BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS | BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE | CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [X] To Chairmen

D E C I S I O N
of 10 December 1996

Case Number: T 0706/94 - 3.3.4

Application Number: 89105695.4

Publication Number: 0337212

IPC: A01N 59/00

Language of the proceedings: EN

Title of invention:
Silicia gels for controlling insect pests

Applicant:
FUJI-DAVISON CHEMICAL LTD.

Opponent:
-

Headword:
Silica gels/FUJI-DAVISON CHEMICAL

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (yes)"

Decisions cited:
T 0645/92

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0706/94 - 3.3.4

D E C I S I O N
of the Technical Board of Appeal 3.3.4
of 10 December 1996

Appellant: FUJI-DAVISON CHEMICAL LTD.
1846, Kozoji-cho 2-chome
Kasugai-shi
Aichi-ken (JP)

Representative: Reimold, Otto, Dr. Dipl.-Phys.
Patentanwälte
Dipl.-Ing. R. Magenbauer
Dipl.-Phys. Dr. O. Reimold
Dipl.-Phys. Dr. H. Vetter
Hölderlinweg 58
73728 Esslingen (DE)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 28 March 1994 refusing European patent application No. 89 105 695.4 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: U. M. Kinkeldey
Members: F. L. Davison-Brunel
J.-C. Saisset

Summary of Facts and Submissions

I. European application No. 89 105 695.4 published under No. 0 337 212 with the title "Silicia gels for controlling insect pests" was refused by the Examining Division.

The decision was taken on the basis of six claims filed by letter dated 22 April 1993.

Claim 1 read as follows:

"Silica gels for sticking to, absorbing moisture from, and killing insect pests, comprising a biotically non-toxic composition of silica gel having a minimum particle diameter of 350 µm and containing about 0,05% to about 5% by weight silica particles with a maximum diameter of 50 µm."

Dependent claims 2 and 3 specified further characteristics of the silica gels. Claims 4 to 6 were directed to methods for killing insects with the claimed silica gels.

II. The state of the art comprised the following documents:

(1): Ebeling, W. and R.E. Wagner, Journal of Economic Entomology, Vol. 52, No. 2, pages 190 to 207, (1959).

(2): Minnick D. R. et al., Journal of Economic Entomology, Vol. 65, No. 6, pages 1577 to 1579, (1972).

(3): Chemical Abstracts, Vol. 91, No. 13, 24 September 1979, page 217, abstract No. 103668g

(4): US-A-3 235 451.

(5): Ebeling, W., Journal of Economic Entomology, Vol. 53, No. 3, pages 475 to 476, (1960).

III. The Examining Division refused the application under Article 97(1) EPC on the ground that the subject-matter of claims 1 to 6 lacked inventive step over the teaching of document (1).

The main reason given for the decision was that the skilled person was aware from the teaching of document (1) that small size silica particles did not efficiently kill insects in a humid environment and that the most obvious solution was to reduce the humidity of the treated space by adding to them a dessicant such as coarse silica particles (see page 4 of the decision).

IV. The Appellant lodged an appeal against this decision, paid the appeal fee and filed a statement of grounds for the appeal.

V. The Appellant's arguments were essentially that:

- The patent application proposed a solution to the problem of killing insect pests in wood which comprised treating the infested area with a mixture of an agent to kill the pests (silica particles) and a drying agent (silica gel).

- It had surprisingly been found that the silica

gel was not only able to dry the atmosphere but also had a direct drying action on the wood. This hitherto unknown property had as a consequence that the insects were expelled from the wood and only in creeping out and crawling over the mixture of silica gel and silica particles being spread as a layer on the wood the moisture from the bodies of the pests was adsorbed by the inventive silica gels.

- The silica gel also prevented the silica particles to disperse away from the layer through which the pests crawl.

- Document (1) taught away from the invention as it mainly dealt with enhancing the effectiveness of the silica particles in a humid environment by having them impregnated with pesticides.

- It was not obvious to combine a dessicant with a pesticide, as the fields of insects pests killing and dehumidifying of buildings were, at the most, neighbouring technical fields.

- In fact, the subject-matter of claim 1 was a true combination since the effect of the fine silica particles interacted in a synergistic way with that of the silica gel.

VI. The Appellant requested that the decision of the Examining Division be set aside and that a patent be granted on the basis of the rejected claims or alternatively that a date be set for oral

proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. The only issue to be decided in this appeal is inventive step (Article 56 EPC).

3. The closest prior art is document (1). It is a review on the relative efficiency of inert sorptive dusts and toxicants against, inter alia, drywood termites. Silica gels containing small silica particles of about 1 to 2 µ in size are singled out as particularly efficient by virtue of their high adsorption capacity for both oil and water (page 192, left hand column). Thus, when insects are dusted with these particles, their protective, lipidic, outer membrane is destroyed and their internal fluids are drawn out into the silica, which results in dessication and death. However, the silica gels loose their efficiency in moisture-saturated environment (page 194, Table 1 and page 198, left column, paragraph 4)), because they, themselves, become saturated with moisture.

4. As a solution to the problem of obtaining a satisfactory level of mortality under humid conditions, document (1) discloses that before use the silica gels may be impregnated with fluorine compounds (toxicants). A silica gel impregnated with a toxicant is more efficient than the toxicant on its

own because, by adhering to the insects, the silica gel brings the toxicant in close contact with its target.

5. In the light of this closest prior art, the objective technical problem can be seen as the provision of an alternative product for killing insects with good efficiency in a moisture-rich atmosphere.

6. The solution is provided by claim 1 and consists in a silica gel mixture comprising a defined ratio of big (350µm diameter) and small (50µm maximal diameter) silica particles. As the big silica particles take away the moisture from the environment, the fine particles attach to the insect and fulfill their role as dessicants.

7. From reading the examples of the patent specification, the Board is satisfied that the claimed product solves the above stated problem.

8. The patent application teaches an approach to the problem of killing insects in a humid environment which is clearly different in concept from that disclosed in document (1), since the killing is not due to the addition of a further pesticide to the silica particles, the activity of which is reduced in the presence of moisture, but rather to a modification of the environmental conditions in which these particles perform their task. This approach is neither suggested nor obviously derivable from document (1).

9. The question which remains to be asked in relation to inventive step is whether the combination of document (1) with any of the other documents of the state of the art would nonetheless render the invention obvious.

10. Document (2) is a study of the susceptibility of the granary weevil, *Sitophilus granarius*, to various toxicants and sorbants including silica gels, under normal conditions. It mentions that "the efficiency (*of silica aerogels*) under humid conditions of the southern coastal regions should be validated (*added matter*)".

11. Documents (3) and (5) emphasize the better killing efficiency of fluorinated silica aerogels over silica aerogels and, thus, contain an analogous teaching to that of document (1). The conditions of use are not stated.

12. Document (4) is concerned with reducing the dustiness of silica powder with glycols and, therefore, is not relevant to the present case.

13. It follows that none of these other documents is concerned with the killing of insects in a humid environment. To the Board, the claimed invention is neither derivable nor even suggested by the teaching of document (1), independently from whether it is seen in the light of common general knowledge or taken in combination with that of these other documents.

14. Any reasoning on inventive step which starts from the teaching of the invention that the insects's environment should be dried as a mean to ensure that the small effective particles can play their role as dessicants is plainly derived from an ex post-facto analysis which according to the well established case law of the Boards of appeal is unallowable (see, for example, T 0645/92 of 12 April 1994).

15. Inventive step is acknowledged to the subject-matter of claim 1 and dependent claims 2 to 6.

Order

for these reasons it is decided that:

1. The decision under appeal is set aside

2. The case is remitted to the first instance with the order to grant a patent on the basis of the claims filed with the letter dated 22 April 1993.

The Registrar: The Chairwoman:

L. McGarry U. M. Kinkeldey