).

- g) The wetting agent (see F.1).

4 Principle

Flat panels of wood, plaster, steel or other relevant and suitable substrates are painted, and then conditioned in a suitable environment before being inoculated with test organisms. The inoculated panels are incubated in a test cabinet under specified conditions and inspected at specified intervals for fungal growth. The extent of such growth is assessed using a numerical scale, together with a written description of the nature of the growth and, where possible, photographs.

5 Materials and apparatus

5.1 Flat test panels, selected and prepared as described in 6.1.

NOTE The choice of test panel material depends on the intended field of use of the paints under test (see clause 3).

5.2 Apparatus for application of mixed inoculum (see 7.3).

5.3 Apparatus for application of soiling medium (see 7.4).

5.4 Test tank (incubator) (see Appendix B and Figure 1).

5.5 Cultures of appropriate test fungi species, grown on suitable media (see Appendix C).

5.6 Microscope, enabling inspection of the painted surface to be carried out at a magnification of $\times 25$ to $\times 30$ and a spore count to be carried out at a magnification of approximately $\times 200$.

NOTE A camera attachment suitable for taking photographs at $\times 25$ to $\times 30$ is desirable but not essential.

5.7 Haemocytometer complying with BS 748, or similar device for determining the concentration of spores in a suspension.

5.8 Ancillary apparatus, and facilities for mycological testing.

5.9 Control paint, (see Appendix D).

5.10 Distilled water, of at least grade 3 of BS 3978.

5.11 Petroleum spirit, 60 °C to 80 °C boiling range.

6 Preparation of test panels

6.1 Test panel substrates

6.1.1 General. Test panels shall be approximately 100 mm $\times$ 75 mm with a hole 2 mm to 3 mm in diameter drilled 9 ± 1 mm from the mid-point of one of the 75 mm sides. The edges of porous substrates shall be presealed with an inert sealant.