

Australian/New Zealand Standard®

Reconstituted wood-based panels— Methods of test

Method 18: Determination of efficacy of fungicide treatment

1 SCOPE This Standard describes one bioassay method for determining the effectiveness of a preservative treatment to render reconstituted wood-based panels resistant to attack by wood-destroying decay fungi.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

O1 Glossary of terms used in timber Standards

AS/NZS

4266 Reconstituted wood-based panels—Methods of test

4266.1 Method 1: Sampling, cutting and conditioning for tests

3 DEFINITIONS For the purpose of this Standard, the definitions given in AS O1 and AS/NZS 4266.1 apply.

4 PRINCIPLE The test piece is exposed to fungal mycelium to confirm the efficacy of a preservative treatment. The mass losses of the test piece are then measured.

5 APPARATUS The following apparatus is required:

- (a) *Glass vessel*
- (b) *Drying rack*
- (c) *Shaking waterbath*
- (d) *Vacuum-drying oven*—capable of maintaining a temperature of $40^{\circ} \pm 2^{\circ}\text{C}$ at a vacuum of at least -95 kPa (absolute pressure).
- (e) *Balance*—capable of determining mass of 0.01 g .
- (f) *Malt extract agar*
- (g) *Specimen jars*
- (h) *Thermometer*
- (i) *Sterile mesh*
- (j) *Gamma-radiation source*
- (k) *Autoclave*
- (l) *Feeder-strips*—e.g. a 2.5 mm thick sapwood veneer of the same length and width as the test piece.

6 TEST PIECES AND PREPARATION

6.1 Test pieces Three test pieces measuring 18 mm × 40 mm × panel thickness shall be cut from each of the sample sheets and also from untreated panel of the same type as the preservative-treated material submitted for test. If a treated product has performed satisfactorily in a previous laboratory test, it should be included in the bioassay as a treated control.

6.2 Preparation of test pieces Subject test pieces to a leaching/volatilization schedule as follows:

- (a) Place replicate test pieces into vessels containing three times the volume of cold water as of test material. Vacuum impregnate test pieces for 30 min and allow to remain immersed in the same water for 30 min.
- (b) Change the water and transfer vessels to a shaking waterbath maintained at 35°C. Continue the leaching cycle for 5 days, changing the water daily. Maintain the ratio of three times the volume of water to that of test material during leaching.
- (c) After leaching, place test pieces on drying racks overnight, then subject test pieces to vacuum oven-drying for 5 days at 40°C and -95 kPa.

After vacuum drying, test pieces are weighed and then sterilized by gamma-radiation.

During each stage, care should be taken to ensure that specimens from different panels and positions are kept separate.

6.3 Fungi If the treated product is to be used as flooring, the requirements of this Standard shall be satisfied by a bioassay using the fungus *Serpula lacrymans* (Schum. ex Fr.) S.F. Gray. However, if the treated particleboard is to be used in a region where some other fungus is known to present a greater hazard than *S. lacrymans*, a bioassay using this fungus shall be required. This shall be in addition to the bioassay with *S. lacrymans*.

If the treated product is not used as flooring, the fungus (fungi) known to represent the greatest hazard for the application and region of use shall be used in the bioassay.

7 PROCEDURE

7.1 Malt extract agar Proceed as follows:

- (a) Partially fill jars of 260 mL capacity with 50 mL of malt extract agar (1.0% malt, 2.5% agar).
- (b) Inoculate the medium with a plug of agar containing actively growing mycelium of the test fungus.
- (c) Place sterile mesh on the agar and mount a *Pinus radiata* (D. Don) feeder-strip, impregnated with 1% peptone onto the mesh. Allow fungus to fully colonize the agar and the feeder-strip.
- (d) Place one test piece into each jar and incubate for 12 to 16 weeks at a temperature of 20°C for *S. lacrymans*.

NOTE: Optimum incubation conditions should be selected by the test laboratory based on their experience with each particular fungus.

7.2 Controls Proceed as follows:

- (a) Place replicates of the panel product under test and the treated and untreated controls in uninoculated agar jars and monitor for mass change not due to decay, and for final moisture content.
- (b) At the conclusion of the incubation period, remove the test pieces from the jars and carefully scrape them free of adhering mycelium. Weigh the test pieces so that moisture content can be determined.
- (c) Vacuum-oven-dry and weigh the test pieces.