

Publication in the Official Journal ~~Yes~~ / No

File Number: T 423/90 - 3.3.2
Application No.: 84 111 658.5
Publication No.: 0 149 005
Title of invention: The use of creosote for stabilizing pyrethroids

Classification: B27K 3/50

D E C I S I O N
of 26 September 1991

Applicant: THE WELLCOME FOUNDATION LIMITED

Headword: Pyrethroids/WELLCOME

EPC Article 56

Keyword: "Inventive step (yes), redefinition of the technical problem"

Headnote



Case Number : T 423/90 - 3.3.2

D E C I S I O N
of the Technical Board of Appeal 3.3.2
of 26 September 1991

Appellant : THE WELLCOME FOUNDATION LIMITED
Unicorn House
160 Euston Road
GB - London NW1 2BP (GB)

Representative : Sandmair, Kurt, Dr.Dr.
Patentanwälte
Schwabe, Sandmair, Marx
Stuntzstraße 16
W - 8000 München 80 (DE)

Decision under appeal : Decision of Examining Division 024 of the
European Patent Office dated 30 October 1989
refusing European patent application
No. 84 111 658.3 pursuant to Article 97(1) EPC.

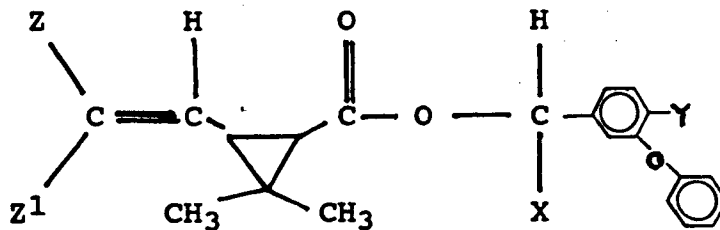
Composition of the Board :

Chairman : P.A.M. Lançon
Members : I.A. Holliday
J.C. Saisset

Summary of facts and submissions

I. European patent application No. 84 111 658.5 (publication No. 0 149 005) was refused by a decision of the Examining Division. The decision was based on Claims 1 to 6 filed on 4 August 1989. Claim 1 reads as follows:

"1. A composition for the treatment of timber, which is to be sunk wholly or partially into the ground, or railwaysleepers, the composition comprising creosote and a compound of formula I:



wherein Z and Z¹ are the same or different and each is halo, halophenyl or haloalkyl, X is hydrogen or a cyano group, and Y is hydrogen or a fluorine atom."

Claim 4 relates to the treatment of timber with the said composition and Claim 6 to timber treated therewith.

II. Eight documents were cited during the examination, the following of which are relevant for the present decision:

- (1) US-A-3 930 025
- (2) Chemical Abstracts, Vol. 93, July 1980, No. 22164 and Holz Roh- und Werkstoffe, Vol. 38, 1980, 121 - 127
- (8) Review of recent developments and trends in wood preservation, Penarth Research Centre, August 1980.

.../...

III. The Examining Division refused the application for failure to comply with Article 56 EPC, taking the view that document (1), which is concerned with mixtures of creosote and pentachlorophenol for use as wood preservatives represented the closest prior art. It was also known from document (2) that synthetic pyrethroids had been proposed as replacements for chlorinated hydrocarbons for the control of wood-boring insects. Furthermore, (2) claimed to have demonstrated that certain pyrethroids are of high stability and persistence at the site of application. It was, accordingly, the Examining Division's view, that notwithstanding the Applicant's argument that some pyrethroids, e.g. permethrin, were subject to degradation in the soil, they would have been obvious replacements for chlorinated hydrocarbons for use together with creosote in the preservation of timber for underground applications.

IV. In the statement of appeal, the Appellant defended the claims refused by the Examining Division, citing a paper by Rutherford et al., presented at the 1980 Annual Convention of the British Wood Preserving Association, pages 54 - 64 (hereinafter Document (9)). According to (9) tests were carried out with permethrin, cypermethrin and deltamethrin in which treated wood was exposed to moist soil. The tests showed that permethrin and cypermethrin began to decompose even after only 24 weeks in moist soil, thus, in the Appellant's view, discouraging their consideration as a replacement for chlorophenols in the compositions according to (1). Deltamethrin showed better stability and was recommended for further evaluation on page 62 of (9). However, when the Appellants carried out realistic tests, deltamethrin also degraded.

The Board summoned oral proceedings to take place on 26 September 1991. On 13 September 1991, the Appellant filed new Claims 1 to 3 according to which Claim 1 was restricted to:

"1. Use of creosote for stabilising compounds of formula I in a composition for the treatment of timber which is to be sunk wholly or partially into the ground, or railway sleepers, the composition comprising creosote and a compound of formula I: ..."

Formula I was defined as in paragraph I above.

The Appellant argued that nothing in the prior art cited indicated that creosote might inhibit the degradation of pyrethroids described in documents (2) and (9) and accordingly that an inventive step should be recognised.

- V. The Appellant requests that a patent be granted on the basis of Claims 1 to 3 mentioned in IV above together with description adapted thereto, filed at the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.
2. The amended claims satisfy the requirements of Article 123(2). Claim 1, filed on 13 September 1991, is based on Claim 1 as originally filed together with the description on page 3, lines 35 to 39. Claims 2 and 3 are preferred embodiments of Claim 1 based on the original Claims 2 and 3.
3. The application concerns the use of creosote for the stabilising of pyrethroid compounds when used in a composition for the treatment of timber which is to be used underground.

- 3.1 As indicated above, the Examining Division considered (1) to be the closest state of the art and the problem to be solved being to develop improved or more environmentally acceptable alternatives to the known mixtures of creosote and pentachlorophenol.
- 3.2 In the light of the amended claims, the Board now considers (2) as the closest state of the art. Document (2) is concerned with the potential use of synthetic pyrethroids as replacements for chlorinated hydrocarbons in the control of wood-boring insects. Whilst (2) indicates that the pyrethroids have good potential for use in prevention of wood-boring insect attack, it is clearly stated that permethrin (Formula I in which $Z=Z^1=Cl$ and $Y=X=H$) is known to be subject to biodegradation in the soil.
- 3.3 In relation to the above prior art (2), the problem is redefined to relate to the stabilisation of pyrethroids so that they retain their protective effect in contact with soil. The solution lies in using them together with creosote. Experiments and comparative tests which appear in the application demonstrate that the problem has indeed been solved.
4. None of the documents mentioned above, nor any of the others cited during examination relate to mixtures of creosote and pyrethroids; the subject-matter of Claim 1 is accordingly new. In any event, novelty is not in dispute.
5. It remains to consider whether or not Claim 1 satisfies the requirements of Article 56 in respect of inventive step.
- 5.1 Document (2) is concerned with the treatment of wood with three compounds falling within the general formula I

according to the present application, namely permethrin (identified in 3.2 above), cypermethrin ($Z=Z^1=C1$; $X=CN$; $Y=H$) and decamethrin ($Z=Z^1=Br$; $X=CN$, $Y=H$). The last mentioned is referred to as "deltamethrin" in the present application and as "NRDC-161" in document (9). The said three compounds are employed in the worked examples of the present application.

5.1.1 According to (2), the said pyrethroids were applied in toluene solution to wood. In the paragraph bridging pages 123 and 124, the compounds are shown to have high values of initial toxicity to wood-boring insects. However, having regard to the known biodegradation of permethrin in the soil, the compounds are recommended in the antepenultimate paragraph of (2) for use only out of ground contact. There is thus no incentive to employ the said compounds for underground use.

5.2 The only document amongst those cited, which specifically refers to creosote, was document (1). The problem underlying (1) is to overcome the corrosive effects of known mixtures of creosote and pentachlorophenol. This problem is solved by modifying the creosote, not by replacing the pentachlorophenol. There is accordingly not the slightest hint from (1) that mixtures of creosote and pyrethroids might be stable in underground use.

5.3 Document (9) serves to confirm the findings of (2) and indicates that not only permethrin but also cypermethrin are biodegraded in contact with soil. In the first paragraph on page 62, the authors recommend further tests with deltamethrin "using more realistic conditions". The Appellants followed this recommendation; the tests recorded in the present application demonstrate that deltamethrin is also degraded in soil contact. Again in

(9), the pyrethroids were applied from solution in toluene (paragraph 3.2.b on page 58).

5.4 The Penarth Report (8) on page 9 refers to "tar oil and organic solvents and the possible replacement therein of organochlorine compounds with pyrethroids". This section is, however, concerned with marine applications, which are no longer the subject-matter of the present application. As was argued by the Appellant at oral proceedings and confirmed in the first paragraph of document (9), the pyrethroids are not subject to biodegradation in marine conditions. The teaching is accordingly not applicable to underground use.

5.5 There is thus no hint from either (8) or (9) that the stability of pyrethroids in soil would be improved by use in conjunction with creosote.

5.6 It follows from the preceding paragraphs that the use which forms the subject-matter of Claim 1 of the application is in no way foreshadowed by the cited prior art. An inventive step can accordingly be recognised.

6. Consequently, there are no grounds which prejudice the grant of a patent in the form proposed by the Appellant at the oral proceedings.

Order

For these reasons, it is decided that:

1. The contested decision is set aside.
2. The case is remitted to the first instance with the order to grant the patent on the basis of Claims 1 to 3 filed on

13 September 1991 and the description as amended during oral proceedings.

The Registrar:

The Chairman:

P. Martorana

P.A.M. Lançon