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D E C I S I O N
of 20 October 2005

Case Number: T 0079/05 - 3.3.07

Application Number: 99914962.8

Publication Number: 1100438

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. 54, 56

Keyword:

"Novelty (yes)"
"Inventive step (no) - problem and solution - additional
effect (no)"

Decisions cited:

T 0020/81, T 0181/82, T 0939/92, T 0215/95

Catchword:

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Case Number: T 0079/05 - 3.3.07

D E C I S I O N
of the Technical Board of Appeal 3.3.07
of 20 October 2005

Appellant:

THE PROCTER & GAMBLE COMPANY
One Procter & Gamble Plaza
Cincinnati, OH 45202 (US)

Representative:

Engisch, Gautier
B.V. Procter & Gamble Services Company S.A.
100 Temselaan
B-1853 Strombeek-Bever (BE)

Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 23 August 2004
refusing European application No. 99914962.8
pursuant to Article 97(1) EPC.

Composition of the Board:

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

Summary of Facts and Submissions

- I. The appeal lies from the decision of the examining division refusing European patent application No. 99 914 962.8 originating from international application PCT/US99/06114 (published on 10 February 2000 as WO 00/06102), and having an international filing date of 26 March 1999.
- II. The application as filed comprised 14 claims. Independent claims 1 and 14 read as follows:
- "1. A hair care composition comprising:
- (a) cationic polymers and/or copolymers of saccharides wherein the cationic saccharide has a charge density of greater than about 1.5 meq/g, preferably greater than about 1.8 meq/g; and
- (b) less than about 5%, preferably less than about 2%, more preferably 0%, by weight, of an anionic surfactant."
- "14. A method of conditioning hair by applying to the hair an effective amount of a composition according to any of the preceding claims."
- III. The examining division held that neither claim 1 of the main request nor claim 1 of the auxiliary request before it fulfilled the requirements of Article 56 EPC in view of *inter alia* the following documents:
- D2: EP-A-0 796 611
D3: WO-A-98/19 654

D5: US-A-5 756 436

D6: WO-A-97/35 544

Claim 1 of the main request read as follows:

"A hair care composition comprising:

- (a) cationic polymers and/or copolymers of saccharides, and
- (b) less than about 5%, preferably less than about 2%, more preferably 0%, by weight, of an anionic surfactant,

characterized in that the cationic saccharide has a charge density of greater than about 1.5 meq/g, preferably greater than about 1.8 meq/g."

Claim 1 of the auxiliary request read as follows:

"A method of conditioning hair, wherein an effective amount of a composition is applied to and left on the hair, said composition comprising:

- (a) cationic polymers and/or copolymers of saccharides, wherein the cationic saccharide has a charge density of greater than 1.5 meq/g, preferably greater than 1.8 meq/g; and
- (b) less than 5%, preferably less than 2%, more preferably 0%, by weight, of an anionic surfactant."

The decision can be summarized as follows:

- (a) As regards inventive step in relation to the subject-matter of claim 1 of the main request, hair treatment compositions containing less than 5% of anionic surfactant were known from D2 to D4. The use of cationic polymers having a charge density higher than 1.5 meq/g for improved conditioning was known from D5 and D6. The problem to be solved over the prior art was to provide a composition having improved shine/conditioning properties. In order to optimize the conditioning effect of D2, it was obvious to substitute the conditioning polymer by a polymer having a better anchoring to the hair, i.e having a higher positive charge. As regards the further problem of providing a composition having reduced tackiness and greasiness, there was no evidence for any improvement in that respect over the state of the art. Thus, the claimed subject-matter did not comply with Article 56 EPC.
- (b) As regards the subject matter of claim 1 of the auxiliary request, in D2 to D4 conditioning compositions were disclosed that contained little or no anionic surfactants. The subject matter of Claim 1 differed from those prior art documents in that a cationic polymer or copolymer of saccharide having a specific charge density was required. The problem to be solved was to provide a method for conditioning the hair. The substitution of cationic polymers in hair compositions according to D2 by those used in D5 and/or D6 was obvious since highly charged cationic polymers were known

to provide improved conditioning. Thus, the subject matter of claim 1 of the auxiliary request too lacked an inventive step.

IV. On 27 October 2004, the applicant (appellant) filed a notice of appeal against the above decision, the prescribed fee being paid on the same day. In the statement setting out the grounds of appeal filed on 10 December 2004, the appellant maintained the requests underlying the decision under appeal.

V. In response to a communication of 8 July 2005 from the Board, accompanying the summons to oral proceedings, the appellant, by letter dated 2 September 2005, filed claims 1 to 6 replacing claims 1 to 6 of the main request then on file and submitted a further document:

D7: The Encyclopedia of Polymers and Thickeners, pages 259 to 261.

VI. Oral proceedings were held on 20 October 2005. During the oral proceedings, the appellant submitted an amended set of claims 1 to 12 as sole request. Claim 1 reads as follows:

"A method of conditioning hair, wherein an effective amount of a composition is applied to and left on the hair, said composition comprising:

- (a) from 0.005 to 10% by weight of the total composition of cationic polymers and/or copolymers of saccharides, wherein the cationic saccharide has a charge density of greater than 1.8 meq/g; and

- (b) less than 5%, preferably less than 2%, more preferably 0%, by weight, of an anionic surfactant."

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

- (a) As to novelty, the disclosure in D2 of a "polyquaternium" type polymer merely referred to its chemical structure, in which the proportion of quaternized nitrogen could vary. In D2, the polymer was specified as a polyquaternium 4 commercially available under the trade name Celquat. At least two polyquaternium 4 type products were sold as Celquat H-100 and Celquat L-200, respectively, both of which, however, had a charge density outside the claimed range. Thus, the claimed charge density of greater than 1.8 meq/g was not directly and unambiguously disclosed in the prior art.
- (b) As regards inventive step, D2 was considered as a suitable starting point for the problem-solution approach. Since D2 did not address reduced tackiness and greasiness on the hair, the problem was to provide a method of conditioning hair that provided improved shine/conditioning benefits to the hair with reduced tackiness and greasiness. Since there was a considerable difference in the charge density of the cationic saccharides used in the claimed method and those used in D2, there was no reason to doubt that the desired effect was achieved. D2 did not disclose that the reduced tackiness of the hair was connected with a

specific charge density. According to the application in suit, the reduced tackiness was the result of a close association of the polymer and the hair and its reduced tendency to interact with other surfaces such as the skin of the fingers. That explanation was plausible and no supporting experimental evidence was necessary.

- (c) The further prior art documents did not address the relevance of using only little, if any, anionic surfactant nor the relevance of using highly charged cationic polymers to reduce tackiness and greasiness. In particular, the compositions of D5 and D6 were shampoo compositions and required an amount of anionic surfactant higher than 5%, contrary to the leave-on compositions applied according to the claimed method. Thus, there was no incentive in those documents to modify the teaching of D2 in the direction as claimed.
- (d) The decision under appeal was based on hindsight argumentation. It relied on matters only discussed in the description of the application in suit, which was not legitimate since no such technical discussion could be found in the prior art documents.
- (e) As regards the reduced feeling of tackiness and greasiness, the examining division had requested experimental evidence to support the statement in the description. However, there was no basis in the convention that might oblige the applicant to file experimental evidence. Furthermore, according

to decision T 215/95 of 25 August 1999 (not published in OJ EPO), suitable evidence was not necessarily in the form of experimental evidence. According to decision T 939/92 (OJ EPO, 1996, 309), experimental evidence was only justified if doubts existed that the technical problem was solved for all claimed compounds, i.e. within the whole ambit of the claim. Thus, the circumstances in which it was appropriate for the examining division to request experimental evidence from the applicant during examination proceedings should be addressed.

VIII. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claim request submitted at the oral proceeding on 20 October 2005.

Reasons for the Decision

1. The appeal is admissible

Amendments

2. Amended claim 1 is based on a combination of original claims 1, 3 and 14 in connection with the description as filed, page 4, lines 5 to 10 (leave-on compositions) and page 5, lines 11 to 13 (weight percentage of cationic saccharides). Claim 2 is based on original claim 2. Claims 3 to 12 go back to original claims 4 to 13. Thus, the amended claims meet the requirements of Article 123, paragraph (2) EPC.

Novelty

3. D2 discloses a hair styling mousse composition comprising
- (i) from 0.5 to 10% by weight of a water-soluble film-forming resin;
 - (ii) from 0.1 to 20% by weight of an amphoteric surfactant; and
 - (iii) from 0.5 to 10% of a propellant comprising a mixture of at least one hydrocarbon and a di(C₁-C₄ alkyl) ether in a weight ratio from 10:1 to 1:4 (claim 1).

3.1 The water soluble film-forming resin is preferably a cationic cellulosic polymer (claim 7), in particular a copolymer of hydroxyethyl cellulose and diallyl dimethyl ammonium chloride (claim 8). According to the description of D2, suitable cationic cellulose ethers include Polyquaternium 10 (hydroxyethylcellulose hydroxypropyl trimethylammonium chloride ether) under the trade name Ucare Polymer LR and Polyquaternium 4 (hydroxyethylcellulose dimethyldiallyl ammonium chloride copolymer) under the trade name Celquat (page 3, lines 12 to 14). Polyquaternium 4 or polyquaternium 10 are furthermore used in exemplified mousse compositions (tables I, IV, V, VI, XI and XII, pages 4 to 6 and 9). The amount of the film-forming polymer may be in the range of 0.5 to 10% by weight (page 3, line 19), which range is completely within the range of 0.005 to 10% by weight for the amount of cationic saccharides required by present claim 1. The amount of the amphoteric surfactant used according to D2 lies in the range of 0.1 to 20% by weight, preferably 0.5 to 3% by weight (page 3, line 27), the latter being below the upper value of 5% by weight of

an anionic surfactant as required in present claim 1. In all the exemplified compositions of D2, 0.70% by weight of Tegobetaine F as amphoteric surfactant is used.

3.2 According to the appellant's letter of 2 September 2005, at least two types of polyquaternium 4 products have been sold commercially as Celquat H-100 and Celquat L-200 having a charge density of 0.71 and 1.43 meq/g, respectively. Furthermore, Ucare Polymer LR, mentioned as a suitable polyquaternium 10 in D2, has a charge density of 0.7 meq/g. However, D2 itself is silent on the charge density of the film-forming polymer to be used and there is no evidence that someone following the teaching of D2, such as by using the suggested products sold under the trade names Ucare Polymer LR or Celquat, would inevitably have used a film-forming polymer with a charge density greater than 1.8 meq/g as required by present claim 1. Thus, since the feature that the charge density of the film-forming polymer should be greater than 1.8 meq/g is not directly and unambiguously derivable from D2, novelty of claim 1 over D2 must be acknowledged.

3.3 Since there is no other prior art document on file disclosing this specific type of cationic saccharide in leave-on compositions containing less than 5% by weight of anionic surfactant, the claimed subject-matter is novel (Article 54 EPC).

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 D2 which, as discussed above, discloses all features of present claim 1 except for the charge density greater than 1.8 meq/g of the film-forming polymer. The examining division regarded D2 as the closest prior art document as regards the claims then under consideration, and the appellant conceded that D2 could be considered as the closest prior art for the purposes of present claim 1. The board sees no reason to deviate from that approach, and will thus use D2 as starting point.

4.1 D2 is directed to a hair styling mousse composition (see point 3 above), which is capable of being removed upon washing the hair at the time of shampooing. It is stated that such compositions should possess the properties of low stickiness, good combing characteristics and a lack of powdering or flaking (page 2, lines 13 to 15) and also avoid traditional sensory negatives such as sticky feel on the hair (page 2, lines 34 and 35). In addition, example 3 of D2 illustrates experimental results showing that the application to the hair of a composition comprising 2% by weight of polyquaternium 4 and 0.7% by weight of Tegobetaine (page 4, table I) provides excellent hair conditioning properties, including "not feeling sticky", "not feeling coated" and "leaves natural shine" (table III, page 5). The appellant did not contest that the properties of "not feeling sticky" and "not feeling

coated" were similar or the same as the "reduced tackiness and greasiness of the hair" specified in the application in suit.

- 4.2 D2 is silent as to the charge density of the polyquaternium 4 polymer used. The charge density of such a polymer will not necessarily be above 1.8 as required by present claim 1. D2 suggests using a polyquaternium 4 polymer sold under the tradename Celquat; the appellant conceded that Celquat H-100 and Celquat L-200 had been commercially available and had a charge density of 0.71 and 1.43 meq/g, respectively.

Problem to be solved

5. According to the application as filed, the cationic saccharide polymer and/or copolymer having a charge density above 1.5 meq/g provides improved shine/conditioning benefits to the hair as well as reduced tackiness and greasiness (page 2, lines 20 to 22). It is not stated in relation to precisely what prior art such improvement is achieved. The application contains no comparative tests in relation to any prior art and, in particular, in relation to the closest document D2, nor have results of any such tests been provided during the examination or appeal proceedings.
- 5.1 According to established jurisprudence, 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 of the Boards of

Appeal of the European Patent Office, 4th Edition 2001, I.D.4.4). This jurisprudence clearly also refers to the examination proceedings as it was developed starting from T 20/81 (OJ EPO 1982, 217) and T 181/82 (OJ EPO 1984, 401) both concerning cases in examination proceedings.

5.2 Compared to D2, the Board cannot recognize any new properties that might be considered "alleged advantages", and there is no evidence, such as comparative tests, from which the Board could deduce that any existing properties of a composition according to D2 would necessarily be improved by meeting the requirement of claim 1 that the charge density be greater than 1.8 meq/g. Accordingly, the Board can only formulate the problem to be solved as being to provide a further method for conditioning the hair having the effects suggested in D2.

5.2.1 The appellant referred to a paragraph in the application as filed (page 2, line 25 to page 3, line 2) reading as follows:

"While not wishing to be bound by theory, it is believed that the high cationic charge density makes the polymer more substantive to the hair providing good conditioning benefits. The cationic groups interact with the negative charge on the hair. Binding sites occur more frequently due to the increased frequency of said cationic groups along the polymer. The more frequent interactions may "pull" the polymer backbone into closer association with the hair fibre thus reducing the depth of the hydrocarbon layer and reducing its tendency to interact with other surfaces

such as skin on the fingers. Hence, there is a reduced feeling of tackiness and, due to the close association of polymer and hair, an enhanced shine".

However, the above paragraph merely speculates as to a theoretical explanation for an alleged improvement, for which there is no evidence that it exists at all over the closest prior art D2.

5.2.2 As stated in decision T 215/95 (Reasons, point 2.2) relied upon by the appellant, the examining division cannot force an applicant to provide experimental evidence that there is an improvement over the prior art. But the burden of proof of showing an improvement is on the applicant. If there is no adequate evidence, and this normally would be comparative 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 further composition having the same or similar properties as those of the closest prior art composition.

5.3 Due to the similarity between the claimed leave-on compositions and those used in D2, the problem, when formulated as being to provide for a further method of conditioning hair can be regarded as plausibly solved by what is claimed (point 5.2).

Obviousness

6. It remains to decide whether the claimed subject-matter is obvious having regard to the documents on file.

6.1 D2 specifically suggests the use of polyquaternium 4 in leave-on hair conditioning compositions meeting all requirements of claim 1 except for the requirement that the charge density be greater than 1.8 meq/g. But D2 imposes no restriction on the charge density of the polyquaternium 4 to be used and does not suggest that the precise value of the charge density would be in any way critical. Following the teaching of D2, the skilled person would not only consider the use of the commercially available polyquaternium 4 Celquat L-200 with a charge density of 1.4 meq/g, but would also use polyquaterniums in general, in particular polyquaternium 4's, with a charge density of greater than 1.8 meq/g, as a technically possible alternative that would work. The invention claimed is thus obvious.

6.2 The appellant indicated that they had specially to order the polyquaternium 4 with a charge density of greater than 1.8 meq/g from the known supplier of the polyquaterniums indicated in D2. However, in the absence of evidence of an improvement attributable to such higher charge density, this is a question of commercial feasibility only, and so is not relevant for the assessment of inventive step, where the question is what technically feasible alternatives the skilled person would derive from the prior art in an obvious manner.

6.3 It should be noted that while the examining division and the Board both have arrived at the conclusion that the invention is obvious, their respective reasoning is quite different. Both the examining division and the Board considered that the respective claims before them were novel over D2 because the charge density feature

was not disclosed in D2, and both treated this document as closest prior art. However, in order correctly to formulate the problem to be solved, it should first be assessed whether there was any evidence which would allow the acknowledgement of an improvement over D2, attributable to the presence of the distinguishing charge density feature. In the absence of such evidence, such as tests comparing a composition of D2 to one used in accordance with the claim, the problem could not be formulated as being to achieve any improvement over D2, but only as being to provide a further hair conditioning method to that of D2. For the problem so formulated, D2 by itself makes the claimed invention obvious, without any need to consider what the skilled person might have gathered from documents D5 and D6 which were considered in the reasoning of the examining division. Those documents related to hair shampoos not meeting the requirements of features (a) and (b) of present claim 1 and only disclosed cationic polymers having a high charge density. That kind of reasoning had been criticized by the appellant as being based on hindsight. The reasoning in point 6.1 above is however not open to such an hindsight objection.

6.4 In view of the above, the claimed subject-matter does not involve an inventive step (Article 56 EPC), and the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

C. Eickhoff

B. ter Laan