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**Datasheet for the decision  
of 25 October 2007**

**Case Number:** T 0529/05 - 3.3.07

**Application Number:** 00915858.5

**Publication Number:** 1171082

**IPC:** A61K 7/06

**Language of the proceedings:** EN

**Title of invention:**  
Hair care compositions

**Applicant:**  
THE PROCTER & GAMBLE COMPANY

**Opponent:**  
-

**Headword:**  
-

**Relevant legal provisions:**  
EPC Art. 123(2), 56

**Keyword:**  
"Inventive step (no) - problem and solution"

**Decisions cited:**  
T 0020/81, T 0037/82, T 0181/82, T 0939/92, T 0079/05,  
T 0258/05

**Catchword:**  
-



Case Number: T 0529/05 - 3.3.07

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.07  
of 25 October 2007

**Appellant:** THE PROCTER & GAMBLE COMPANY  
One Procter & Gamble Plaza  
Cincinnati, Ohio 45202 (US)

**Representative:** Hirsch, Uwe Thomas M.H.  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 15 February 2005  
refusing European application No. 00915858.5  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

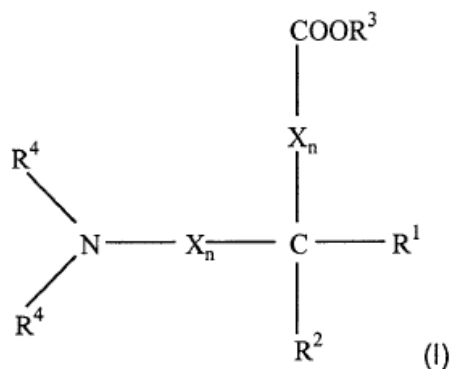
**Chairman:** S. Perryman  
**Members:** B. Struif  
B. ter Laan

## Summary of Facts and Submissions

I. The appeal lies from the decision of the examining division refusing European patent application No. 00 915 858.5 originating from international application PCT/US00/04707 having an international filing date of 24 February 2000 and published as WO-A-00/51552. The application as filed comprised fourteen claims. Independent Claim 1 read as follows:

" A hair care composition comprising:

(a) at least one compound according to general formula (I):



wherein;

each X is independently selected from substituted or unsubstituted, saturated or unsaturated carbon;

n is 0-10;

R<sup>1</sup> is selected from hydrogen, alkyl, arylalkyl or alkaryl;

R<sup>2</sup> is selected from:

(i) hydrogen;

(ii) alkyl, preferably C<sub>1</sub>-C<sub>8</sub> alkyl, more preferably C<sub>1</sub>-C<sub>4</sub> alkyl;

(iii) aryl, alkaryl, arylalkyl;

(iv) hydroxyalkyl, hydroxyaryl, hydroxyalkaryl, hydroxyarylalkyl;

(v)  $-Z_m-N(R^5)_2$ ;

(vi)  $-Z_m-Y-C(N(R^5)_2)=NR^5$ ;

(vii)  $-Z_m-S-Q$ ;

(viii)  $-Z_p-S-S-Z_p-CR^5(N(R^5)_2)-COOR^6$ ;

(ix)  $-Z_m-COOR^5$ ;

each m is, independently, 0-8, preferably 1-4;

each p is, independently, 0-2, preferably 0;

each Z is, independently, selected from substituted or unsubstituted, saturated or unsaturated carbon;

Y is selected from a covalent bond and  $NR^5$ ;

Q is selected from hydrogen or alkyl;

$R^3$  is selected from alkyl, aryl, alkaryl, arylalkyl,  $-CF_3$ ;

each  $R^4$  is, independently, selected from hydrogen and alkyl (which can be aliphatic or can be bonded to the  $R^2$  position to form a ring structure);

each  $R^5$  is, independently, selected from hydrogen and alkyl;

$R^6$  is selected from hydrogen alkyl, aryl, alkaryl, arylalkyl, and  $-CF_3$ ;

and

(b) a cosmetically acceptable carrier."

II. In its decision posted on 15 February 2005, the examining division refused the application due to lack of an inventive step in view of the following document:

D1: GB-A-987 800

The decision was based on an amended set of claims filed with letter dated 12 October 2004. Claim 1 read as follows:

"A hair care composition comprising:

(a) tyrosine methyl ester, methionine methyl ester, or mixtures thereof and

(b) a cosmetically acceptable carrier."

III. The decision can be summarized as follows:

As regards inventive step, the closest prior art document D1 described ethanolic solutions of amino acids and alkyl esters thereof. Ethanol was a cosmetically acceptable carrier, as disclosed in example IV of the application as filed. The claimed subject-matter differed from D1 only in that tyrosine methyl ester or methionine methyl ester, or a mixture thereof, were selected as amino acid esters. There was no evidence on file that those selected compounds provided the best solution concerning problems of water solubility and odour. The problem to be solved over D1 was therefore to provide compositions having similar effects. The applicant merely applied the teaching of D1 without exercising any inventive activity. Thus, the claimed subject-matter did not comply with Article 56 EPC.

IV. On 5 April 2005, the applicant (appellant) filed a notice of appeal against the above decision and requested that the decision under appeal be set aside and also that the appeal fee be reimbursed. The prescribed appeal fee was paid on the same day. The statement setting out the grounds of appeal was also filed on 5 April 2005.

- V. In a communication of 24 July 2007, the board addressed the points to be discussed during the oral proceedings, *inter alia* the presence of an inventive step as well as the reimbursement of the appeal fee.
- VI. By letter of 4 September 2007, the appellant withdrew their request for reimbursement of the appeal fee.
- VII. Oral proceedings were held on 25 October 2007 during which the appellant submitted a set of claims 1 to 8 as the new main request and two diagrams relating to the "solubility of amino acids".

Amended claim 1 reads as follows:

"A hair care composition comprising:

a. tyrosine methyl ester, methionine methyl ester or a mixture thereof in an amount by weight of the composition of from 0.01 to 5 %;

b. a cosmetically acceptable carrier including from 25% to 99% of water, by weight of the hair care composition."

- VIII. The arguments of the appellant can be summarized as follows:

(a) The amendments in claim 1 had a basis in the application as filed on page 8, first and second paragraph and page 42 last paragraph. All ester compounds listed on page 8 had essentially the same technical effect and no purposive selection

had been made from that list. Thus, the requirements of Article 123(2) EPC were met.

- (b) None of the cited prior art documents including D1 disclosed hair care compositions comprising tyrosine methyl ester, methionine methyl ester or a mixture thereof. Thus, the claimed subject-matter was novel.
- (c) As regards inventive step, D1 was the closest state of the art. The technical problem to be solved over D1 was to provide further hair care compositions. D1 addressed compositions in alcohol which comprised less than 10% of water. Such solutions were not suitable carriers for hair care compositions. Furthermore, the utility in aqueous systems of the two specific esters was not mentioned in D1. The diagrams submitted during the oral proceedings illustrated the poor water solubility of some amino acids. Thus, D1 did not suggest that the skilled person could use such esters in aqueous systems. Also, D1 did not teach that tyrosine methyl ester and/or methionine methyl ester provided benefits having regard to odour issues. For those reasons the claims were inventive.
- (d) As regards the water solubility and odour issues, the examining division had required experimental evidence to support the statement in the description. The beneficial effect of the amino acid esters used was however inherent from their structure so that no evidence was required to show that. According to the case law, suitable evidence

was not necessarily in the form of experimental evidence and it was sufficient that a statement was made. The circumstances in which the examining division may request experimental evidence from the applicant during examination should therefore be clarified.

- IX. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 8 submitted during the oral proceedings on 25 October 2007.

### **Reasons for the Decision**

1. The appeal is admissible

#### *Amendments*

2. Claim 1 of the main request differs from claim 1 of the application as filed in three aspects. In the first aspect the compounds (a) are specified to be tyrosine methyl ester, methionine methyl ester, or a mixture thereof. Those compounds are mentioned on original page 8, first paragraph in a list of preferred compounds reading: "methionine methyl ester, tryptophan methyl ester, tyrosine methyl ester, cysteine methyl ester, cystine dimethyl ester and mixtures thereof". That list comprises five ester compounds from which two compounds or a mixture thereof are chosen.
- 2.1 The second amended feature concerns the amount of the specific esters of 0.01 to 5% by weight of the composition. A general basis for that amount can be



found on page 8, second paragraph reading: "the composition of the present invention comprise more preferably from about 0.01 to about 5%... of total compounds according to a general formula (I)".

2.2 The third amendment concerns the presence of water in an amount of 25 to 99% by weight of the composition, which weight percentage has been mentioned in the application as filed, page 42, last paragraph, reading as follows: "The compositions of the present invention will also preferably comprise water. When present water will generally comprise from about 25% to about 99% ... of the total composition."

2.3 Although each of the three amended features as such is disclosed in the application as filed, it is questionable whether or not those features are disclosed in combination. The board notes that none of the features can be derived from the original claims. Furthermore, according to the description, the term "a cosmetically acceptable carrier" means one or more compatible solid or liquid fillers, diluents, extenders and the like (page 10, last paragraph). That broad definition includes for example water or alcohol as diluents (see page 42, last paragraph and page 37, last two paragraphs), and the hair care composition may comprise for example diluents to form solutions, aerosols or emulsions (see page 11, lines 5 and 6). However, water is not an obligatory component (see the term "When present"; original page 42, last paragraph; point 2.2 above), as further illustrated by example IV wherein a hair care composition is described containing only ethanol as diluent but not including water.

2.4 In addition, only examples I and VI of the application as filed illustrate tyrosine methyl ester or a mixture of methionine methyl ester and tyrosine methyl ester in water within the amounts now claimed. However, examples I and VI also contain other specific components which are not mentioned in claim 1, such as arginine and hydroxypropyl methyl cellulose in example I, or phenylalanine and polyquaternium-4 in example VI. Thus, the basis of the claimed combination in those examples is questionable, as long as the other specific components of these examples are not incorporated into the claim. The remaining seven examples as filed include methyl ester of amino acids other than the claimed ones and provide no basis for the amendments at all.

2.5 From the above it follows that the amended features now claimed must be selected from more than one list, that is, a specific list of amino acid methyl esters on the one hand and a further list of suitable cosmetically acceptable carriers in a specific concentration on the other hand. Consequently, the Board has serious doubts whether the present combination of features now being claimed can directly and unambiguously be derived from the application as originally filed.

2.6 Since, however, the Board has come to the conclusion that the claimed subject-matter lacks an inventive step, a final decision on the formal objection under Article 123(2) EPC can be left open.

*Novelty*

3. Novelty was no issue in the decision under appeal since the examining division was of the opinion that tyrosine methyl ester, methionine methyl ester or a mixture thereof were not disclosed as such in D1 (see reasons point 3). The Board sees no reason to take a different view, as will become apparent from the discussion on inventive step.

*Inventive step*

*Closest state of the art*

4. The patent in suit concerns hair care compositions. Such compositions are known from the prior art, in particular D1. The appellant accepted in the oral proceedings before the Board that D1 could be considered as the closest state of the art for the purpose of the present claims.
  - 4.1 D1 discloses toilet preparations characterised by containing one or more amino acids and one or more esters of amino acids and/or hydrochlorides of the said esters in ethanolic solution containing not more than 10% by weight of water (claim 1).
  - 4.2 Amino acids which may be used according to D1 include, for example, glycine, alanine, valine, leucine, isoleucine, threonine, aspartic acid, glutamic acid, arginine, lysine, oxylysine, cystine, cysteine, methionine, histidine, proline, oxyproline, phenylalanine, tyrosine and tryptophane (page 1, lines 22 to 28).

- 4.3 In example 1, a mixture of bees' wax, solid paraffin, whale wax, liquid paraffin and a suitable amount of scent was prepared and there was added 1 g of a 95% ethanolic stock solution containing the following esters of amino acids: dimethyl ester of cystine (25%), ethyl ester of glycine (9.1%) and diethyl ester of glutamic acid (18.3%) as well as a number of amino acids. The mixture was melted. A solution of borax in water was mixed in the above mixture and then heated, while emulsifying thoroughly, to give a water-in-oil type of emulsified cream. This cream was stable and no crystals or precipitates of amino acids were found to separate from it on standing for a period of six months at a temperature of from -10 to 37°C.
- 4.3.1 Thus, example 1 of D1 discloses a water-in-oil type of emulsion containing about 0.5% of amino acid methyl or ethyl esters, in particular about 0.25% dimethyl ester of cystine, as well as 27.3g (27.3% by weight) of water.
- 4.3.2 In a similar way, according to example 2, an oil-in-water type of emulsified cream was prepared. That cream comprised about 65.5 wt.-% water. In example 3 an oil-in-water type of emulsion was prepared comprising about 77 wt.-% water. Furthermore, the hair cream of example 4 contained about 34.5 wt.-% of water and the skin lotion of example 6 contained about 80 wt.-% of water. All compositions were prepared by using the stock solution of example 1 so that they contained about 0.25 % by weight of dimethylester of cystine.

4.3.3 Thus, according to D1, five out of seven exemplified final toilet preparations contain water in an amount much higher than 10%. The limitation specified in claim 1 of D1 (see point 4.1) clearly refers to the ethanolic stock solution. This view is not only confirmed by the exemplified toilet preparations discussed above but also by the general description, according to which the **stock solutions** (emphasis added by the Board) for use in the preparation of the production of toilet preparations contain more than 90% ethanol, i.e. less than 10% water (page 2, lines 14 to 23).

4.4 According to the application as filed, the compositions can be present in form of lotions, creams etc but also in form of solutions, areosols, emulsions (including oil-in-water or water-in-oil) (page 11, lines 2 to 6). Hence, the product types used in the application as filed are identical to those used in D1. Consequently, the final toilet preparations of D1, including hair care compositions, are of the same type as used in the application in suit and comprise water and a methylester of an amino acid both within the claimed amounts. Thus, the claimed subject-matter differs from D1 only in that the compositions are now limited to the use of tyrosine methyl ester and/or methionine methyl ester.

4.5 According to the application in suit, the water solubility of certain amino acids makes it difficult to formulate them into conventional cosmetic compositions without increasing the pH to an unacceptably high level. In addition, some amino acids have an unpleasant odour

which consumers find unacceptable (page 2, first paragraph).

4.5.1 It is noted that the odour issue is not an essential part of the problem as made clear in the application as filed (page 4, first paragraph) by the expression "odour and/or solubility". They are separate problems. In fact, during the oral proceedings the appellant only relied on the solubility problem.

4.5.2 D1 addresses the solubility of free amino acids in ethanol and states that the esters of amino acids have an excellent stabilising property, which keeps the amino acids in a stably dissolved or dispersed state in the toilet preparations (page 1, line 59 to page 2, line 3). As shown by the examples of D1, this stabilizing property of the amino acid methyl esters also applies to the water containing toilet preparations (see point 4.3).

4.6 From the above it follows that D1 discloses subject-matter conceived for the same purpose and aiming at the same technical effect as the claimed invention and that it also requires only a minimum of structural modifications. Therefore, it represents a suitable starting point for assessing inventive step (Case Law of the Boards of Appeal of the European Patent Office 5th Edition 2006, I.D.3.1).

#### *Problem and solution*

5. The application in suit aims at hair care compositions that provide the benefits of compositions comprising amino acids while at the same time having reduced

negatives in terms of the odour and/or solubility of the amino acid derivatives (page 2, second paragraph and page 4, first paragraph). Although the definition of the technical problem in the application as filed mentions benefits, it is not explained which kind of benefits exactly have been achieved in relation to precisely which prior art document.

- 5.1 The examples of the application as filed disclose nine formulations of hair care compositions such as shampoos, conditioner, hairspray, gel, conditioning spray, mousse, leave-on-cream and colourant (pages 44 to 50). However, none of those compositions has actually been applied to hair and no technical effects regarding the odour and/or solubility of the amino acid esters used are shown.
- 5.2 There is no other statement in the application as filed containing any information whatsoever in relation to any prior art at all, let alone in relation to the closest document D1. Therefore, the description and the examples do not allow any conclusion regarding improvements vis-à-vis the prior art in general and D1 in particular, so that the appellant, already for that reason, cannot rely on the alleged solubility benefits for support of his arguments.
- 5.3 The appellant referred to diagrams submitted at the oral proceedings showing the solubility of certain amino acids in water. From the diagrams it can be gathered that the solubility of L-methionine at 25°C is about 5g per 100g water. Thus, at room temperature, up to 5% by weight of L-methionine, which is the upper limit of the claimed range, dissolves completely in

water. Consequently, there can hardly be seen a solubility problem in water with respect to L-methionine. On the other hand, L-tyrosine is poorly soluble at 25°C in water. However, there are no data on file that would allow the conclusion that the methyl esters of methionine or tyrosine have an improved solubility over their acid counter parts.

- 5.4 Furthermore, dimethylester of cystine is a specifically preferred amino acid derivative in D1 (page 1, line 55) as well as in the application as filed (page 8, lines 1 to 3). That ester is used in each exemplified composition of D1 in an amount of about 0.25% by weight, which is within the claimed range (see point 4.3.1 above) and is also mentioned on page 8, first paragraph of the application as filed in the same preferred list mentioning the esters now being claimed. There is no evidence, such as comparative tests, from which the Board could deduce that any property of a composition according to D1 would be improved by using the specific amino acid methyl esters of present claim 1.

Thus, the statement of particular benefits or reduced negatives with respect to water solubility and odour issues due to the use of different methyl esters is, in the absence of experimental evidence, a pure allegation which cannot be taken into account for the purpose of considering inventive step.

- 5.5 This is in line with established jurisprudence, according to which alleged advantages to which the patent proprietor/applicant merely refers, without offering sufficient evidence to support the comparison with the closest prior art, cannot be taken into



consideration in determining the problem underlying the invention and therefore in assessing inventive step (Case Law, *supra*, 5th Edition 2006, I.D.4.2). Only by comparison between the claimed subject-matter and the closest prior art can it be determined whether any benefit has in fact been achieved. A mere general statement in the description is not sufficient for establishing that any effect exists over the closest prior art. Consequently, such a statement cannot be considered when formulating the problem to be solved.

5.6 As regards the decisions of the Board of Appeal cited by the appellant, the following can be said:

According to decision T 215/95 (issued on 25 August 1999, not published in OJ EPO, Reasons, point 2.2), the examining division cannot force an applicant to provide experimental evidence that there is an improvement over the prior art. However, according to decision T 939/92 (OJ EPO, 1996, 309; Reasons, point 2.4.3 and 2.6) if an applicant/appellant wishes to rely on a certain effect, it is up to them to show that such an effect does exist.

According to T 37/82 (OJ EPO, 1984, 471), also relied upon by the appellant, in assessing the inventive step of a combination of features, consideration has to be given to a feature only if the applicant has provided evidence that it contributes, either independently or in conjunction with one or more of the other features, to the solution of the problem set in the description (Reasons, point 3.). However, if there is no adequate evidence, and this normally would be tests comparing the invention to the closest prior art, then the problem to be solved can only be formulated as being to

provide an alternative or a further composition having the same or similar properties as those of the closest prior art composition (compare also T 79/05 of 20 October 2005, Reasons, point 5.2.2; T 258/05 of 22 June 2007, Reasons, points 5.3 and 5.3; T 939/92, *supra*, Reasons, point 2.5).

The above-mentioned jurisprudence also applies to examination proceedings, as it was developed starting from T 20/81 (OJ 1982, 217) point 3 and T 181/82 (OJ 1984, 401) point 2, both concerning cases in examination proceedings.

- 5.7 For the above reasons, the Board can only formulate the problem to be solved vis-à-vis D1 as to provide further hair care compositions.
6. In view of the similarity between the claimed hair care compositions and those used in D1 (see point 5.4 above), the Board can accept that that problem has effectively been solved by the claimed subject-matter.

*Obviousness*

7. According to D1, methyl esters of amino acids have a beneficial stabilizing effect, which keeps the amino acids in a stably dissolved or dispersed state in the toilet preparations. In addition, those methyl esters also themselves act as active ingredients of the toilet preparations since they may be used by living organisms either directly or after enzymic hydrolysis into the corresponding free amino acids (page 2, lines 3 to 8).

Those amino acids include, for example, methionine and tyrosine (page 1, lines 27 and 28). Since in D1 specific reference is made to dimethyl ester of cystine as well as to methyl esters in general (D1, page 2, lines 51 and 52), the skilled person will also consider the methyl esters of other amino acids. Consequently, it is obvious for the skilled person to modify the hair care compositions of D1 by using methyl esters of tyrosine and/or methionine within the possibilities encompassed by D1.

8. In view of the above, the claimed subject-matter does not involve an inventive step (Article 56 EPC), so that the appeal has to be dismissed.

## **Order**

### **For these reasons it is decided that:**

The appeal is dismissed.

The Registrar

The Chairman

S. Fabiani

S. Perryman