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D E C I S I O N
of 13 September 1996

Case Number: T 1099/92 - 3.3.4

Application Number: 86308108.9

Publication Number: 0220902

IPC: A01N 57/20

Language of the proceedings: EN

Title of invention:

Liquid, phytoactive compositions and methods of use

Applicant:

STAUFFER CHEMICAL COMPANY

Opponent:

-

Headword:

Liquid, phytoactive compositions/STAUFFER CHEMICAL COMPANY

Relevant legal provisions:

EPC Art. 56

Keyword:

"Inventive step (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 1099/92 - 3.3.4

D E C I S I O N
of the Technical Board of Appeal 3.3.4
of 13 September 1996

Appellant:

STAUFFER CHEMICAL COMPANY
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Representative:

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Decision under appeal:

Decision of the Examining Division of the
European Patent Office dated 22 July 1992
refusing European patent application
No. 86 308 108.9 pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: U. M. Kinkeldey
Members: F. L. B. Davison-Brunel
S. C. Perryman

Summary of Facts and Submissions

- I. European patent application No. 86 308 108.9 published under No. 0 220 902 with the title " Liquid, phytoactive compositions and methods of use" was refused by the Examining Division.

The decision was taken on the basis of seven claims filed by letter dated 22 July 1991.

Claim 1 read as follows:

"A liquid phytoactive composition characterized in that it comprises:

- (a) an N-phosphonomethyl-N-carboxymethyl compound;
- (b) one or more liquid nonionic surfactants which are selected from alkyl polyglycosides;
- (c) a dispersing medium for the N-phosphonomethyl-N-carboxymethyl compound; and
- (d) one or more inert adjuvants.

Claim 2 was addressed to a liquid herbicidal concentrate comprising the same compounds.

Dependent claims 3 to 6 specified further embodiments of the composition and/or concentrate of claims 1 and 2. Claim 7 was addressed to a method for controlling undesirable vegetation making use of the composition or concentrate of claims 1 to 6.

- II. The Examining Division refused the application under Article 97(1) EPC on the grounds that the subject-matter of claims 1 to 7 lacked inventive step within the meaning of Article 56 EPC, having regard to the following documents:

D1: US-A-4 315 765 and
D2: US-A-3 799 758.

The main reason given for the decision was that documents (1) and (2) disclosed compositions containing methylcellulose (an alkylpolyglucoside) and the same herbicide. In the absence of any data showing that preferred alkyl polyglucosides exhibited surprising effects in comparison with methylcellulose, inventive step could not be acknowledged.

- III. The Appellant (Applicant) lodged an appeal against the decision paying the appeal fee at the same time. The statement of grounds of appeal was submitted together with additional data and an alternative set of claims.
- IV. A communication was sent by the Board according to Article 11(2) of the Rules of Procedure of the Boards of Appeal setting out the Board's preliminary position.
- V. In response to this, the Appellant submitted a technical memorandum together with a new main and two auxiliary requests.

Independent claim 1 of the new main request corresponded to the claim 2 filed on 22 July 1991, the liquid herbicidal concentrate being further qualified as "dilutable by water or water containing liquid before application in the field".

Dependent claims 2 to 6 specify further embodiments of the herbicidal concentrate. Claim 7 covers a method for controlling vegetation making use of the liquid concentrates of claims 1 to 6.

VII. The submissions of the Appellant can be summarized as follows:

- The problem to be solved was the provision of concentrated, liquid, ready-to-dilute, storage-stable, phytoactive compositions comprising an N-phosphonomethyl-N-carboxymethyl compound and a nonionic surfactant, which should be of relatively low irritancy and toxicity.
- Document (1) disclosed a number of formulation types which did not include concentrated compositions.
- Document (2) indicated that phytotoxic compositions including concentrates may be obtained which comprised the phytotoxic compound and a variety of non-ionic surfactants. The teachings of document (2) were no more, however, than a summary of common general knowledge without reduction to practice.
- The Appellant had provided experimental evidence that a wide range of conventional nonionic surfactants such as those mentioned in Document (2) and methylcellulose underwent phase separation when incorporated in concentrates of N-phosphono-N-methyl glycine and would, therefore, be unsuitable as "built-in" surfactants.
- The specific choice of liquid alkyl polyglycosides as non ionic surfactants unexpectedly combined a relatively low toxicity with the ability to be built-in to form a storage stable concentrate with N-phosphono-N-carboxymethyl compounds.

- The technical memorandum was presented to support the argument that the problem to be solved was onerous and that a high level of inventive step was required to provide a physically and chemically stable ready-to-dilute composition as opposed to a mere tank mix.

VIII. The Appellant requested that the decision of the Examining Division be set aside and that a patent be granted on the basis of the main request filed on appeal or alternatively, on the basis of the first or second auxiliary request.

Reasons for the Decision

1. The appeal is admissible.

The main request

Amendments, Articles 123(2) and 84 EPC

2. The basis for claim 1 is to be found on page 2, lines 19 to 27 taken together with the passage bridging page 5, lines 24 and page 6, lines 9 of the application as originally filed. The basis for claims 2 and 3 is to be found on page 6 and that for claim 4 on page 4. Claims 5 to 7 correspond to the originally filed claims 6 to 8, taking into account the multiple dependency of each of these claims. None of these amendments amount to an extension of the original disclosure. The requirements of Article 123(2) EPC are fulfilled.

3. Clarity was never in question and the amendments which have been introduced on appeal are not of such a nature that a new objection should be raised. The requirements of Article 84 EPC are fulfilled.

Sufficiency of disclosure, Article 83 EPC

4. In its communication the Board expressed the concern that sufficiency of disclosure may not be fulfilled, insofar as concentrates comprising methylcellulose and the phytoactive compound undergo phase separation. This concern was satisfactorily answered by the Appellant who pointed out that methylcellulose does not fall within the scope of the claims, as it does not belong to the category of liquid surfactants. Sufficiency of disclosure is, thus, acknowledged.

Novelty, Article 54 EPC

5. The Board agrees with the Examining Division that the subject-matter of all claims is novel.

Inventive step, Article 56 EPC

6. Document (2) discloses N-phosphono-N-methylglycine phytotoxicant compositions, including concentrates. The compositions are said to preferably contain surface active agents in addition to the phytotoxicant, as a means to increase their efficiency without any information being provided on the properties of concentrated compositions which would contain nonionic surface active agents.

7. A list of surface active agents is given which comprises non-ionic surfactants amongst which are polyoxyethylene derivatives of alkyl phenols (e.g. nonylphenol) or of the mono-higher fatty acid esters of hexitol (e.g. sorbitan). Methylcellulose is also identified as a suitable dispersant.
8. In the light of Document (2), which is considered by the Board as the closest prior art, the underlying technical problem can be defined as the provision of a concentrated, liquid phytoactive composition with long storage capacity and relatively low toxicity.
9. The solution provided is a concentrated composition containing an N-phosphono-N-carboxymethyl compound together with a nonionic surfactant in the form of an alkyl polyglycoside, a solvent for the N-phosphono-N-carboxymethyl compound and one or more adjuvants.
10. It can be inferred from Document (2) that it should be possible to obtain a concentrated, liquid composition of N-phosphono-N-methylglycine derivatives together with a non-ionic surfactant. Thus, any specific concentrated composition can only be acknowledged as inventive if endowed with unexpected properties.
11. Nonionic surfactants in general have a relatively low toxicity as indicated in the patent description page 7, lines 3 to 6. Consequently, low toxicity as such cannot be considered as a surprising feature of a specific class of nonionic surfactants such as alkyl polyglycosides.
12. While assessing the inventive step of the claim 1 then on file, which related to diluted compositions, the Examining Division came to the conclusion that inventive step could not be acknowledged in the absence

of any experimental evidence that these diluted compositions had any advantageous properties compared with the compositions disclosed in Documents (1) or (2) containing methylcellulose.

13. On appeal, the Appellant amended the claim to a claim to a concentrated composition and provided experimental data showing the improved storage features of said composition: the phase-stability of concentrates containing N-phosphono-N-methylglycine and nonionic surfactants or dispersants of the type mentioned in Document (2) (nonyl phenol, sorbitan, methylcellulose) was compared over a period of twenty-four hours with that of the claimed composition containing the alkyl polyglycoside AL2042 . The results show that the nonionic surfactants as disclosed in Document (2) and methylcellulose undergo phase separation in most cases whereas the alkyl polyglycoside never does, whatever its concentration and the incubation conditions might be.

It may, therefore, be concluded that the storage stability of the compositions of document (2) is worse than that of those containing the alkylpolyglycosides.

14. The Appellant has, thus, found a specific kind of non-ionic surfactant which may be built-in into a concentrated composition based on an electrolyte such as a glyphosate compound. By doing so, he has achieved a physically and chemically stable, ready to dilute composition which, in addition, presents the advantage of low toxicity. The Board believes that this result could not have been expected when the conventional non-ionic surfactants of low toxicity could not stably be built-in to a concentrated composition.

15. Document (1) is not concerned with concentrated, phytotoxic compositions. Document (3), EP-A-0 022 666 is concerned with using methyl cellulose as a coating agent to seal any agricultural chemical to the leaves of the plants. Document (4), FR-A- 2 390 901 addresses the problem of preventing corrosion of metallic recipients by the N-phosphonomethylglycine by addition of a thiol derivatives. Document (5), GB-A-2 129 303 discloses a herbicidal composition of a different nature from that of the claimed concentrate. Thus, none of these documents are relevant to the assessment of inventive step.

16. The concentrate of claims 1 to 6 and its use (claim 7) are not rendered obvious by any of the documents on file whether taken alone or in combination. Inventive step can, thus, be acknowledged.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the Examining Division with the order to grant a patent with claims 1 to 7 according to the main request on appeal filed on 2 October 1995 and with a description to be adapted accordingly.

The Registrar:

The Chairman:

L. McGarry

U. M. Kinkeldey