BS EN 118:2013

BSI Standards Publication

Wood preservatives — Determination of preventive action against Reticulitermes species (European termites) (Laboratory method)

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National foreword

This British Standard is the UK implementation of EN 118:2013. It supersedes BS EN 118:2005 which is withdrawn.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 secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Wood preservatives - Determination of preventive action against Reticulitermes species (European termites) (Laboratory method)

Produits de préservation des bois - Détermination de l'action préventive contre les espèces de Reticulitermes (termites européens) (Méthode de laboratoire)

Holzschutzmittel - Bestimmung der vorbeugenden Wirkung gegenüber Reticulitermes-Arten (Europäische Termiten) (Laboratoriumsverfahren)

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Contents

Page

Foreword

This document (EN 118:2013) has been prepared by Technical Committee CEN/TC 38 “Durability of wood and derived materials”, 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of an identical text or by endorsement, at the latest by May 2014, and conflicting national standards shall be withdrawn at the latest by May 2014.

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

This document supersedes EN 118:2005.

Significant technical differences between this document and EN 118:2005 are as follows:

— deletion of the need to test specimens treated with the product free of active ingredients.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document describes a laboratory method of testing which gives a basis for assessment of the effectiveness of a wood preservative, when applied as a surface treatment, against the *Reticulitermes* species of European termites.

This laboratory method provides one criterion by which the value of a product can be assessed. It is further recommended that results from this test should be supplemented by those from other appropriate tests, and above all by comparison with practical experience.

When products which are very active at low concentrations are used it is very important to take suitable precautions to isolate and separate, as far as possible, operations involving chemical products, other products, treated wood, laboratory apparatus and clothing. Suitable precautions should include the use of separate rooms, areas within rooms, extraction facilities, conditioning chambers and special training for personnel (see also Annex C for environmental, health and safety precautions).

1 Scope

This European Standard specifies a method for the determination of the preventive action of a wood preservative against the *Reticulitermes* species of European termites[1)] when the preservative is applied as a surface treatment to wood.

This method is applicable to:

— water-insoluble chemicals which are being studied as active ingredients;

— organic formulations, as supplied or as prepared in the laboratory by dilution of concentrates;

— organic water-dispersible formulations as supplied or as prepared in the laboratory by dilution of concentrates; and

— water-soluble materials, for example salts.

NOTE This method can be used in conjunction with an ageing procedure, for example EN 73 or EN 84.

2 Normative reference

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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

For the purposes of this document, the following terms and definitions apply.

3.1
representative sample
sample having its physical or chemical characteristics identical to the volumetric average characteristics of the total volume being sampled

3.2
supplier
sponsor of the test (person or company providing the sample of wood preservative to be tested)

4 Principle

Surface treatment of test specimens of a susceptible wood species with the preservative or, if a concentrate is being used, with known dilutions of the preservative.

1) This method can be applied not only to different species of *Reticulitermes,* but also to other species of the family Rhinotermitidae, where necessary adapting the temperature and humidity conditions and the assessment of attack to the specific behaviour of the species concerned.

Exposure of these test specimens to specified colonies of European *Reticulitermes*[2] species and assessment of the attack suffered after exposure under fixed conditions and over a fixed period.

Comparison of these results with those obtained from untreated and solvent or diluent-treated control test specimens.

5 Test materials

5.1 Biological material

Workers, soldiers and nymphs of an identified termite species of *Reticulitermes*.

The termite species and the locality of origin should be stated in the test report and their identification should be proved.

The termites should be obtained from colonies reared as described in Annex B.

5.2 Products and reagents

5.2.1 Substrate for establishing the colonies. A choice of:

5.2.1.1 Fine white quartz sand consisting of grains of crystallized silica, very pure (99,5 % silica), and free from any organic substances[3].

5.2.1.2 An hydrated, laminar, aluminium-iron-magnesium silicate exfoliated to give particles of 1 mm to 3 mm with an apparent density of 80 kg/ m^3 to 90 kg/ m^3. Particles of less than 1 mm shall be eliminated by sieving prior to use, to ensure the absence of free water and prevent any significant agglomeration of the particles.

5.2.2 Adhesive, which cannot be attacked by the termites and is non-toxic, for securing the tubes. This adhesive shall also not react with the preservative applied to the wood.

5.2.3 Sealant

5.2.3.1 Paraffin wax*,* setting point of 52 °C to 54 °C, for sealing the relevant surfaces of test specimens to be treated with solutions in which water is the continuous phase.

5.2.3.2 Gelatine*,* for sealing the relevant surfaces of test specimens to be treated with solutions in which an organic solvent is the continuous phase.

5.2.3.3 Inert adhesive*,* for sealing the relevant surfaces of test specimens to be treated with other solutions in which e.g. an emulsion solvent is the continuous phase.

5.2.4 Water, complying with grade 3 of EN ISO 3696.

5.2.5 Solvent or diluent*.* A suitable volatile liquid that will dissolve or dilute the preservative but does not leave a residue in the wood which would have a toxic effect on the insect at the end of the conditioning period.

5.3 Apparatus

5.3.1 Culturing chamber*,* with air circulation, controlled at (26 ± 2) °C and a minimum relative humidity of (70 ± 5) %.

2) In providing biological validation of individual species, it is essential that the locality of origin of each test termite species is given. The description of the locality should at least include the district name.

3) In France, Fontainebleau sand, of which more than 97 % of the particles are between 75 µm and 300 µm in size, meets these requirements.

5.3.2 Conditioning chamber, well ventilated, controlled at (20 ± 2) °C and relative humidity (65 ± 5) %[4].

5.3.3 Laboratory work area, well ventilated, where treatment of the test specimens is carried out[5].

5.3.4 Testing chamber, protected from light, ventilated and controlled at (26 ± 2) °C and at a minimum relative humidity of (70 ± 5) %.

5.3.5 Ordinary laboratory equipment for application by brushing or by pipette of a liquid preservative product and including an analytical balance capable of weighing to an accuracy of 0,01 g.

5.3.6 Protective gloves

5.3.7 Instruments adapted for termite manipulation (aspirator, forceps).

5.3.8 Glass tubes open at both ends, one end being ground:

— interior diameter: 25 mm;

— length: 110 mm.

6 Sampling

The sample of preservative shall be representative of the product to be tested. Samples should be stored and handled in accordance with any written recommendations from the supplier.

For the sampling of preservatives from bulk supplies, the procedure given in EN 212 should be used.

7 Test specimens

7.1 Species of wood

The reference species is Scots pine (*Pinus sylvestris* Linnaeus).

Additional tests can be made with other timber species but, if so, this should be stated in the test report.

7.2 Wood quality

The wood shall be free from visible cracks, stain, decay, insect damage and other defects. The wood shall not have been water-stored, floated, chemically treated or steamed. The wood shall originate from trees preferably felled in winter.

Wood that has been kiln dried at temperatures below 60 °C may be used.

The wood shall be exclusively sapwood containing little resin and having between 2,5 annual rings per 10 mm and eight annual rings per 10 mm. The proportion of latewood in the annual rings shall not exceed 30 % of the whole.

It is recommended to use test specimens of similar growth rate within a single test.

4) The conditioning of test specimens after treatment is permissible in the laboratory work area (5.3.3) provided that this meets the conditions specified for the conditioning chamber (5.3.2).

5) It is essential to follow proper safety measures for handling flammable or toxic material. It is essential that operators avoid excessive exposure to solvents or their vapours.

7.3 Provision of test specimens

Prepare planed strips with a fine-sawn finish and having a cross-section of (50 ± 0,5) mm x (10 ± 0,5) mm removing a minimum of 2 mm from any surfaces exposed during drying. The longitudinal faces shall be parallel to the direction of the grain. The annual rings shall have a contact angle of (45 ± 15)° to the broad faces. Make transverse cuts, neatly to give sharp edges and a fine-sawn finish to the end grain surfaces, to give test specimens (50 ± 0,5) mm long.

The test specimens shall originate from a minimum of three trees or shall be taken at random from a stock originally of more than 500 test specimens.

7.4 Dimensions of test specimens

The dimensions of each specimen after reaching equilibrium in the conditioning chamber (5.3.2) shall be (50 ± 0,5) mm x (50 ± 0,5) mm x (10 ± 0,5) mm.

The surface area of the face to be treated is theoretically 25 cm² but an allowance shall be made for any encroachment of the sealing compound on to this face.

Mark each test specimen so that it can be identified throughout the test.

7.5 Number and distribution of test specimens

The test specimens shall be divided as follows:

a) treated test specimens: these are the treated test specimens which are subject to attack by *Reticulitermes*; use at least 6 treated test specimens;

b) untreated control test specimens for checking the virulence of the termites taken for the test: these untreated test specimens are subjected to attack by *Reticulitermes*; for each series of tests use at least three control test specimens.

7.6 Inserts

The inserts are discs of untreated Scots Pine sapwood, (1 ± 0,2) mm thick and having a diameter about 1 mm to 2 mm less than the interior diameter of the tubes (5.3.8), so that they fit snugly into the tubes after moistening.

8 Procedure

8.1 Preparation of the test specimens

8.1.1 Conditioning of test specimens prior to sealing

Allow the test specimens to condition in the conditioning chamber (5.3.2) for a minimum of two weeks.

8.1.2 Sealing of the transverse and the narrower longitudinal faces

Seal the transverse and the narrower longitudinal faces using the sealer (5.2.3).

8.1.3 Treatment of test specimens

8.1.3.1 Preparation of treatment solutions.

8.1.3.1.1 Solid preservatives

— Water-soluble preservatives: dissolve the preservative in water (5.2.4) to the required concentration;

— non-water-soluble preservatives: dissolve the preservative in an appropriate solvent (5.2.5) to the required concentration.

All treatment solutions shall be freshly prepared.

8.1.3.1.2 Liquid preservatives

If appropriate, use the preservative without further preparation other than any necessary stirring. If it is a concentrate, dilute the preservative with the diluent to the required working concentration, using the procedure specified by the supplier.

All treatment solutions shall be freshly prepared.

8.1.3.2 Treatment

In the laboratory work area (5.3.3) apply the calculated volume or mass of the treatment solution (8.1.3.1) as uniformly as possible over one of the large faces of the block either by brush application or from a pipette moved transversely across the surface. Check by weighing that the correct quantity of preservative has been applied.

NOTE If the required quantity cannot be applied in one application, the treatment solution can be applied in successive applications at appropriately close intervals so as to avoid solidification of any substances which could hinder the penetration of the subsequent applications.

Calculate the mass and volume of preservative retained per unit area of wood surface.

8.1.4 Drying and conditioning of the test specimens after treatment

After treatment, condition the test specimens for at least four weeks in the conditioning chamber (5.3.2).

Arrange the specimens on their large untreated faces, resting on glass rods, not touching each other.

8.2 Exposure of the test specimens to the insects

8.2.1 Collecting and selecting the termites

Pick up the insects individually using the instrument (5.3.7). Make up groups of 250 workers, rejecting those insects which are moulting (indicated by the dull white colour of the abdomen) also those which appear to be wounded or remain motionless. To each group made up in this way add a number of soldiers corresponding to the proportion found in the colony from which the workers were taken; add a corresponding proportion of nymphs (1 % to 5 %).

The number of colonies to be prepared as indicated above is equal to the number of test specimens to be subjected to attack by the termites. If the required number of termites is more than that in a single culture, the control series and test series shall contain the same number of groups from each colony. Termites from different colonies shall not be mixed in a single group.

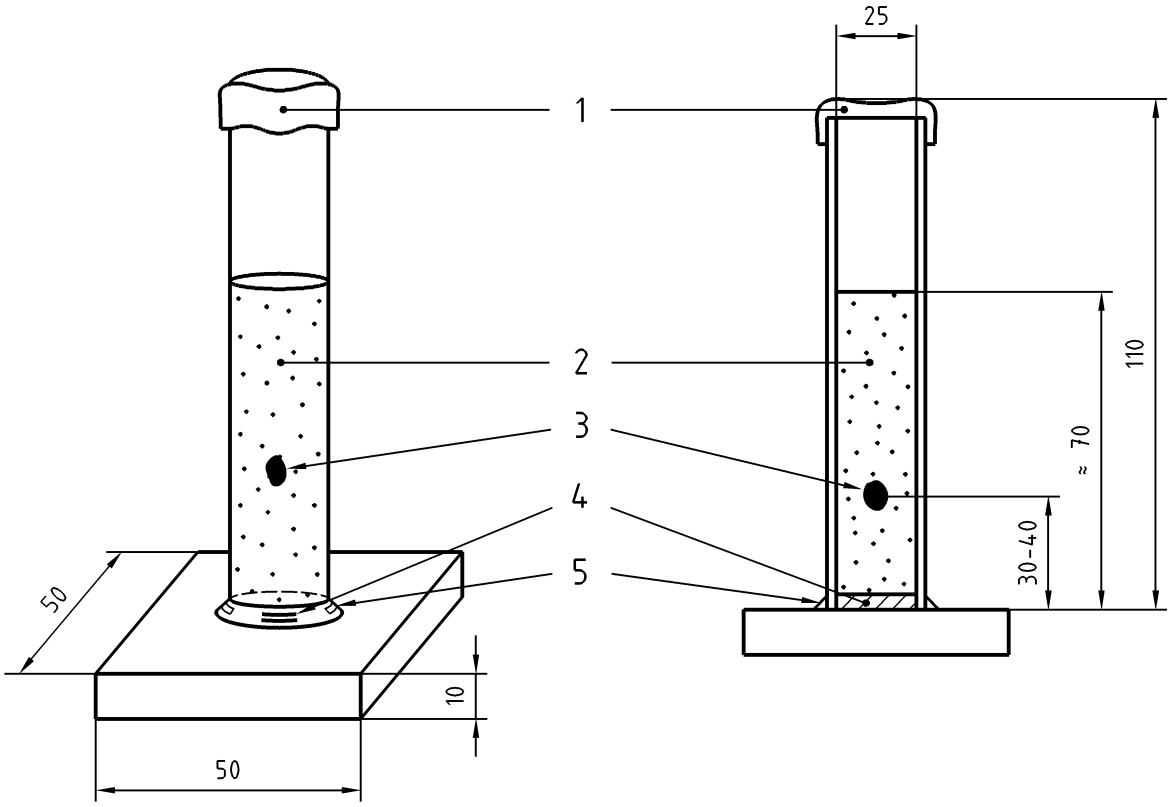
8.2.2 Securing the tubes (see Figure 1)

Attach with adhesive (5.2.2) the ground glass end of one tube (5.3.8) at the centre of the treated surface of each treated test specimen and at the centre of one of the large surfaces of each virulence control test specimen.

Introduce into each tube an insert (7.6) and place it on the surface of the test specimen.

8.2.3 Installation of the termites

Dimensions in millimetres



Key

1 foil cap
2 substrate
3 fragment of culture wood
4 insert disc
5 adhesive

Figure 1 — Test assembly to show positioning of colony on test specimen and position of components

8.2.3.1 With sand

In a separate container, remoisten the adequate quantity of sand for the test by introducing first the water (5.2.4) and then the sand (5.2.1.1) in the proportion of 1 volume of water to 4 volumes of sand. In each tube pour some sand (5.2.1.1). The quantity of sand, which shall not be pressed down into the tube, shall occupy at least two-thirds of the volume of the tube, that is, it should rise to a height of about 7 cm and cover it with a piece of aluminium foil or a small sheet of glass to prevent evaporation of water and escape of termites (see Figure 1).

Roughly along the central axis of each tube, bury some wood from the original culture (approximately 0,5 g) about halfway down the sand.

Distribute in each tube a group of termites made up as described in 8.2.1.

8.2.3.2 With aluminium-iron-magnesium silicate

Prepare enough aluminium-iron-magnesium silicate (5.2.1.2) with a moisture content of about 300 % (for example 300 ml of water to 100 g of substrate). It is essential that there is no free water in the substrate. Fill about one-third of each tube with the substrate, place some wood from the original culture (approximately 0,5 g) on the substrate and then add substrate until the tube is about two-thirds full. Into each tube, introduce a group of termites and cover it with a piece of aluminium foil or a small sheet of glass to prevent evaporation of water and escape of termites (see Figure 1).

8.3 Conditions and duration of the tests

8.3.1 Exposure

Place the test assemblies on individual trays to prevent any escape of termites and keep them in the testing chamber (5.3.4) and leave them there for 8 weeks.

It is recommended that, throughout the duration of the test, each colony be inspected at regular intervals, the results of the inspection recorded on a special card and any necessary action taken to maintain the colonies in the best possible condition without disturbing their activity.

NOTE 1 These inspections cover in particular the presence, location and activity of the termites (tunnelling in the substrate along the walls of the tube, construction of shafts and movement of the insects).

NOTE 2 Action can be taken:

— if the termites are escaping;

— to maintain the moisture content;

— termination of any assembly with a treated test specimen is allowed, when damage of rating 4 (see 8.4.1.2) has occurred to this test specimen prior to the 8 weeks test period. In this case, continue as described in 8.4. This does not apply to untreated control test specimens.

8.3.2 Maintaining of moisture content

8.3.2.1 General

Changes in moisture content of the substrate in which the colonies are established depend on its nature; any action to be taken to maintain an optimum level of moisture content, therefore, varies according to the substrate used.

8.3.2.2 Sand

The sand substrate has to be periodically re-moistened; the change in colour due to drying indicates when it is necessary to re-moisten[6)]. It is better to maintain the moisture content by frequent addition of small quantities of water (5.2.4) using a pipette rather than by a single large addition which might result in serious damage to the colony, particularly by flooding.

NOTE A check can also be made by weighing.

8.3.2.3 Aluminium-iron-magnesium silicate

Add the water (5.2.4) necessary to maintain the appropriate moisture content; changes in the appearance and cohesion of the particles of this substrate indicate the need for re-moistening.

NOTE A check can also be made by weighing.

6) Moist sand is dark in colour whereas dry sand is light in colour.

8.4 Examination of the test specimens and the colonies

8.4.1 Assessment

8.4.1.1 General

At the end of the test, for each tube, unseal and count the number of live termite workers, soldiers and nymphs. Determine the survival rate of the workers.

8.4.1.2 Visual examination

Carry out a visual examination of each test specimen and classify any evidence of attack by its locality, its extent and its depth. Express the results of this examination in accordance with the following schedule:

— 0 no attack;

— 1 attempted attack:

  i) superficial erosion of insufficient depth to be measured on an unlimited area of the test specimen; or

  ii) attack to a depth of 0,5 mm provided that this is restricted to an area or areas not more than 30 mm^2 in total; or

  iii) combination of i) and ii);

— 2 slight attack:

  i) erosion of 1 mm in depth limited to not more than 1/10 of the surface area of the test specimen; or

  ii) single tunnelling to a depth of up to 3 mm; or

  iii) combination of i) and ii);

— 3 average attack:

  i) erosion of < 1 mm in depth over more than 1/10 of the surface area of the test specimen; or

  ii) erosion of > 1 mm to < 3 mm in depth limited to not more than 1/10 of the surface area of the test specimen; or

  iii) isolated tunnelling of a depth > 3 mm not enlarging to form cavities; or

  iv) any combination of i), ii) or iii);

— 4 strong attack:

  i) erosion of > 1 mm to < 3 mm in depth of more than 1/10 of the surface area of the test specimen; or

  ii) tunnelling penetrating to a depth > 3 mm and enlarging to form a cavity in the body of the test specimen; or

  iii) combination of i) and ii).

8.4.1.3 Validity of the tests

The test is valid if the three untreated virulence control test specimens correspond to level 4 when visually examined and if the corresponding colonies have at least 50 % survivors. However, it is permissible for a single control test specimen not to meet this requirement, provided the cause of this abnormal behaviour can be explained, for example, by the development of moulds.

9 Expression of results

Report the results of the visual examination.

Also, record the survival rate of the workers and the presence, if any, of living soldiers and/or nymphs at the end of the test.

10 Test report

The test report shall give the following (see also Annex A for an example):

a) number and date of this document;

b) name of the supplier;

c) name and type of the preservative under test;

d) specific and unique name or code of the preservative tested, with an indication of whether or not the composition has been declared;

e) density of the preservative;

f) any solvent or diluent used, and if necessary, the dilution used for the test;

g) species of the wood used;

h) date of application of the product;

i) exact amount of the product absorbed by each test specimen, expressed in grams per square metre and correspondingly in millilitres per square metre;

j) if applicable, any ageing procedure applied, detailing the nature, conditions and duration, if possible by reference to a standard;

k) termite species used in the test and locality of origin;

l) date of exposure of the test specimens to the termites;

m) date of examination of the test specimens;

n) for each colony:

   1) rate of survival at the end of the test and, if any, the presence of living soldiers and/or nymphs;

   2) degree of attack on each test specimen;

o) following note:

   “The interpretation of this report and the practical conclusions that can be drawn from it demand a specialized knowledge of the subject of wood preservation and, for this reason, this test report cannot of itself constitute an approval certificate.”

The test report shall also mention all optional operational details and those not provided for in the method as well as any factors which may have influenced the results.

Annex A
(informative)

Example of a test report

Number and date of this document	EN 118:2013
Name of supplier	Company S
Name and type of preservative	KWG, organic oily solution
Density	0,95 g/ml
Name and concentration of active ingredient	W mass fraction 0,10 %
Solvent or diluent used	None
Species of wood used	Scots Pine (*Pinus sylvestris* Linnaeus)
Loadings of product used in the test	See Table A.1
Date of application	2012-02-17
Mass of preservative used	
For each test specimen	See Table A.1
Method of drying	As specified in the document
Ageing test applied	Leaching as in EN 84
	Evaporative ageing as in EN 73
Termite specification	*Reticulitermes santonensis,* Ile d'Oléron, F
Date of exposure	2012-04-13
Date of final examination	2012-06-08
Results	See Table A.1
This report has been prepared by	Laboratory L
Location and date	Y 2012-07-05
Name and signature of the officer(s) in charge	Mr. Z

NOTE The interpretation and the practical conclusions that can be drawn from this test report demand a specialized knowledge of the subject of wood preservation and, for this reason, this test report cannot of itself constitute an approval certificate.

Table A.1 — Results of product KWG organic oily solution

Reference number of colonies	Test loading				Ageing	Results of examinations		Level of attack of the specimen
	Planned loading		Actual loading			Survival		
						Workers	Soldiers (S) and/or nymphs (N)	
	g/m^2	ml/m^2	g/m^2	ml/m^2		rounded %		
1	-	-	-	-	none	80	S.N.	4
2	-	-	-	-	none	84	S.N.	4
3	-	-	-	-	none	82	S.N.	4
4	200	210,5	205,5	216,3	none	0	-	0
5					none	0	-	0
6	200	210,5	201,8	212,4	none	0	-	0
7					none	0	-	0
8	200	210,5	203,4	214,1	none	0	-	0
9					none	0	-	0
10	200	210,5	200,9	211,5	leaching (2 weeks)	5	-	0
11						0	-	0
12	200	210,5	198,5	208,9		0	-	0
13						1	-	0
14	200	210,5	202,4	213,0		0	-	0
15						0	-	0
16	200	210,5	204,1	214,8	evaporative ageing (12 weeks)	28	N	3
17						15	-	3
18	200	210,5	200,2	210,7		35	S.N.	4
19						21	N	4
20	200	210,5	202,6	213,3		17	-	3
21						27	N	4

Annex B
(informative)

Example of a method of culturing termites

The culturing of *Reticulitermes spp* is easy because the species essentially reproduces in neotenic royal pairs.

Colonies can quite easily be found in infested areas (in France, for example, in the Departments of Charente and Charente Maritime) by setting 'traps' (groups of small planks made from species of wood highly susceptible to termite attack, these being either buried in a forest in areas known to be highly infested or else set among material infested by termites).

It is necessary to avoid the collection of 'traps' in which ants have settled as this would seriously endanger the success of the culture.

Laboratory culturing is done in tubs (cement, moulded fibre glass or laminated polyester) in the bottoms of which 3 or 4 holes are made in order to drain off the excess water (closed either by means of a fibre glass pad or a very fine woven stainless steel wire mesh).

Approximately 1 m high, these tubs are firstly filled with a layer of coarse gravel to about 10 cm, then with a second layer of fine gravel of the same depth and, lastly, a layer of about 50 cm of compost to which fine sand has been added (25 % by volume).

The tubs are stored in the dark in a ventilated air conditioned room at (26 ± 2) °C and at (70 ± 5) % minimum relative humidity. Storage in the dark seems to prevent emigration.

The moisture level of the earth is maintained by frequent but light watering.

The termite-infested 'traps' collected are buried, but not covered near the side of the tubs.

Around these 'traps' small planks of an easily attackable species (dry Pine sapwood or Ilomba) about 30 cm to 40 cm long, 20 cm to 25 cm wide and 1 cm thick, arranged touching end-to-end, are half buried width-wise.

Several groups of planks can be placed around the 'traps' in the same tub; it is from these planks that the insects are then taken for the tests.

As long as the planks retain some strength they can be returned to the culturing tubs; it is from the planks that have lost all their strength that the fragments of wood from the original culture are then taken when the test colonies are made up.

Annex C
(informative)

Environmental, health and safety precautions within chemical/biological laboratory

When preparing this document, consideration was given to the minimization of environmental impacts caused by the use of the methods of testing.

It is the users' responsibility to use safe and proper techniques in handling materials in the methods of testing specified in this document.

The following list is not exhaustive but users of this document may use it as a guide to the use of safe and proper techniques. They should:

— investigate if European Directives, transposed European legislation and national laws, regulations and administrative provisions apply;

— consult manufacturers/suppliers for specific details such as material safety data sheets and other recommendations;

— use safety equipment and wear protective clothing, usually goggles and coats, appropriate for the test product and the test chemicals, in all laboratory areas, to ensure the safety of the operator;

— be careful about flammable materials and substances that are toxic and/or human carcinogens and generally take care during transportation, decanting, diluting and dealing with spillages;

— use a fume cupboard during preparation of organic solvent solutions;

— store, handle and dispose of chemicals in a safe and environmentally satisfactory manner: including chemicals for laboratory test, test specimens, unused solvents and reagents that have to be disposed of.

Bibliography

[1] EN 73, *Wood preservatives — Accelerated ageing tests of treated wood prior to biological testing — Evaporative ageing procedure*

[2] EN 84, *Wood preservatives — Accelerated ageing of treated wood prior to biological testing — Leaching procedure*

[3] EN 212, *Wood preservatives — General guidance on sampling and preparation for analysis of wood preservatives and treated timber*

[4] EN 1001-1, *Durability of wood and wood-based products — Terminology — Part 1: List of equivalent terms*

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