

**CONDITIONS FOR TESTING A WOOD PRESERVATIVE IN NORDIC FIELD  
AND MARINE TRIALS**

**NWPC INFORMATION 15/86**

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**NORDIC WOOD PRESERVATION COUNCIL**

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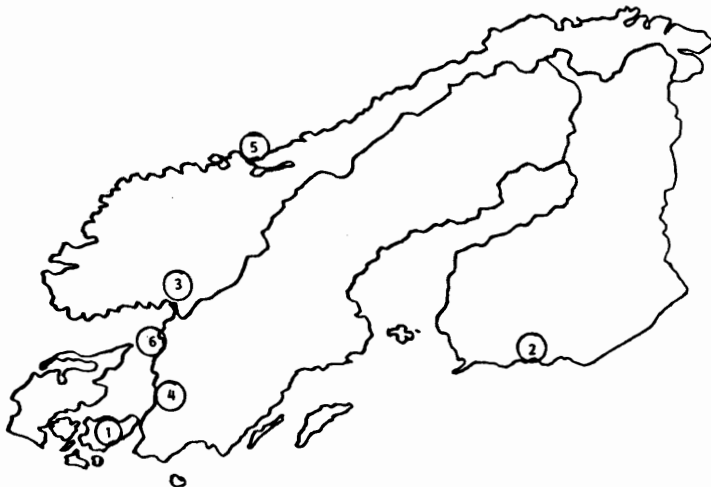
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## 1. BACKGROUND

The Nordic Wood Preservation Council (NWPC) organizes field and marine trials of wood preservatives. The Swedish Wood Preservation Institute (SWPI), one of the NWPC members, has been appointed by the NWPC to handle all administrative work concerning these trials. The SWPI has the legal responsibility and any claim that may arise has to be addressed to the SWPI.

The trials are presently carried out according to two NWPC Standards, NWPC 1.4.2.1. and NWPC 1.4.2.2. These standards may in the future be replaced by appropriate European Standards (EN). Test sites are located in Denmark, Finland, Norway and Sweden. See map!

Wood preservative manufacturers are invited by the NWPC to participate in the trials approximately every 2 years, but tests can also be arranged by special request of the manufacturer.



1. Denmark, Tåstrup
2. Finland, Helsinki
3. Norway, Sörkedalen
4. Sweden, Simlångsdalen
5. Norway, Trondheim (marine test)
6. Sweden, Kristineberg (marine test)

**Location of test sites for field and marine trials in the Nordic countries.**

After five years' testing, the NWPC can give approval of the preservative according to the conditions given in NWPC Document 1.2.1.

## 2. SCOPE

The aim of this document is to define the conditions for testing a wood preservative in the NWPC field and marine trials with respect to registration procedure, durability of the test, publication of test results and costs.

## 3. REFERENCES

In this document the following publications are referred to:

- NWPC Document 1.2.1.      Conditions for approval of wood preservatives for use in classes M, A, B and Bx.
- NWPC Standard 1.4.2.1.    Testing of wood preservatives. Mycological test. Field test - a field test with stakes.
- NWPC Standard 1.4.2.2.    Testing of wood preservatives. Marine test - a test against marine wood-boring organisms in sea-water.

## 4. CONDITIONS FOR TESTING

### 4.1 Registration for test

Registration should always be made on the form shown in Appendix 1. This form is available from the NWPC Secretariat or from the NWPC members, see Appendix 4.

The completed registration form, together with information requested in the form, shall be sent to the Swedish Wood Preservation Institute (SWPI). The registration fee currently in force will then be invoiced by the SWPI.

All registrations are treated confidentially.

### 4.2 Delivery of preservative

The amount of sample to be delivered for testing shall be agreed with the SWPI. All expenses in connection with the delivery shall be paid for by the manufacturer.

The sample delivered has to be analyzed by an independent laboratory and provided with a certificate confirming that the chemical formulation of the sample conforms with the formulation stated in the registration form.

If such a certificate is not provided, the NWPC will carry out an analysis at the manufacturer's expense.

### 4.3 Durability of test

The test will continue until all samples have failed or as long as the NWPC finds it necessary.

The NWPC reserves the right to publish the test results according to the terms stated in 4.4.

#### 4.4 Reports

After five years' testing a confidential report, see example in Appendix 2, will be prepared for the manufacturer. This report can lead to an NWPC approval of the preservative.

Confidential progress reports can be obtained on request to the SWPI at any time at an appropriate charge.

After 10 years' testing the results will be published by the NWPC. Preservatives at that time commercially used or otherwise well-known, will be reported with data on chemical formulation and name of manufacturer. Preservatives that for various reasons are not yet in commercial use, or have failed early, will also be reported with data on chemical formulation. However, the name of the preservative and manufacturer will not be reported. In Appendix 3 an example is presented of the vital parts of such a report. The manufacturer will be given the opportunity to comment on the results before they are published.

If the manufacturer has strong reasons to keep a formulation secret for a longer period, it is possible to postpone the reporting of the chemical formulation and test results for another five or ten years. However, this will be charged for by the NWPC.

The reason for reporting all data from the trials is to promote the development of new wood preservatives. Also for this reason it is of interest to report results of wood preservatives with early failures. A period of 10 years, or in certain instances 15 or 20 years, has been considered an adequate time for the manufacturer to decide on all commercial questions, patents etc.

#### 4.5 Rights to the test results

The manufacturer has the exclusive rights to the test results for 10 years, in some cases 15 or 20 years, cf 4.4.

Results published by the NWPC cannot be quoted without permission by anyone but the manufacturer in applying for NWPC approval until 10 years have elapsed after the results have first been made public. Untested products that have formulations copied from products that have already been tested cannot automatically be approved (the NWPC does not consider questions regarding patents etc). Application for approval of such products can only be entertained after these have been subjected to a 5 year test, or a written authorization from the original manufacturer has been obtained.

#### 4.6 Charges for testing

The manufacturer has to pay the following fees:

**Registration fee** which will cover the costs for preparation of samples, ten years' testing and a confidential test report after five years.

**Progress report fee**, if the manufacturer requests progress reports.

**Control analysis fee** unless the sample of preservative delivered for the test is provided with a certificate of analysis from an independent laboratory confirming the chemical formulation of the preservative, cf 4.2.

**Confidentiality fee.** If the manufacturer for commercial or other reasons does not want the chemical formulation of the preservative and its results in the test published after 10 years' testing, cf 4.4, confidentiality of the test results can be provided for another five or ten years by paying an extra fee to the NWPC.

All fees are decided yearly by the NWPC.

Once the results of a preservative's performance have been published, the NWPC and its members are responsible for all costs incurred in maintaining the trials.

4.7 Conditions for preservatives registered for NWPC trials 1968-1985 - provisional regulations

Test results will be published by the NWPC after at least 10 years' testing for all preservatives commercially used or with an already well-known chemical formulation.

The NWPC and its members will continue to cover the testing costs for these preservatives.

For the other preservatives the permission of the manufacturer will be requested before publication. If publication is denied, the manufacturer will have to pay a "confidentiality fee" in order to keep the results confidential until 20 years of testing have elapsed. Then the chemical formulation and test results will be published under all circumstances. The confidentiality fee will depend on how many years of testing are left until 20 years have elapsed.

Once the results have been published the NWPC and its members will cover the costs for the test.

See 4.5 regarding the rights to the test results.

## NORDIC WOOD PRESERVATION COUNCIL

## REGISTRATION FOR

- FIELD TRIAL ACCORDING TO NWPC STANDARD 1.4.2.1.  
 MARINE TRIAL ACCORDING TO NWPC STANDARD 1.4.2.2.

1. Name of manufacturer \_\_\_\_\_  
 Representative \_\_\_\_\_  
 Address \_\_\_\_\_  
 \_\_\_\_\_  
 Telephone \_\_\_\_\_ Telex \_\_\_\_\_
2. Name/code no of the product \_\_\_\_\_

## 3. Chemical composition

Complete chemical composition of the product must be given. As to solvents and additives as water repellents, binding agents etc, complete chemical composition is not required but it will be sufficient to give the type and percentage, e g "binding agent of alky type" 2 %.

## Certificate of analysis

Appendix no \_\_\_\_\_

Appendix no \_\_\_\_\_

## 4. Physical data

If certain physical data (e g viscosity, density, temperature dependence) are considered of importance for the use of the preservative, this must be stated.

Appendix no \_\_\_\_\_

## 5. Retentions

The preservative should be tested at the following retentions<sup>1</sup>, calculated as kg preservative per m<sup>3</sup> European redwood (*Pinus sylvestris*) sapwood.

Appendix no \_\_\_\_\_

<sup>1</sup>The retention is calculated on the entire composition of the preservative. For a preservative, delivered as a paste, with the formulation As<sub>2</sub>O<sub>5</sub> 34.0 %, CrO<sub>3</sub> 26.6 %, CuO 14.8 % and water 24.6 %, a retention of 15 kg/m<sup>3</sup> redwood sapwood means that 1 m<sup>3</sup> of the sapwood has an uptake corresponding to 5.1 kg As<sub>2</sub>O<sub>5</sub>, 4.0 kg CrO<sub>3</sub>, 2.2 kg CuO and 3.7 kg water.

In preparing the preservative solutions one usually assumes that the full-cell process should be used and that 1 m<sup>3</sup> of the sapwood on average has an uptake of 600 litres of preservative solution. In order to obtain retentions of approximately 9, 12 and 15 kg/m<sup>3</sup> sapwood respectively, solutions are to be prepared at concentrations of 1.5, 2.0 and 2.5 %. If another method than the full-cell process has to be used, this must be fully specified. The concentrations of the preservative solutions must then also be in accordance with the method.

## 6. Impregnation process/conditioning of samples

Notify recommended impregnation process (full-cell, Rueping, Lowry etc) for treating the samples. Generally, impregnation is carried out according to the full-cell process, but other processes can be used, cf footnote. Also notify if anything particular has to be taken into account for the conditioning of the samples.

Appendix no \_\_\_\_\_

## 7. Previous tests

Notify if, where and by which methods field trials/marine trials have been carried out earlier.

Appendix no \_\_\_\_\_

## 8. Methods of analysis for active components

Descriptions of methods of analysis for active components of the preservative must be enclosed.

Appendix no \_\_\_\_\_

## 9. Safety precautions

If the preservative is flammable, corrosive, emits toxic vapours etc, handling instructions must be given. State also emergency measures to be taken for accidental ingestion, splashes in the eyes etc.

Appendix no \_\_\_\_\_

## 10. Signature

The undersigned understands and accepts that

- the registration fee, currently in force, covering 10 years' testing, will be invoiced before the trial starts.
- a confidential test report after 5 years' testing will be provided by the NWPC.
- progress reports can be obtained on request and will be charged for.
- the composition of the preservative as well as the test results are treated confidentially for 10 years, or for an extra charge, for 15 or 20 years, whereafter the NWPC will report the chemical formulation of the preservative and the test results according to the terms in NWPC Information 15/86.

\_\_\_\_\_  
Place and date

\_\_\_\_\_  
Signature

Send the form to: Swedish Wood Preservation Institute, Box 5607,  
S-114 86 Stockholm, Sweden.





SVERIGES  
LANTBRUKSUNIVERSITET  
The Swedish University  
of Agricultural Sciences

INSTITUTIONEN FÖR VIRKESLÄRA  
Department of Forest Products

TEST REPORT No. 1983-F18

Datum/Date

1983-06-01

Sveriges Lantbruksuniversitet  
The Swedish University of Agricultural  
Sciences  
Department of Forest Products

TEST REPORT No. 1983-F18

Appendix No. 1

TEST REPORT No. 1983-F18. Field test with wood preservative

Manufacturer Woodpres Ltd, P O Box 3, London, England

Wood preservative Woodpres 5

Request The test was ordered from the Nordic Wood Preservation Council via the Swedish Wood Preservation Institute 1977-10-07.

Delivery of test sample The test sample was delivered in February 1978 to the Department of Forest Products at the Swedish University of Agricultural Sciences.

Test method The preservative has been tested according to NWPC Standard 1.4.2.1. "Testing of Wood Preservatives. Mycological test. Field test - a field test with stakes".

Test results The results are shown in Appendix 1.

SWEDISH UNIVERSITY OF AGRICULTURAL SCIENCES  
Department of Forest Products

N.N.

Test results

The table below shows results obtained in tests with Woodpres 5 according to NWPC Standard No. 1.4.2.1. The tests were started in July 1978 at the test fields in Simlångsdalen, Sweden and Sörkedalen, Norway.

| Concentration<br>% m/m | Retention <sup>1)</sup><br>kg/m <sup>3</sup> | Index of decay and average service life ( $\bar{x}$ ) <sup>3)</sup><br>after 5 years' testing <sup>2)</sup> |                         |     |     |
|------------------------|--|---|-------------------------|-----|-----|
|                        |  | Simlångsdalen<br>$\bar{x}$  | Sörkedalen<br>$\bar{x}$ |     |     |
| 1.4                    | 9.0  | 5   | 18                      |     |     |
| 2.1                    | 13.5   | 0   | 8                       |     |     |
| 2.7                    | 17.9   | 0   | 0                       |     |     |
| 4.1                    | 26.7   | 0   | 0                       |     |     |
| 5.5                    | 35.4   | 0   | 0                       |     |     |
| NWPC Standard No 1     | 9.0  | 0   | 0                       |     |     |
| Untreated controls     |  | 100   | 3.4                     | 100 | 4.7 |

- 1) The retention is calculated on the entire composition of the preservative tested and expressed as kg preservative per m<sup>3</sup> *Pinus sylvestris* sapwood.
- 2) The test includes 25 stakes at each level of retention, 15 in Simlångsdalen and 10 in Sörkedalen.
- 3) The average service life is calculated when all the stakes in one series have been rejected (index of decay = 100).

## APPENDIX 3

## REPORT FROM FIELD/MARINE TRIAL

The public test report, published by the NWPC for the first time after 10 (or in some instances 15 or 20 years) will contain information on the chemical composition of the preservatives, e g as demonstrated in Table 1 below, and the rest results, e g as demonstrated in Table 2.

In Table 1, two preservatives are given by composition but not by name or manufacturer. This situation is likely to happen only for preservatives which have failed or shown very poor results in the test and never will be used commercially.

Table 1. NWPC Field Trial 1970. Preservatives tested and their chemical formulation.

| Wood preservative | Chemical formulation, % m/m          |      | Manufacturer  |
|-------------------|--------------------------------------|------|---------------|
| Boliden K33       | As <sub>2</sub> O <sub>5</sub>       | 34.0 | Boliden AB    |
|                   | CrO <sub>3</sub>                     | 26.6 |               |
|                   | CuO                                  | 14.8 |               |
|                   | H <sub>2</sub> O                     | 24.6 |               |
| BP Hylosan        | Pentachlorophenol<br>in white spirit | 5    | Svenska BP AB |
| Preservative X    | CuSO <sub>4</sub>                    | 26.2 | Anon.         |
|                   | H <sub>3</sub> BO <sub>3</sub>       | 25.5 |               |
|                   | H <sub>2</sub> O                     | 48.3 |               |
| Preservative Y    | CuO                                  | 18.8 | Anon.         |
|                   | Propionic acid                       | 4.5  |               |
|                   | H <sub>2</sub> O                     | 76.7 |               |

Table 2. NWPC Field Trial 1970. Results after 10 years' testing.

| Wood preservative | Concentration<br>% m/m | Retention<br>kg/m <sup>3</sup> | Index of decay and average service life ( $\bar{x}$ ) |           |                            |           |
|-------------------|------------------------|--------------------------------|---|-----------|----------------------------|-----------|
|                   |                        |                                | Simlångsdalen (Sweden)<br>Index                       | $\bar{x}$ | Tåstrup (Denmark)<br>Index | $\bar{x}$ |
| Boliden K33       | 4.0                    | 26.7                           | 0   |           | 0                          |           |
|                   | 3.0                    | 19.9                           | 0   |           | 0                          |           |
|                   | 2.0                    | 13.3                           | 0   |           | 2                          |           |
|                   | 1.5                    | 10.0                           | 3   |           | 15                         |           |
|                   | 1.0                    | 6.7                            | 25  |           | 35                         |           |
|                   | 0                      | 0                              | 100   | 4.2       | 100                        | 3.0       |
|                   |                        |                                |   |           |                            |           |
| Preservative x    | 8.0                    | 51.2                           | 0   |           | 10                         |           |
|                   | 6.0                    | 35.4                           | 9   |           | 23                         |           |
|                   | 3.0                    | 18.5                           | 17  |           | 35                         |           |
|                   | 2.0                    | 12.2                           | 50  |           | 79                         |           |
|                   | 1.0                    | 7.1                            | 100   | 5.6       | 100                        | 4.8       |
|                   | 0                      | 0                              | 100   | 3.8       | 100                        | 3.2       |

## ADDRESSES

## 1. Registration for trial, test reports, fees etc.

All questions regarding registration for field and marine trials, test reports, fees etc are handled by:

The Swedish Wood Preservation Institute  
Box 5607  
S-114 86 Stockholm  
Sweden  
Tel 08-22 25 40  
Telex 14375 STURES

## 2. Delivery of wood preservatives.

All preservatives for testing shall be delivered to:

The Swedish University of Agricultural Sciences  
Dept of Forest Products  
Box 7008  
S-750 07 Uppsala  
Sweden  
Tel 018-17 10 00  
Telex 76062 ULT BIBL S

## 3. NWPC Members

The Swedish Wood Preservation Institute  
Box 5607  
S-114 86 Stockholm  
Sweden  
Tel 08-22 25 40/170  
Telex 14375 STURES

The Finnish Wood Preservation Association  
Mannerheimintie 40 D 87  
SF-00100 Helsinki 10  
Finland  
Tel 90-49 27 62

The Norwegian Institute for Wood Working and Wood Technology  
Box 337, Blindern  
N-0314 Oslo 3  
Norway  
Tel 02-46 98 80  
Telex 18171 FORSK N

The Danish Wood Council  
The Danish Wood Preservation Committee  
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