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**Datasheet for the decision
of 25 March 2014**

Case Number: T 2514/10 - 3.3.01

Application Number: 05257046.2

Publication Number: 1665933

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Language of the proceedings: EN

Title of invention:
Microbicidal composition

Patent Proprietor:
Rohm and Haas Company

Opponent:
Thor GmbH

Headword:
Microbicides/ROHM AND HAAS

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
Inventive step (no), solution obvious in the light of closest prior art



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 2514/10 - 3.3.01

D E C I S I O N
of Technical Board of Appeal 3.3.01
of 25 March 2014

Appellant:
(Opponent)

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Respondent:
(Patent Proprietor)

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Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
26 October 2010 concerning maintenance of the
European Patent No. 1665933 in amended form.**

Composition of the Board:

Chairman: A. Lindner
Members: L. Seymour
C. Brandt

Summary of Facts and Submissions

- I. This appeal lies from the interlocutory decision of the opposition division maintaining the European patent No. 1 665 933 in amended form.
- II. Reference is made herein to the following documents cited during the opposition/appeal proceedings:

(9) EP-A-1 206 933

(10) J. Jänichen, Euro-Cosmetics, Vol. 12,
July/August 2004, 10-16

In this decision, the following abbreviations are used:
MIT for 2-methyl-4-isothiazolin-3-one,
CPG for caprylyl glycol, and
IPBC for 3-iodo-2-propynyl *N*-butylcarbamate.

- III. The opposition was based on the grounds of lack of novelty and inventive step (Article 100(a) EPC).

The claims of the main and sole request underlying the decision under appeal, filed with letter dated 21 November 2008, read as follows:

"1. A microbicidal composition comprising:

(a) 2-methyl-4-isothiazolin-3-one; and

(b) caprylyl glycol

in a weight ratio of 2-methyl-4-isothiazolin-3-one to caprylyl glycol of from 1:0.5 to 1:267.

2. The composition of claim 1 comprising a weight ratio of 2-methyl-4-isothiazolin-3-one to caprylyl glycol of from 1:0.5 to 1:20."

- IV. In the decision under appeal, the opposition division considered that the subject-matter of the main request was novel over document (9), since a multiple selection had to be undertaken in order to arrive at the claimed combination of MIT and CPG.

With respect to the issue of inventive step, the opposition division identified document (9) as representing the closest prior art and defined the problem to be solved as lying in the provision of antimicrobial compositions with synergistic activity against *A. niger*. The opposition division was of the opinion that the use of the claimed combination of MIT and CPG was not rendered obvious by the cited prior art as a solution to this problem.

- V. The appellant (opponent) lodged an appeal against this decision.
- VI. With its letter of response of 4 July 2011, the respondent (patentee) filed an auxiliary request consisting of a single claim, which differs from claim 1 of the main request in that the range of ratios has been limited according to claim 2 of the main request, that is, to "1:0.5 to 1:20" (cf. above point III).
- VII. Oral proceedings were held before the board on 25 March 2014.
- VIII. The appellant's arguments, insofar as they are relevant to the present decision, may be summarised as follows:

The appellant submitted that the disclosure of document (9), with particular reference to paragraphs

[0009], [0020] and [0023], destroyed the novelty of the subject-matter of the respondent's requests.

In its assessment of inventive step of the subject-matter of claim 2 of the main request, and claim 1 of the auxiliary request, the appellant started from document (9) as representing the closest prior art. The appellant disputed that the problem to be solved could be defined as lying in the provision of further synergistic combinations of microbicides, arguing that the experimental data on file did not convincingly demonstrate that synergy could be obtained over the whole breadth claimed. However, the appellant argued that, even were the problem to be so defined, the solution of combining MIT and CPG was taught in document (9) itself, and reinforced in document (10).

IX. The respondent's arguments, insofar as they are relevant to the present decision, may be summarised as follows:

The respondent denied that document (9) was relevant to the issue of novelty. In particular, there was no direct and unambiguous disclosure therein of all the features claimed in combination.

With respect to the issue of inventive step of the subject-matter of claim 2 of the main request, and claim 1 of the auxiliary request, the respondent also started from document (9) as the closest prior art. The problem to be solved was to be seen as generally lying in the provision of further synergistic microbicidal combinations, and, more specifically, with synergistic activity against *A. niger*. The data in Table 1 of the patent in suit, and Table 1 of Appendix 1 filed with letter of 3 August 2010, demonstrated that this problem

had been successfully solved for a range of microorganisms, and in particular *A. niger*.

The respondent submitted that document (9) did not contain any clear signpost directing the skilled person to the claimed compositions. The only combinations exemplified therein contained CPG and IPBC, and this was clearly the preferred embodiment. The general teaching of document (9) was very broad, with respect to the additional preservative, weight ratios and microorganisms envisaged. Moreover, it did not contain any experimental data. The skilled person would therefore disregard this prior art as being speculative and would have no expectation of actually obtaining synergy for the composition now claimed.

Document (10) also did not provide any pointers as to how the problem posed was to be solved. One of the compositions tested in this document contained 0.05% Euxyl K 100 and 0.3% of Dermosoft Octiol. The weight ratio of MIT to CPG in this mixture could be calculated to be about 1:3000, that is, far outside the claimed range. Moreover, it was confirmed on page 16, right-hand column, that no reliable predictions could be made with respect to potential synergies in this mixture.

- X. The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked. The representative of the appellant further requested the referral of two questions to the Enlarged Board of Appeal, if the board intended to acknowledge an inventive step for the main or auxiliary request.

The respondent (patent proprietor) requested that the appeal be dismissed or, alternatively, that the patent

be maintained on the basis of the auxiliary request, filed with its letter of 4 July 2011.

XI. At the end of the oral proceedings, the decision of the board was announced.

Reasons for the Decision

1. The appeal is admissible.

Main request

2. *Novelty (Articles 52(1), 54(2) EPC)*

The appellant contested the novelty of the subject-matter of the main request over the disclosure of document (9). However, the board is satisfied that there is no direct and unambiguous disclosure in this document of the specific combination of features claimed. In view of the outcome of this decision, it is not necessary to give more detailed reasons in this respect.

3. *Inventive step (Articles 52(1), 56 EPC)*

3.1 Claim 2 of the main request relates to a microbicidal composition comprising MIT and CPG in a weight ratio of from 1:0.5 to 1:20 (cf. above point III). These can be used to inhibit the growth of microorganisms in loci, including cosmetics, toiletries, shampoos and soaps (paragraph [0015] of the patent in suit).

- 3.2 The board considers, in agreement with the parties, that document (9) represents the closest state of the art.

This document relates to compositions containing CPG or an analogue thereof, and a preservative agent, and their use in cosmetic formulations (paragraphs [0001]). In the section "Background of the invention" (see paragraphs [0002] to [0008]), it is explained that a disadvantage of using preservative agents in this area is that they may cause adverse effects such as allergic responses and irritation, and that it has now been found that CPG acts as a potentiating agent that enhances the efficacy of the preservative agent, such that less of the latter needs to be used. In paragraphs [0047] to [0049], it is further disclosed that the two components exhibit synergistic effects in terms of anti-microbiological activity, and that their combined use in cosmetic formulations results in good skin tolerance and a broad anti-microbial protection against both bacteria and fungi, in particular against species such as, *Pseudomonas aeruginosa*, *Escherichia coli*, *Staphylococcus aureus*, *Candida albicans* and *Aspergillus niger*.

Suitable preservative agents are listed in paragraphs [0020] and [0021]. The weight ratios of the CPG component to the preservative agent is disclosed in paragraph [0023] as being typically in the range of 0.1 to 500.

The particularly preferred and exemplified compositions comprise CPG and IPBC (see e.g. paragraphs [0010] and [0021]; and examples 2 and 3). Of special interest is a formulation containing about 1% w/w of CPG and about 0.018% w/w of IPBC (paragraph [0027]), corresponding to

a weight ratio of the two components of about 55:1 (cf. paragraph [0023], last line).

- 3.3 In view of this state of the art, the problem underlying the patent in suit, as formulated in the patent specification (see paragraph [0002]) and during the oral proceedings before the board, was to provide further synergistic microbicidal combinations.

It is noted in this context that the respondent did not assert that the present compositions exhibited an improvement with respect to the compositions exemplified in document (9), nor were any comparative data submitted in this respect.

- 3.4 The solution as defined in claim 2 relates to a composition characterised in that MIT is used instead of IPBC as combination partner with CPG, and in a weight ratio of from 1:0.5 to 1:20, instead of about 1:55.

The data in Table 1 of the patent in suit demonstrate that synergy can be achieved within this range for the microorganisms *A. niger* and *C. albicans*. Further confirmation with respect to *A. niger* is provided in Table 1 of Appendix 1 filed by the respondent with letter of 3 August 2010.

Having regard to this data, the board is satisfied that the problem has been solved.

- 3.5 It remains to be investigated whether the proposed solution would have been obvious to the skilled person in the light of the prior art.

3.5.1 As becomes evident from the analysis under point 3.2 above, document (9) already discloses the principle of combining CPG with a number of antimicrobial preservative agents in order to achieve synergistic effects.

Starting from the compositions exemplified in document (9), the skilled person, seeking a solution to the problem defined above, would consider replacing the preferred component IPBC with further preservative agents envisaged therein, and would therefore turn to paragraph [0020] of document (9), which lists methylisothiazolinone as one of the suitable synergistic combination partners.

Provided with this pointer to the claimed combination, it would be a matter of routine experimentation for the skilled person to determine the appropriate weight ratios, within the general ranges and test microorganisms disclosed in document (9), in order to achieve the desired synergism.

Thus, the skilled person would not require any inventive skill to select compositions within the general teaching of document (9) and use them in the manner suggested therein.

3.5.2 The board cannot accept the respondent's submission that the skilled person would disregard the teaching of document (9) as being purely speculative. Although this document does not contain any experimental data, it conveys the clear and specific teaching that CPG provides good skin tolerance in cosmetic products, and that it is useful as a potentiating agent to enhance the efficacy of a wide variety of preservative agents.

The skilled person would therefore have no reason to dismiss this document as lacking any sound basis.

Moreover, contrary to the respondent's submissions, document (10) would rather support the skilled person in this conclusion. This document is a journal article focusing on Dermosoft Octiol (caprylyl glycol). In the section bridging the two columns on page 11, the following is stated (see first two lines and last line):

"In the past years several new multifunctional ingredients which support the control of microbiological growth have been introduced to the cosmetic market.

Dermosoft[®] Octiol (Caprylyl Glycol) is probably one of the most promising multifunctional components in this range of raw materials.

...

Subject of the present study was to investigate potential synergies of further traditional preservatives in combination with Caprylyl Glycol."

One of the traditional preservatives tested is Euxyl K 100, which comprises methylisothiazolinone (see Table 2). Document (10) therefore provides the skilled person with a further motivation to investigate this combination of active agents, as suggested in document (9).

The respondent argued that, based on the teaching of document (10), the skilled person would have no expectation of synergy for the combination of CPG with MIT. Specifically, the respondent referred in this

context to the fact that the weight ratios used in document (10) were outside those claimed, and to statements in the second paragraph in the right-hand column of page 16, which reads as follows:

"In case of the chemically acting preservatives Glydant Plus, Euxyl K 100 the selected use levels tested in the given system were apparently still too high to make reliable predictions about potential synergies. In these cases a further reduction of the concentration should be considered to evaluate potential synergies. Challenge test results after two days, however indicate, that at lower concentrations of these systems a improvement is likely."

The first sentence of this paragraph must be read in conjunction with the last, wherein it is suggested that improvement is likely under different measurement concentrations. It cannot therefore be accepted that the skilled person would be dissuaded from looking at the present mixtures by the teaching of document (10).

Finally, the fact that the present combinations have been shown to have synergistic activity against *A. niger* cannot in itself form the basis for acknowledging an inventive step. As acknowledged in the patent in suit, the range of microorganisms tested, including *A. niger*, "are representative of natural contaminants in many consumer and industrial applications". Moreover, the microorganism *A. niger* is specifically disclosed in paragraph [0049] of document (9) and used in the test system of document (10) (see e.g. page 12, left-hand column).

3.6 In view of the above analysis, the subject-matter of claim 2 of the main request is therefore found to

represent an obvious solution to the problem posed and does not involve an inventive step.

Consequently, the respondent's main request is rejected for lack of inventive step.

4. *Auxiliary request*

Since the subject-matter of claim 1 of the auxiliary request is identical to claim 2 of the main request (cf. above point VI), the considerations concerning novelty and inventive step, as set out above under points 2 and 3, apply equally.

Hence, the auxiliary request is also rejected for lack of inventive step.

5. In view of the outcome of this decision, there is no need to decide on the appellant's request for the referral of two questions to the Enlarged Board of Appeal.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



M. Schalow

A. Lindner

Decision electronically authenticated