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D E C I S I O N
of 10 June 1999

Case Number: T 0830/96 - 3.3.2

Application Number: 88311431.6

Publication Number: 0323049

IPC: A61K 7/30

Language of the proceedings: EN

Title of invention:
Denture cleansing tablet

Patentee:
The Procter & Gamble Company

Opponent:
Reckitt & Colman plc

Headword:
Denture cleansing tablet/THE PROCTER & GAMBLE COMPANY

Relevant legal provisions:
EPC Art. 56

Keyword:
"Straightforward situation - inventive step - no"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0830/96 - 3.3.2

D E C I S I O N
of the Technical Board of Appeal 3.3.2
of 10 June 1999

Appellant: (Opponent)
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Respondent: (Proprietor of the patent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 11 July 1996 rejecting the opposition filed against European patent No. 0 323 049 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman: U. Oswald
Members: J. Riolo
R. E. Teschemacher

Summary of Facts and Submissions

I. European Patent No. 0 323 049 based on application No. 88 311 431.6 was granted on the basis of a set of 10 claims.

Independent claim 1 reads as follows:

"1. Denture cleansing tablet comprising an inorganic persalt bleaching agent, an organic peroxyacid bleach precursor and a solid base material which comprises at least one alkali metal carbonate or bicarbonate and at least one non-toxic, physiologically-acceptable organic acid and which in the presence of water releases carbon dioxide with effervescence, and wherein the organic peroxyacid bleach precursor is selected from polyacylated alkylenediamines and carboxylic esters having the general formula AcL wherein Ac is the acyl moiety of an organic carboxylic acid comprising an optionally substituted, linear or branched C_6-C_{20} alkyl or alkenyl moiety or a C_6-C_{20} alkyl-substituted aryl moiety and L is a leaving group, the conjugate acid of which has a pKa in the range from 4 to 13, and wherein are excluded denture cleansing tablets which additionally comprise a polymeric fluorocarbon binder."

II. Opposition was filed against the granted patent by the appellant. The patent was opposed under Article 100(a) EPC, for lack of inventive step.

The following documents, cited during the proceedings before the Opposition Division and the Board of Appeal, remain relevant for the present decision:

(2) EP-A-0151203

(11) Reiniger & Wäscher, XXXVI, Heft 9/83, S. 21-27

(15) "Bleaching, The Search for Whiteness", Ben Milwidsky, Household & Personal Products Industry, November 1982

III. The decision of the Opposition Division of 25 June 1996, posted on 11 July 1996, established that the subject-matter of the patent in suit as granted met the requirements of Article 52(1) and 56 EPC over the available prior art documents, inter alia documents (2) and (11), and that the opposition had to be rejected under Article 102(2) EPC.

The arguments in the decision may be summarised as follows:

With respect to document (2), which was regarded as representing the closest state of the art, the problem underlying the patent in suit was to provide a denture cleansing tablet which cleaned more rapidly and which was more efficacious on plaque, mucilageneous and bacterial deposit.

This problem was solved by the distinguishing feature over (2) ie the presence of an organic peroxyacid bleach precursor in the claimed compositions.

The Opposition Division concluded that the above solution was not obvious over the available prior art for the following reasons:

Although (11) disclosed that free peracetic acid was used for cold sterilisation of dentures, it was silent about the use of an organic peracid bleach precursor (such as TAED) for the cleansing of dentures. Moreover, the Opposition Division was of the opinion that the efficiency of a peroxyacid in its free form cannot be used to predict the efficiency of a peroxyacid bleach precursor especially when it was applied for a different purpose, ie denture cleansing instead of laundry washing.

Referring to (11), wherein it was disclosed that the results concerning the efficiency for sterilisation purposes in the field of medicine and food technology of the bleaching agent peracetic acid could not be used to predict the efficiency in the treatment of laundry, the Opposition Division considered that the efficiency of the bleaching agents cited in the documents relating to detergents was not predictable for the treatment of dentures.

Although the parties failed to demonstrate any differences or absence of differences in the deposits formed in the mouth and in laundry, the Opposition Division was convinced that, due to the different conditions in both substrates, a different kind of deposit should occur.

Moreover, the Opposition Division noted that laundry washing compositions were used at higher temperatures (40-95°C) than denture cleansing compositions (0-40°C), which confirmed that the skilled person would not have combined the teachings in the field of laundry washing with those in the field of denture cleansing as he had

no hint to use a peroxyacid bleach precursor in a composition usually applied at low temperature.

Finally, the Opposition Division considered that the period of time which had elapsed between the disclosure of the use of the organic peroxyacid bleach precursors in laundry washing compositions and their use in denture cleansing compositions according to the patent in suit (ie almost one decade), was relatively long, taking into account the rapidly developing field of denture cleansing.

IV. The appellant (opponent) lodged an appeal against this decision.

V. Oral proceedings were held before the Board on 10 June 1999

VI. The appellant maintained the grounds of opposition under Article 100(a) EPC as to the lack of inventive step of the patent-in-suit.

For the assessment of inventive step the appellant submitted that the subject-matter of the patent in suit was obvious in the light of the available prior art for the following reasons:

Document (11) disclosed that free peracetic acid was used for the low-temperature sterilisation of dentures. It moreover disclosed that activators containing acetyl groups reacted with household bleaching agents to form peracetic acid and that they were therefore low-temperature bleaching and sterilising agents. Therefrom the appellant deduced that it was obvious for the

skilled person, a chemist having knowledge in the field of cleansing compositions, to replace the free peracetic acid used for the cleansing of dentures by activators such as TAED.

The appellant disagreed with the findings of the Opposition Division that the efficiency of the free peroxyacid could not be used to predict the efficiency of a peroxyacid bleach precursor.

He contended that the skilled person had no reason to doubt the efficiency of a peroxyacid bleach precursor such as TAED since (11) (page 21, column 3, last paragraph to column 4, first paragraph) taught that these activators generated peroxyacid in situ. He would therefore expect the same properties once the peroxyacid was formed.

The appellant pointed out that, contrary to the Opposition Division's findings, it was clear from document (11)(page 21, third column, third paragraph, second sentence: from 40°C) that activators for inorganic peroxide compounds were employed at low temperature as well.

As regards (15)(page 60, right-hand column, first and sixth paragraphs), the appellant stressed that, also from this document, it was obvious to the skilled person that perborate plus activator should be employed for denture cleansing at low temperature.

As further evidence to show that the person skilled in the art would have considered not only the prior art in the area of denture cleansing tablets but also prior

art in the area of laundry detergents, further documents in which both fields were connected were introduced into the appeal.

VII. The respondent (patentee) contested these arguments.

As background, the respondent explained that denture plaque is characterised by a complex and somewhat variable micro flora of germ organisms. He concluded that, for the reasons given in the opposition decision and in particularly in the light of the striking differences in the product form, types of deposit and in-use conditions between denture cleansing and laundry, the combination of the prior art (2) with a document from the field of laundry washing would not have been envisaged by the skilled person in order to solve the problem of the provision of a denture cleansing tablet which was more efficacious in killing plaque-related microorganisms and which was at the same time safe, convenient, practical and stable during manufacture, storage and use. This was highlighted by the fact that although activators were known in the field of laundry washing as early as 1960, nobody ever envisaged their use in the field of denture cleansing.

The respondent further contended that even if the skilled person had consulted the laundry art he would not have expected TAED to be effective in denture cleansers because of the striking differences between denture cleansing and laundry detergent situations such as different in-use conditions (different temperature and pH range), product form (tablet instead of granule) and type of deposits (eg pathogen yeasts such as Candida species).

As regards the relevance of document (11), the respondent was of the opinion that it did not in fact contain any hint at the use of compounds such as TAED in the treatment of dentures. On the contrary, the skilled person would have been diverted from using any activator for perborate in a cleansing denture tablet as he would expect the reaction generating the active peracetic acid to be inadequately slow to provide a satisfactory antimicrobial effect within the short time range usual in denture cleansing ((11) page 21, column 3, last sentence to column 4, first paragraph).

Concerning the remaining documents, the respondent pointed out that none of these documents contained any suggestion that acyl activators such as TAED would be useful as activator in a denture cleansing tablet for providing a significant germ kill in the cold to lukewarm temperature ranges.

VIII. The appellant requested that the decision under appeal be set aside and that the patent No. 0 323 049 be revoked.

The respondent requested that the appeal be dismissed and that the patent be maintained.

Reasons for the Decision

1. The appeal is admissible.

2. The Opposition Division examined the novelty of the subject-matter of the patent in suit on its own motion

according to Article 114(1) EPC. It came to the conclusion that the available prior art did not disclose the subject-matter of the patent in suit. Novelty has not been contested by the appellant.

The Board has no reason to depart from these findings.

3. It remains to consider in the present decision whether or not the subject-matter of Claim 1 involves an inventive step within the meaning of Articles 52(1) and 56 EPC.

3.1 As acknowledged by the parties, the Board, considers document (2), which also deals with anti-plaque denture cleansing tablets, as representing the closest state of the art.

Document (2)(page 16, line 8 to page 19, line 25) describes effervescent denture tablets comprising inorganic persalt bleaching agents (perborate, persulfate) and an effervescent solid base material (sodium carbonate/bicarbonate and citric acid) according to claim 1 of the patent in suit.

The tablets according to document (2) possess anti-plaque activity as well as good cleansing, bleaching, disinfecting and antibacterial properties (page 1, lines 3 to 6).

In relation to (2), the problem underlying the patent in suit can be seen in the provision of a denture cleansing tablet having an improved cleansing activity.

The Board notes that the formulation of this problem is

not in contradiction to the respondent's point of view when analysing what is really achieved by the teaching of the patent in suit over that of document (2) (point VII, second paragraph, second sentence).

Having regard to the worked examples of the patent in suit, the Board is satisfied that the problem has been plausibly solved by the denture composition of claim 1. This was not contested by the appellant.

The question to be answered is thus whether the proposed solution was obvious for the skilled person faced with the problem defined above in the light of the prior art documents, inter alia documents (2), (11) and (15).

Contrary to the effervescence denture tablet of the patent-in-suit, the effervescent denture tablets disclosed in the closest prior art (2) do not contain organic peroxyacid bleach precursors ie acyl activators such as TAMD (tetraacetylmethylene diamine) or TAED (tetraacetylethylene diamine).

The skilled person is however clearly taught in document (15) (page 60, right column, first paragraph under "Activators for Perborate"), cited during the appeal proceedings as the background art of document (11), that the bleaching activity of perborate can be improved by adding TAMD ie an organic peroxyacid bleach precursor according to claim 1 of the patent-in-suit.

In fact (15) teaches that the bleaching agent perborate has a disadvantage since it liberates active oxygen

slowly at low temperature and that therefore in order to achieve rapid bleaching at low temperature an organic peroxyacid bleach precursor has to be added.

Accordingly, the skilled person wishing to improve the cleansing properties of the perborate containing effervescent denture tablets of (2) which are used at low temperature ie 37°C (page 21, paragraph 2, second sentence) would inevitably consider organic peroxyacid bleach precursors such as TAMD as a means of solving this problem.

In view of the above it is concluded that the subject-matter of claim 1 does not involve an inventive step.

3.2 The main argument raised by the respondent was that the prior art was silent about the use of acyl activators in denture cleansing tablets for improving antimicrobial activity.

In that respect the comparative experiments filed during the proceedings the letter of 15 May 1996 demonstrated that the acyl activator TAED containing denture cleansing tablets of the patent-in-suit provided significantly greater levels of kill of the pathogen yeast Candida albicans (ie an improvement of a factor of 100) as well as significantly increased rate of germ kill versus an equivalent non TAED formulation.

The Board agrees with these submissions. However, the Board takes the position that the teaching of document (15) creates a "straightforward" situation for the skilled person as explained under 2.1. Accordingly, the improved antimicrobial effect cannot substantiate an

inventive step as it has been achieved inevitably on the basis of an obvious measure that the skilled person would have taken in any case since it leads to other predictable advantages ie improved bleaching at low temperature, the more so because both effects (bleaching and microbicide) are in fact achieved simultaneously by the same agent ie active oxygen.

In that respect, the skilled person in the present case may be expected to have good knowledge of the field of cleansing in general.

Therefore, the skilled person is well aware of publications concerning bleaching in general such as (15) and (11). The question whether he would consult the laundry art in order to solve a problem in the field of denture cleanser tablets is therefore irrelevant.

The appellant pointed out that the long period of time that elapsed between the first publication relating to the use of organic peroxyacid bleach precursors for laundry compositions (see document (15) referring back to a congress held in 1964) and the present patent (priority date of 3 December 1987) was that TAED was not available on the market before 1980.

The respondent did not contest this information and the Board can accept this as a plausible explanation of the delay in using organic peroxyacid bleach precursors for denture cleansing compositions.

Whereas it is true that document (11) is in fact silent about any precise time requirements as regards the

disinfection action of the perborate/TAED system, the Board remains convinced, in the absence of concrete evidence for a technical prejudice, that the skilled person **would in any case try** to use an acyl activator in the effervescent tablet according to (2).

The problem that the pH range of 7 to 8 of denture cleansing solutions did not allow an efficient reaction between perborate and acyl activator such as TAED was already known to be overcome by the use of an effervescent system in the tablets before the priority date of the patent in suit.

The same applies mutatis mutandis to the question raised by the respondent concerning the solubility problem linked to the use of the water insoluble TAED as activator. It is, moreover, stressed that the subject-matter of claim 1 is not restricted to TAED. Accordingly, these points are irrelevant as far as other activators such as TAMD are concerned.

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:

E. Görgmaier U. Oswald