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**Datasheet for the decision
of 20 May 2019**

Case Number: T 0087/15 - 3.3.02

Application Number: 07252147.9

Publication Number: 1862070

IPC: A01N43/80, A01N25/22, A01P1/00

Language of the proceedings: EN

Title of invention:
Microbicidal composition

Patent Proprietor:
Rohm and Haas Company

Opponent:
Thor GmbH

Headword:

Relevant legal provisions:
EPC Art. 54(2), 56
RPBA Art. 12(4)

Keyword:
Late-filed facts - admitted (no) - admitted (yes)
Inventive step - main request (yes)

Decisions cited:

G 0002/88

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 0087/15 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 20 May 2019

Appellant: Thor GmbH
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 27 November
2014 rejecting the opposition filed against
European patent No. 1862070 pursuant to Article
101(2) EPC.**

Composition of the Board:

Chairman M. O. Müller
Members: P. de Heij
S. Bertrand

Summary of Facts and Submissions

- I. The appeal by the opponent (hereinafter "appellant") lies from the decision of the opposition division, according to which European patent No. EP 1 862 070 as granted and the invention to which it relates meet the requirements of the EPC.
- II. The contested patent contained a set of two claims, independent claim 1 of which reads as follows:
- "1. A microbicidal composition comprising:*
- (a) 27-37 % of a mixture of 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl 4 isothiazolin-3-one in which the weight ratio of 5-chloro-2-methyl-4-isothiazolin-3-one to 2-methyl-4-isothiazolin-3-one is from 4:1 to 1:1;*
 - (b) 5-27 % of a metal nitrate;*
 - (c) 30-55 % water; and*
 - (d) 8-13 % magnesium chloride;*
- wherein the composition contains less than 0.01 % bromic acid, iodic acid, periodic acid or their salts."*
- III. The following documents are referred to in the present decision:
- | | |
|----|---------------------------------|
| D1 | EP 0 910 951 A |
| D2 | US 4,067,878 A1 |
| D4 | US 3,870,795 A |
| D8 | Affidavit of Prof. Georg Schied |
- IV. In its decision, the opposition division came to the conclusion that:
- The ground of opposition under Article 100(c) EPC did not prejudice the maintenance of the patent as granted.

- The subject-matter of claim 1 as granted was novel over D4.
- The subject-matter of claim 1 as granted involved an inventive step in view of D2 as the closest prior art.

V. In its statement setting out the grounds of appeal, the appellant contested the reasoning of the opposition division and submitted that the subject-matter of the granted claims lacked novelty in view of D2 and lacked inventive step in view of D1 or D2.

VI. The patent proprietor (hereinafter "respondent") filed a response to the statement of grounds of appeal, contested the appellant's attacks and filed the first to third auxiliary requests.

VII. In its communication of 4 April 2019, the board expressed its preliminary opinion, *inter alia*, on the admittance of the attacks of lack of novelty in view of D2 and of lack of inventive step in view of D1, and concurred with the opposition division that novelty should be acknowledged in view of D2.

VIII. With a letter dated 12 April 2019, the respondent filed new second and third auxiliary requests.

IX. Oral proceedings before the board were held on 20 May 2019.

X. The appellant's arguments, where relevant to the present decision, may be summarised as follows:

- Example 4 of D2 disclosed a composition comprising 25 % of a mixture of 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl 4 isothiazolin-3-one (hereinafter CMI/MI), 25 % magnesium nitrate and 48.3 % water. D2 did not limit the content of CMI/MI to 25 % and compositions with a content as claimed, such as 30 or 35 %, were not excluded from D2. The amount of $MgCl_2$ was correlated to the amount of CMI/MI. The amount of $MgCl_2$ in example 4 could therefore be calculated to be 6.70 % at an CMI/MI amount of 25 % (second table on page 5 of the statement of grounds of appeal). Based on this calculation, it followed that all amounts in example 4 of D2 were as required by claim 1.
- If it were concluded that document D2 did not disclose all of the features of the claimed subject-matter, the distinguishing features were the content of CMI/MI and the associated content of magnesium chloride.
- Example 13 of the patent represented example 4 of D2. By comparing example 13 to example 4 of the patent, no further effect was achieved.
- The technical problem was to provide a stabilised microbicidal composition comprising a higher content of active ingredient (CMI/MI).
- The problem was not solved over the whole scope of claim 1, as demonstrated by example 19 of the patent, which exhibited a low stability. The technical problem was therefore no more than to provide a microbicidal composition comprising a higher content of active ingredient (CMI/MI).
- Following the teaching of D2, the skilled person would adapt the content of metal nitrate to stabilise a composition comprising 27 to 37 % CMI/MI and the correlated content of $MgCl_2$. Reference was made to examples 4, 18, 19 of the patent which

showed that a reduction of the content of metal nitrate decreased the stability of the composition in accordance with the teaching of D2.

- If necessary, the skilled person would consider the amounts of magnesium nitrate generally used for stabilising a 3:1 mixture of CMI/MI referred to in D1 (paragraphs [0004], [0005] and [0007]).

XI. During the oral proceedings, the appellant pointed out for the first time that the values calculated in its statement of grounds of appeal regarding example 4 of D2 were wrong and that instead correct values could instead be derived from D8. The correct value deducible from D8 for example 4 of D2 was as required by claim 1. The board observed that the appellant had argued all along the appeal proceedings on the basis of the values contained on page 5 of the statement of grounds of appeal. It was not possible to verify the allegation made during the oral proceedings that these values were in fact wrong and that different values could be derived from D8. Therefore, it appeared that those values derived from D8 could not be taken into account. The appellant subsequently no longer relied on those values and did not request a decision on their admittance.

XII. The respondent's arguments, where relevant to the present decision, may be summarised as follows:

- Several selections in D2 were involved in arriving at the subject-matter of claim 1, and D2 did not unequivocally disclose a composition comprising 27 to 37 % of CMI/MI and/or 8 to 13 % of magnesium chloride.
- Example 23 of the patent corresponded to the teaching of D2, and the composition thereof was not

stabilised. Comparison of example 23 with example 19 showed that the increase of the contents of $MgCl_2$ improved the stability. It could be inferred that the stability was improved over the full breadth of the claim. Example 2 of the patent (paragraph [0022]), in particular examples 34 vs 35 and 36 vs 37, was evidence of a surprising improvement with regard to the stability achieved by the addition of $MgCl_2$ to the technical grade CMI/MI.

- The technical problem was to provide stable microbicidal compositions comprising high levels of CMI/MI.
- D2 provided no guidance on how to stabilise a composition comprising a higher amount of CMI/MI and D2 did not teach to add other salts such as magnesium chloride in the expectation of improving the stability of CMI/MI compositions. D2 taught in the passage of column 3, lines 28-31 that chloride salts were ineffective in stabilising a CMI/MI composition.
- The best results in terms of stability in example 4 of D2 were not achieved by using magnesium oxide or magnesium carbonate as the base for neutralising the hydrochloride salts of CMI/MI but by using sodium carbonate, calcium oxide or calcium carbonate.

XIII. The parties' final requests were the following:

The appellant requested that the decision under appeal be set aside and that the patent be revoked.

The respondent requested:

- as the main request that the appeal be dismissed;

- auxiliarily that the patent be maintained with the set of claims of the first auxiliary request, filed with the reply to statement of the grounds of appeal, or of the second or third auxiliary request, filed with the letter dated 12 April 2019;
- that the new attacks of lack of novelty of the claimed subject-matter in view of document D2 and of lack of inventive step in view of document D1 as the closest prior art should not be admitted into the appeal proceedings.

Reasons for the Decision

Admittance

1. Lack of novelty in view of D2

In its grounds of appeal, the appellant raised a novelty attack based on D2. It cited, *inter alia*, claim 14 as a relevant passage of D2.

1.1 The respondent requested that this attack not be admitted into the proceedings since the attack was a new attack raised for the first time in appeal. During the oral proceedings, it argued that the argument with reference to claim 14 had not been submitted during the opposition phase and that this was neither mentioned in the minutes nor discussed in the decision. The new argument had the effect of amending the appellant's case.

1.2 The board considers that the attack based on D2 was part of the discussion on novelty during the first instance proceedings, including the oral proceedings before the opposition division (see the last sentence on page 1 of the minutes of the oral proceedings before

the opposition division and the first sentence of the last paragraph on page 5 of the opposition division's decision). The attack is thus not a new attack filed for the first time in appeal.

The board observes that claim 14 was discussed by the respondent in its reply to the statement of grounds of appeal (the paragraph on novelty on pages 2 and 3) and that the respondent was clearly able to adequately respond to the line of attack based, *inter alia*, on claim 14.

This reference to claim 14 is only further evidence of a disclosure which completes the arguments filed during the opposition proceedings and does not represent a new line of attack of lack of novelty, based on new facts or evidence.

1.3 Consequently, the board sees no reasons why the novelty attack in view of D2 should not form part of the appeal proceedings and why the objection should be disregarded under Article 12(4) RPBA. The board therefore decides to admit the attack of lack of novelty in view of document D2.

2. Lack of inventive step in view of D1 as the closest prior art

In its grounds of appeal, the appellant contested inventive step starting from D1 as the closest prior art.

2.1 The respondent requested that this attack not be admitted. It argued that both the appellant and the respondent had agreed during the opposition oral proceedings that D2 constituted the closest prior-art

document. It was therefore apparent that the appellant had actively withdrawn its inventive-step objection starting from D1 during the opposition and, as a consequence, such an inventive step attack did not form part of the decision under appeal.

2.2 The appellant argued that the attack was mentioned in the notice of opposition. The attack had not been withdrawn during the opposition proceedings, and the decision under appeal should have dealt with the attack based on D1.

2.3 The board acknowledges that an objection of lack of inventive step considering D1 as the closest prior art was raised by the appellant in its notice of opposition (point 4.2). However, the appellant had agreed during the oral proceedings before the opposition division that D2, and hence not D1, was to be considered the closest prior art (see the penultimate paragraph on page 2 of the minutes of the oral proceedings before the opposition division and the fifth paragraph from the bottom of page 7 of the opposition division's decision).

In addition, the appellant did not further pursue the inventive step attack based on D1 after the opposition division had announced that the inventive-step attack based on D2 as the closest prior art failed, stating that it had no further comments (minutes page 4).

The new allegation of fact based on the different choice of the closest prior art D1 thus clearly deviates from the appellant's position taken previously before the opposition division. By not pursuing this attack before the opposition division and reintroducing it before the board, the appellant avoided a decision on the relevance of this attack by the opposition

division and, provided the new attack were admitted, would oblige the board to decide for the first time on the relevance of this attack.

Appeal proceedings, however, are not intended to be a second chance for filing an opposition based on attacks not previously pursued during opposition proceedings. On the contrary, the main purpose of appeal proceedings is to obtain a judicial ruling on the correctness of the first-instance decision.

- 2.4 Therefore, the board decides not to admit the objection of lack of inventive step considering D1 as the closest prior art, representing facts that could have been presented and pursued in the opposition proceedings (Article 12(4) RPBA).

Main request

3. Novelty, Articles 100 (a) and 54 EPC

- 3.1 Claim 1 of the contested patent relates to a microbicidal composition comprising:

- (a) 27-37 % of a mixture CMI and MI (weight ratio of CMI to MI is from 4:1 to 1:1);
- (b) 5-27 % of a metal nitrate;
- (c) 30-55 % water; and
- (d) 8-13 % magnesium chloride.

The composition contains less than 0.01 % bromic acid, iodic acid, periodic acid or their salts.

- 3.2 The appellant submitted that D2 as a whole disclosed the subject-matter of claim 1.

- 3.3 Example 4 discloses the neutralisation of a solution comprising 25 % by weight of a mixture of hydrochloride salts of CMI/MI in which the weight ratio of CMI to MI

is 3:1. The solution is neutralised with, for example, magnesium oxide or magnesium carbonate (table IV). To the solution is then added 0.5 mol equivalent of a metal nitrate (e.g. magnesium nitrate) and up to 25 % by weight of additional metal nitrate as a stabiliser (e.g. 12.5 or 25 % by weight of magnesium nitrate hexahydrate).

3.4 According to the appellant the neutralisation led to the formation of magnesium chloride. The appellant argued that the amount of magnesium chloride was correlated with the amount of the mixture of CMI and MI, as shown by the calculation made in the grounds of appeal, and was 6.7 % for a composition comprising 25 % of CMI/MI in which the weight ratio of CMI to MI was 3:1. The amount of metal nitrate was 25 % and 12.5 % by weight (table IV).

3.5 The CMI to MI ratio of 3:1 in the composition of example 4 is as required by claim 1. The amount of metal nitrate (25 % and 12.5 %) is within the claimed range of 5 to 27 %. It was not disputed by either party that the compositions disclosed in D2 contain less than 0.01 % bromic acid, iodic acid, periodic acid or their salts as required by claim 1.

However, the amount of magnesium chloride as calculated by the appellant in its statement of grounds of appeal is 6.7 %, which is below the lower limit of the range defined in claim 1 (8 %). Furthermore, the amount of the mixture of CMI/MI of 25 % is below the lower limit defined in claim 1 (27 %).

3.6 As regards the second feature, the appellant argued that D2 did not limit the content of CMI/MI to 25 %, as disclosed in the examples, and that compositions with a

content as claimed, such as 30 or 35 %, were not excluded from D2.

- 3.7 The board notes in this respect that the relevant criterion to examine novelty is whether the cited document explicitly or implicitly contains a direct and unambiguous disclosure of the claimed invention and that a strict approach must be taken to assessing novelty.

According to G 2/88 (reasons, 10) "a line must be drawn between what is in fact made available, and what remains hidden or otherwise has not been made available. In this connection the distinction should also be emphasised between lack of novelty and lack of inventive step: information equivalent to a claimed invention may be "made available" (lack of novelty), or may not have been made available but obvious (novel, but lack of inventive step), or not made available and not obvious (novel and inventive)".

Considering the above, the board is of the view that the amount of the CMI/MI which has been made available in D2 is 25 %, as calculated by the appellant (example 4) or as disclosed in the document (passage in column 3, lines 35-39 and examples 1-3), but that an amount as claimed, such as 30 to 35 %, has not been made available, independently of whether it is obvious or not. Therefore, it cannot be established from D2 that the disclosed amounts of 25 % CMI/MI should be interpreted as an amount ranging for example from 30 to 35 %, as interpreted by the appellant.

- 3.8 Incidentally, neither claim 14 of D2, cited by the appellant as a passage of disclosure of a stabilised aqueous solution of CMI/MI, nor the combination of the

features of claims 14 with any passage of the description discloses the amount of CMI/MI and the amount of MgCl_2 required by granted claim 1 (27-37 % and 8-13 % respectively).

3.9 The board therefore concurs with the respondent (XI, *supra*) that D2 does not directly and unambiguously disclose a composition comprising 27 to 37 % of CMI/MI and 8 to 13 % of MgCl_2 . Hence, novelty is to be acknowledged over the disclosure of D2.

4. Inventive step, Articles 100(a) and 56 EPC

4.1 The invention

The invention as defined in granted claim 1 concerns a microbicidal composition as defined above (3.1, *supra*).

The aim of the invention lies in stabilised microbicidal compositions having a higher concentration of active ingredients (CMI/MI) (paragraphs [0002] and [0003] of the patent).

4.2 The closest prior art

Since the attack based on D1 is not admitted into the proceedings (2, *supra*), D2 is the only document considered as the closest prior art by the parties.

Both parties referred to example 4, in particular the compositions comprising the magnesium dichloride complex of CMI/MI, as the closest composition for the subject-matter of granted claim 1 of the main request.

In the same way as the patent, D2 aims at providing a method of stabilising solutions of CMI/MI (column 1,

lines 11-13). The board therefore agrees that D2 can be considered as representing the closest prior art.

4.3 Distinguishing features

As set out above when discussing novelty, the subject-matter of claim 1 differs from the composition of example 4 of D2 in terms of the amount of CMI/MI (27-37 % in granted claim 1 vs 25 % by weight in example 4 of D2, as calculated by the appellant) and in the amount of $MgCl_2$ (8-13 % in granted claim 1 versus 6.7 % in example 4 of D2).

4.4 Formulation of the technical problem

- 4.4.1 Example 13 is the example of the patent which comes closest to example 4 of D2, since it comprises 20.23 % CMI/MI (25 % in example 4, considering the appellant's calculation), 24.48 % magnesium nitrate (25 % in example 4, considering the appellant's calculation), 6.72 % $MgCl_2$ (6.7 % in example 4, considering the appellant's calculation) and 48.55 % water (48.3 % in example 4, considering the appellant's calculation).

Example 13 of the patent, which is not according to claim 1, is to be compared to the composition according to claim 1 which comes closest to example 13, i.e. the composition comprising higher amounts of CMI/MI and $MgCl_2$ but comprising an equivalent amount of magnesium nitrate. This closest composition is that of example 4 of the patent: it comprises 30.49 % CMI/MI, 25.46 % magnesium nitrate, 9.97 % $MgCl_2$ and 34.04 % water. The stability, as measured by the "CMI/MI remaining" value, is 100 % for example 4, while it is 97.8 % for example 13.

Considering the above results, the composition of example 4 of the patent, which comprises an amount of 30.49 % active ingredient (CMI/MI), exhibits at least a stability (as measured by the active ingredient remaining) comparable to that of the composition representing example 4 of D2.

Also, other examples of the patent that are according to claim 1 (examples 1-7, 16-19, 33, 35, 37) show that the compositions, having a content of CMI/MI ranging from 29.52 % to 34.91 % and a content of MgCl₂ varying from 9.97 % to 11.64 %, exhibit a stability of 84.9 % to 100 %.

This shows that at amounts of CMI/MI as high as those required by claim 1 (27-37 %), a stability comparable to D2 can be obtained.

4.4.2 The appellant argued that compositions falling outside the scope of the claim (examples 10-12, 22, 32) and corresponding to the teaching of D2 had at least an equivalent or better stability when compared to compositions according to granted claim 1, such as example 19.

In the board's view, this reference to examples 10-12 and 22 of the patent, corresponding to the teaching of D2 and achieving a similar stability, does not contradict the finding that the composition according to claim 1 (example 4 of the patent) exhibits a comparable stability compared to the compositions representing the teaching of D2. While it is accepted that example 19 exhibits the lowest stability among the examples according to claim 1, it cannot be accepted that it represents evidence that the composition is not stable.

The objective technical problem is thus the provision of a stable composition having a higher concentration of active ingredient.

4.5 Obviousness of the solution

- 4.5.1 As submitted by the respondent (XI, supra), D2 acknowledges in the passage of column 3, lines 28-31 that "*Surprisingly, other common metal salts, including carbonates, sulfates, chlorates, perchlorates, and **chlorides** are ineffective in stabilizing isothiazolones solutions*" and that "*In a preferred embodiment of the invention, a **metal nitrate** is used to stabilize the isothiazolone solution*" (column 3, lines 26, 28; emphasis added by the board).

Considering the above passages of D2, the board sees no reasons why the skilled person would choose magnesium chloride to stabilise a composition comprising a higher amount of CMI/MI. The above passages make it clear that the agent for stabilising the "isothiazolone solution" is a metal nitrate. The skilled person faced with the problem to be solved would thus disregard any chloride salt and would select a metal nitrate to stabilise a composition comprising 27-37 % CMI/MI.

The board agrees with the respondent (XI, supra) that the choice of using magnesium chloride as the stabiliser is also not rendered obvious from the results of Table IV of D2. The best results of stability are achieved by using a NaCl complex of CMI/MI and 25 % of manganese nitrate hydrate or by using a CaCl₂ complex and 25 % of calcium nitrate tetrahydrate or zinc nitrate hexahydrate. The decomposition is 0 % or 5 % after six months at 50°C. In comparison, a

composition comprising a $MgCl_2$ complex of CMI/MI and 25 % or 12.5 % of magnesium nitrate hexahydrate exhibits a decomposition of 10 % or 35 %. Faced with the technical problem to be solved, the skilled person would have started from the most stable composition and thus would not have considered the $MgCl_2$ complex of CMI/MI.

Furthermore, D2 teaches that the stabilizer is a metal nitrate (column 3, lines 32-35). The skilled person would assume that increasing the amount of CMI/MI would imply to increase the amount of metal nitrate. Hence, considering that the composition of example 4 of D2, comprising 25 % CMI/MI, needs 25 % of a metal nitrate stabiliser and increasing the amount of CMI/MI within the claimed range (27-37 %), the skilled person would also increase the content of the stabiliser, i.e. the amount of the metal nitrate. Therefore, it cannot be directly established that the amount of nitrate increased in this way would still be less than 27 % and would still fall within the claimed range (5-27 %).

In the board's judgment, the subject-matter of granted claim 1 is therefore not obvious in view of D2.

- 4.5.2 The background of the invention in D1, also referred to by the appellant (paragraphs [0004], [0005], [0007]) for adapting the amount of nitrate, essentially contains the same teaching as D2 regarding the nature of the stabiliser. Metal nitrate salts such as magnesium nitrate are mentioned as known stabilisers and are used at an amount of 12-16 % for solutions of 5-35 % CMI/MI (paragraphs [0004] and [0005]). This amount 12-16 % is within the range referred to in granted claim 1 (5-27%).

This teaching regarding the amount of the stabiliser is however not in line with the teaching of D2, particularly example 4 which requires higher amounts of metal nitrate (25 wt.%) when the concentration of CMI/MI is 25 % (as calculated by the appellant). Furthermore, D1 does not teach the beneficial effect of $MgCl_2$ shown in the patent, i.e. that the stability of a concentrate of CMI/MI is increased by using $MgCl_2$.

Consequently, the subject-matter of granted claim 1 is not rendered obvious by the combination of D1 and D2.

4.6 Based on the above considerations, the board comes to the conclusion that having regard to the cited prior art, it was not obvious to the skilled person to modify the microbicidal composition of the closest prior art such as to arrive at the composition as defined in granted claim 1.

Therefore the subject-matter of claim 1 and by the same token of dependent claim 2 of the main request (the patent as granted) involves an inventive step.

4.7 The board thus comes to the conclusion that the grounds under Article 100(a) EPC do not prejudice the maintenance of the patent as granted.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



N. Maslin

M. O. Müller

Decision electronically authenticated