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File No.: T 0640/90 - 3.3.2

Application No.: 82 304 154.6

Publication No.: 0 076 563

Classification: A61K 7/16

Title of invention: Toothpaste

**D E C I S I O N**  
of 30 September 1993

Applicant: -  
Proprietor of the patent: Beecham Inc.  
Opponent: Blendax GmbH

Headword: Multi-phase toothpaste/BEECHAM

**EPC:** Art. 56

**Keyword:** "Inventive step (yes) - non-obvious solution"



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Boards of Appeal

Chambres de recours

Case Number: T 0640/90 - 3.3.2

**D E C I S I O N**  
**of the Technical Board of Appeal 3.3.2**  
**of 30 September 1993**

**Appellant:** Beecham Inc.  
(Proprietor of the patent) 3 Garret Mountain Plaza  
West Paterson New Jersey 07424 (US)

**Representative:** Mrs. B.A. Lockwood  
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Beecham Pharmaceuticals  
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**Respondent:** Blendax GmbH  
(Opponent) Rheinallee 88  
D - 55120 Mainz (DE)

**Representative:** Patentanwalt Dr. N.G.M. ter Meer und Partner  
Mauerkircherstraße 45  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office dated 9 May 1990, posted on  
8 June 1990, revoking European patent  
No. 0 076 563 pursuant to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** A.J. Nuss  
**Members:** D. Holzner  
S.C. Perryman

## Summary of Facts and Submissions

I. European patent No. 0 076 563 was granted on 11 November 1987 with six claims in response to the European patent application No. 82 304 154.6.

II. Notice of opposition was filed against the European patent by the Respondent. Revocation of the patent was requested on the grounds of Articles 100(a) and 56 EPC.

During the procedure before the Opposition Division the following documents, *inter alia*, were cited:

- (3) GB-A-962 757
- (4) US-A-2 905 364
- (5) DE-A-2 619 936
- (8) US-A-3 980 767 (corresponding to DE-B-1 937 001).

III. The Opposition Division revoked the patent by a decision delivered orally on 9 May 1990, with written reasons posted on 8 June 1990. The ground was lack of inventive step (Article 100(a) EPC).

It took the technical problem as being to provide a toothpaste exhibiting excellent cleaning and polishing properties together with a high visual attractiveness and considered that the closest prior art was constituted by (8). There were two differences, existing between the claimed toothpaste and the one known from (8), namely the reversal of the phases and the use of more than one colour for the stripes. These differences, however, were obvious for the skilled person, because there was a limited and small number of possibilities of making striped toothpastes.

After enumerating what it considered these possibilities to be, the Opposition Division concluded that there was a "one way street" situation which would have led the person skilled in the art to arrive at the claimed way of arranging and selecting the material constituting the main body and the stripes, as a solution to the problem.

It thus concluded that none of the requests presented satisfied Article 56 EPC.

VI. The Appellant (the Proprietor of the patent) filed an appeal against this decision on 1 August 1990 with payment of the fee.

At the oral proceedings on 30 September 1993 the Appellant submitted a main request and an auxiliary request.

Claim 1 of the main request is worded as follows:

- "1. A multi-phase toothpaste which, both inside a collapsible container and when extruded therefrom through a nozzle, comprises a paste matrix and a plurality of secondary paste bodies embedded in and discrete from the matrix, characterised in that from 60 to 80% w/w of this total paste consists of the paste matrix, which is an opaque material containing a cleaning or polishing agent, and from 20 to 40% w/w of the total paste consists of the secondary bodies which include at least two transparent or translucent gel bodies of different colours and which are in the form of gel stripes partly contained within the matrix so that a portion of the surface of the stripes is exposed at the surface of the toothpaste."

V. The Appellant argued substantially as follows:

- (a) The problem underlying the patent in suit was the provision of an improved striped toothpaste exhibiting excellent cleaning and polishing properties together with high visual attractiveness.

The subject of Claim 1 of the main request, relating to a multi-phase striped toothpaste, solved this problem.

- (b) The visual attractiveness of the toothpaste concerned played an important role which was appreciated by the consumers in particular for the type of product presented in a transparent pump dispenser through which the colours of stripes could be seen in comparison with the toothpaste presented in conventional collapsible tubes.
- (c) Moreover, improved cleaning and polishing properties had been demonstrated by test results supplied during the opposition procedure. The samples made available at the oral proceedings showed that the product of the invention was visually attractive.
- (d) The toothpaste according to Claim 1 was inventive over the prior art. It was true that documents (4) and (5) suggested the use of multi-coloured stripes for a toothpaste, however, this was in the context of opaque stripes on opaque bodies.

When comparing the composition of the toothpaste of Claim 1 with the one known from (8), significant differences would be noticed going beyond just a

reversal of phases. (8) did not contain any guidance for developing a toothpaste with the characteristic features according to Claim 1 and its useful properties. Thus, the invention could not be derived from the teaching of (8).

- (e) Even if the thought of making such a phase inversion had occurred to someone faced with the problem of designing an alternative toothpaste, the consequence of this phase inversion might have been that the translucent stripe, which was already present in the tube, would sink into the opaque matrix and become invisible, thus causing the paste to be less attractive. This possible disadvantage did not arise to the same extent with the paste of (8) as though an opaque stripe could sink slightly into the matrix, it would still be visible because the matrix was transparent or translucent. This disadvantage of a translucent stripe resulted in a prejudice which would have led away from the invention.
- (f) Stripes of at least two colours, could have been realised by changing (8) to have a set of coloured opaque stripes as well as a set of white opaque stripes.
- (g) For these reasons the Opposition Division's judgment under 2.4 and 2.5 was wrong, as the invention was a combination of all features given in Claim 1. In particular, their view of a "one way street" situation was disputed, as there had been a whole variety of options for a novel toothpaste. Out of these, it had been just the one chosen by the inventors which proved suitable to solve the problem set out above, providing a toothpaste

("Aquafresh 3" in Germany "Odol-med 3"), including at least two transparent or translucent gel bodies of different colours.

- (h) If this had been obvious from the prior art, other parties had the opportunity to formulate such a toothpaste, the more so as the British patent (3), related to the so-called Evans technology of the filling of toothpaste tubes, had expired in the middle of the seventies, but they did not do so.

VI. The Respondent (Opponent) submitted substantially the following arguments:

- (a) The teaching of document (8) disclosed a gel/gel combination. However, a gel body comprising chalk would become opaque. It was furthermore known from (8) that it was preferable to keep the proportion of secondary material below 25% v/v. The proportion of bodies of the toothpaste of the patent in suit was not a technical selection, but was only for visual reasons. Document (8) disclosed further that the main body may be coloured if desired, provided it remained reasonably transparent or translucent, and also the secondary material may be coloured if required, for example by an insoluble colouring material.
- (b) From (4) a dispenser for striped toothpaste was known which worked in the following way: one space in it contained a striping paste of one colour, and another space in it contained a different colour striping paste such that two different coloured stripes were applied to a dispensed stream of toothpaste.

- (c) In addition to that it was known from (5) that a three-coloured striped stream of toothpaste can be obtained. This showed that there had been a one way situation: the only possibility had been the one the patentee had taken.

The alleged invention was just the reversal of what was disclosed in (8).

- (d) With regard to advantages mentioned by the Patentee there was no surprising technical effect. The toothpaste concerned showed only acceptable performance; no surprising superiority was shown.

In particular the comparative tests, referred to by the patentee, showed no **surprising** effect as to abrasiveness, as it was known from (8) that the concentration of abrasive in the stripe or stripes should be high and was preferably in the range of 15 to 75%. As in this comparative test work the "3-Phase Formula" contained a higher percentage of abrasive the skilled person would have expected the result obtained.

- (e) In summary, as (8) was the closest prior art, it had been obvious to try to just reverse its teaching and see what happens. Along these lines there was no prejudice derivable from (8) and there was no unexpected technical effect demonstrated for the claimed toothpaste.
- (f) At the oral proceedings the Respondent also objected that the example as amended was not fairly based on the original application.



VII. The Appellant requested that the decision under appeal be set aside and as main request that the patent be maintained in amended form on the basis of Claims 1 to 5 of the main request and pages 3 and 4 of the description, both as submitted at the oral proceedings of 30 September 1993, and as auxiliary request that the patent be maintained on the basis of Claims 1 to 3 of the auxiliary request and pages 3 and 4 of the description, both as submitted at the oral proceedings of 30 September 1993.

The Respondent requested that the appeal be dismissed.

#### **Reasons for the Decision**

1. The appeal is admissible.

2.1 The Board considers that the claims and the description of the main request are fairly based on the application as originally filed taken as a whole. The Respondent's objection that the example as amended was not fairly based on the original application focuses too narrowly on the wording of the original examples, and does not allow for the fact that these examples must be read in the light of the original application as a whole. The Claim 1 is based on a combination of Claims 1 and 2 as granted. The Board thus considers that the main request complies with Article 123 EPC.

2.2 Neither the Respondent nor the Board raised any objections that the invention lacked novelty. Accordingly, the only other issue that falls to be decided in these appeal proceedings is that of inventive step.

- 3.1 The Board considers as closest prior art document (8) US-A-3 980 767 (corresponding substantially to DE-B-1 937 001) of the Appellant, and the product substantially in accordance with this patent that was marketed by the Appellant under the name "Aquaafresh 2".

Document (8) discloses a gel toothpaste comprising:

- (A) a first transparent gel body substantially free of dental abrasive, and
- (B) a second gel body or bodies comprising a solid finely divided dentally acceptable abrasive.

The main body may, if desired, be coloured, as stated in column 2, line 18. However, document (8) emphasises the specifically gel type character of the toothpaste by adding "provided it remains reasonably transparent or translucent" (column 2, lines 18 to 19).

Document (8) states that it is preferable to keep the proportion of secondary material below 25% v/v (column 2, lines 32 to 34) though typically the proportions of the main and secondary bodies would be 99.8 to 90% main body and 0.2 to 10% secondary body (see column 3, lines 3 to 6 and Claim 6). The Appellant acknowledged that in the product as commercialised as "Aquaafresh 2", the proportion of secondary body had risen to 38%.

- 3.2 In relation to this closest prior art, the Board considers that the problem to be solved can be stated as being to provide an alternative toothpaste which has satisfactory cleaning properties while remaining visually attractive.

Taking into account the results submitted by the Appellant regarding the cleaning effect of the toothpaste now claimed compared to that of a toothpaste in accordance with document (8), and the samples available at the oral proceedings, the Board considers that the above-stated problem has been plausibly solved by the toothpaste with the features required by Claim 1 of the main request.

4.1 The essential differences between the toothpaste now claimed and that of document (8) are:

- (1) The toothpaste of (8) has opaque stripes containing cleaning agent, with the stripes partly contained in a transparent or translucent gel matrix, whereas the toothpaste now claimed has transparent or translucent gel stripes partly contained within an opaque matrix containing the cleaning agent. This feature will be referred to as an inversion of phases.
- (2) The stripes in each case form a minority of the material of the toothpaste, but according to the presently claimed toothpaste the majority material contains the cleaning agent, whereas according to (8) it was only the minority material which could contain the cleaning agent.
- (3) The stripes are of at least two different colours.

4.2 There is no hint in (8) that such an inversion of phases is a possibility. Further, as the Appellant submitted, even if the thought of making such a phase inversion had occurred to someone faced with the problem of designing an alternative toothpaste, the consequence of this phase inversion could be that the translucent stripe, which is

already present in the tube, sinks into the opaque matrix and becomes invisible, thus causing the paste to be less attractive. This possible disadvantage does not arise to the same extent with the paste of (8) as though an opaque stripe may sink slightly into the matrix, it would still be visible because the matrix is transparent or translucent. Document (8) contains no information that would assist the skilled person in assessing this possible effect.

Obviously as there is no evidence that anyone has thought of phase inversion before the date of the present invention, this disadvantage cannot be considered as founding a prejudice against phase inversion. However the Board accepts that this disadvantage is something that should be taken into account when considering whether the skilled person would have considered phase inversion and the other limitations required by Claim 1 as a solution to the problem that had a reasonable chance of being successful. Neither (8) nor any of the other documents cited by the Respondent taken either by themselves or in combination with (8) suggest that this was a solution.

- 4.3 Document (8) itself mentions coloured products (column 3, lines 1 to 2 and column 2, lines 18 to 19), but not in a manner which even gives a hint at the inversion of the phases.
- 4.4 Whereas with hindsight the inversion of the phases may appear a minor variation, the fact remains that many years passed between the publication of (8) and the date when the Appellant applied for the presently claimed invention, and no-one else appears to have considered the inversion of phases as a solution.

- 4.5 Merely because the change can be described shortly as an "inversion of phases" does not mean that no major changes from the prior art are involved by what is claimed in Claim 1 of the main request. There is a very marked difference between the teaching of the preferred embodiment of (8) in which the gel makes up 99.8 to 90% of the weight of the paste, and the opaque material only 0.2 to 10% on the one hand, and the requirements of the present Claim 1 in which the gel makes up between 20% and 40% of the paste and the opaque material 60% to 80%. The difference over what was commercially sold as "Aquaafresh 2" is less, but even here a major change is involved. In the absence of any suggestion or hint in the prior art that this change would produce a useful result, it cannot be considered obvious.
- 5.1 Document (3) is specifically concerned with the filling of tubes, in particular toothpaste tubes, and discloses the method the Appellant acknowledges is used in carrying out the present invention. However, it provides no indications as to material composition, or as to gel or non-gel phases which are the subject of the present Claim 1.
- 5.2 Document (4) (see column 1, lines 65 to 70, column 3, lines 41 to 46 and 62 to 66) and (5) (see page 3, paragraph 3) are concerned with manufacturing striped toothpastes by a method known as the Marraffino method in which thin stripes of coloured material are applied when the toothpaste is squeezed out of the tube. In this method there is no striped toothpaste already present in the tube, and the stripes are extremely thin, and do not form any substantial part of the paste. There would be no risk here of the stripe disappearing in the matrix during storage of the tube.

There is nothing in these documents that would suggest to the person in the art the inversion of the phases disclosed in document (8) in the manner now claimed.

5.3 The third difference over (8), namely having stripes of at least two colours, could, as submitted by the Appellant, have been realised by changing (8) to have a set of coloured opaque stripes as well as a set of white opaque stripes. It was known from the prior art to have toothpastes with stripes of two different colours. Thus while the Board accepts that it was an obvious modification of (8) to produce a toothpaste with stripes of at least two different colours, such a modification does not in any obvious way lead to something falling within present Claim 1.

6. For the above reasons the Board concludes that the subject-matter of Claim 1 of the main request must be considered as involving an inventive step over the prior art put before the Board. The other claims of the main request depend on Claim 1, so that they need not be separately considered for conformity with Article 56 EPC. Accordingly the main request is allowable.

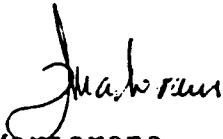
## **Order**

**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 maintain the patent on the basis of Claims 1 to 5 of the main request and pages 3 and 4 of the

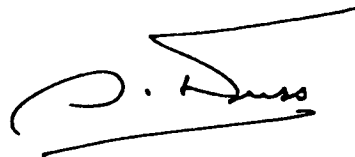
description, both as submitted at the oral proceedings of 30 September 1993, and the remainder of the description to be adapted.

The Registrar:



P. Martorana

The Chairman:



A.J. Nuss

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