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**Datasheet for the decision
of 21 June 2007**

Case Number: T 0258/05 - 3.3.07

Application Number: 00946866.1

Publication Number: 1196133

IPC: A61K 7/06

Language of the proceedings: EN

Title of invention:

Hair conditioning composition comprising cationic silicone emulsion

Applicant:

THE PROCTER & GAMBLE COMPANY

Opponent:

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Headword:

-

Relevant legal provisions:

EPC Art. 56

Keyword:

"Inventive step (no) - problem and solution - improvement (not shown)

Decisions cited:

T 0020/81, T 0037/82, T 0181/82, T 0939/92, T 0215/95,
T 0079/05

Catchword:

-



Case Number: T 0258/05 - 3.3.07

D E C I S I O N
of the Technical Board of Appeal 3.3.07
of 21 June 2007

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

Representative: Engisch, Gautier
NV Procter & Gamble
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 13 October 2004
refusing European application No. 00946866.1
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 with which European patent application 00 946 866.1, originating from international application PCT/US00/17648 (published as WO-A-01/01937) and having the international filing date of 27 June 2000, was refused. The application as filed comprised ten claims, the independent claims reading as follows:

"1. A hair conditioning composition comprising by weight:

(a) from about 0.1% to about 20% of a cationic silicone emulsion comprising by weight of the cationic silicone emulsion from about 1% to about 20% of a cationic surfactant; and an emulsifiable amount of a silicone compound having a particle size of less than about 50 microns;

(b) from about 0.1% to about 15% of a high melting point fatty compound having a melting point of 25 °C or higher;

(c) from about 0.1% to about 10% of a cationic conditioning agent; and

(d) an aqueous carrier."

"10. A method of increasing hair volume by applying the hair conditioning composition according to any of the preceding claims to the hair."

II. In its decision posted on 13 October 2004, the examining division held that claim 1 of the main request did not fulfil the requirements of Article 56 EPC in view of US-A-4 529 586 (D1).

That decision was based on a set of amended claims 1 to 9 submitted by letter dated 13 September 2004 as the sole request. Claim 1 of that request was identical to claim 1 of the application as filed.

III. The decision can be summarized as follows:

- (a) No evidence had been provided that the claimed formulations differed from those of D1.
- (b) As regards inventive step, D1 disclosed hair conditioning compositions comprising 0.2 to 10% of a cationic silicone emulsion, a cationic surfactant, a cationic polymer and an aqueous carrier. The effect aimed at by the application in suit was "hair volume-up". Since no experimental data was present that established a contribution over the compositions of the prior art, it was concluded that the prior art compositions had not been modified in order to achieve the properties aimed at. In particular, no contribution could be related to the particle size of the emulsified silicone or to a synergy between the claimed features. The problem to be solved could also not be considered as providing an alternative to the compositions of D1. Therefore, the claimed subject-matter was not inventive.
- (c) Under the heading *Obiter Dictum* it was stated that if the applicant only relied upon a statement in the description and if that statement was the logical inference from experimental data, then those data had to be submitted.

IV. On 2 December 2004 the applicant (appellant) filed a notice of appeal against the above decision, the prescribed fee being paid on the same day. The statement setting out the grounds of appeal was filed on 1 February 2005.

V. On 24 June 2006, observations pursuant to Article 115 EPC were filed by an anonymous third party which referred *inter alia* to Cosmetics and Toiletries, vol. 108, March 1993, pages 65 to 67 (D2).

VI. In response to a communication from the Board accompanying the summons to oral proceedings, the appellant, by letter dated 24 April 2007, submitted a set of amended claims 1 to 9 as the sole request, replacing claims 1 to 9 of the request then on file.

Claim 1 read as follows:

"A hair conditioning composition comprising by weight:
(a) from 0.1% to 20% of a cationic silicone emulsion comprising by weight of the cationic silicone emulsion from 1% to 20% of a cationic surfactant; and an emulsifiable amount of a silicone compound having a particle size of less than 50 microns;
(b) from 0.1% to 15% of a high melting point fatty compound having a melting point of 25°C or higher;
(c) from 0.1% to 10% of a cationic conditioning agent;
and
(d) an aqueous carrier."

VII. Oral proceeding were held on 21 June 2007.

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

- (a) As regards novelty, D1 did not disclose the particle size of the silicone used in its compositions. It mentioned the use of the commercial silicone emulsion No. 929, the composition and particle size of which could however considerably vary. It was not clear whether or not D2 described the properties of the emulsions actually used in D1. Those emulsions could have particle sizes higher than 50 micron, which size was outside the claimed range. Thus, a key difference between the claimed subject-matter and D1 was the particle size of the silicone compound.

- (b) As to inventive step, D1 was the closest state of the art. The problem to be solved over D1 was to provide hair conditioning compositions that provided an increase in hair volume-up without deterioration of other conditioning benefits. According to the description of the application in suit, the particle size of the silicone compound was believed to affect its deposition on the hair. That statement was sufficient evidence that the problem had been solved due to the choice of the silicone particle size. It was self-evident for the skilled person that the silicone deposited on the hair contributed to hair conditioning performance, such as the hair volume-up. Thus, the examining division was not correct to require experimental data to prove that logical inference. In support of that argument, the appellant cited

inter alia decisions T 215/95 of 25 August 1999 (not published in the OJ EPO), T 939/92 (OJ EPO 1996, 309) and T 37/82 (OJ EPO 1984, 71).

Furthermore, D2 did not teach to use cationic silicone emulsions. Thus, the claimed subject-matter was inventive.

- IX. The appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 9 submitted by letter dated 24 April 2007.

Reasons for the Decision

1. The appeal is admissible.

Amendments

2. In the whole set of claims the term "about" before ranges has been deleted. Claim 5 as filed has been cancelled. Furthermore, the molecular weight ranges in amended claim 7 (features (a) and (b)) have been amended from "at least about 800," to "from 800 to 1200,". The basis for those amendments can be found on original page 23, first paragraph, last line and page 23, line 10 from the bottom, respectively. Therefore, the requirements of Article 123(2) EPC are fulfilled.

Novelty

3. D1 discloses a hair conditioning composition comprising:
(a) from 0.2 to 10% by weight of an amino functional

silicone polymer in aqueous emulsion; (b) an effective amount for increasing the combability of hair, of a cationic surfactant-emulsifier containing at least one long chain fatty acid residue, such residue containing between 12 and 18 carbon atoms; and (c) an effective amount for increasing the combability of hair and for improving the durability of the conditioning effect, of at least one cationic polymer; in (d) an aqueous carrier (claim 1).

3.1 As one of the most suitable amino functional silicone polymers according to D1, amodimethicone is mentioned, which is sold by the Dow-Corning Corporation in the form of an aqueous cationic emulsion under the trade name Silicone Emulsion No. 929 (D1, col. 1, lines 58 to 62, examples). Silicone Emulsion No. 929 is a cationic aqueous emulsion emulsified with a cationic surfactant such as a long chain fatty acid quaternary ammonium compound such as stearylalkonium chloride or tallowtrimonium chloride, and normally also an emulsifying assistant such as an ethoxylated alkyl phenol, for example, nonoxynol-10 (D1, col. 2, lines 16 to 21). In all the compositions described in the examples of D1, cationic emulsion-929 is used.

3.2 The composition of Example V of D1 contains *inter alia* 1.75% by weight of cationic emulsion-929, as well as 1.6 % by weight of stearyl alcohol, 1.5% glycerol monostearate and 0.4% by weight of quaternium-41.

The appellant did not deny that example V of D1 described all the features claimed, apart from the particle size of the silicone compound, which the appellant emphasized as the a key difference between D1

and the claimed subject-matter. The Board agrees that the only feature not expressly mentioned in D1 is the particle size of the commercial product 929.

- 3.3 Particle sizes of micro- and macro silicone emulsions for hair care products are described in D2, which concerns a comparison between microemulsions vs. macroemulsions in hair care products.

According to D2, macroemulsions have a relatively large particle size of the dispersed oil phase, exceeding 150 nm, whilst the size of microemulsion droplets is normally in the range of 20 to 150 nm (page 66, left column, lines 8 to 11 from bottom). Those values are of the same order of magnitude as the particle size of 280 nm actually used in the examples of the application in suit (page 30) which are about a factor 180 below the present upper limit of 50 microns.

The commercial silicone emulsions manufactured by Dow Corning are stated in D2 to have average particle sizes of 0.25 micron for product Q2-7224, 0.35 micron for product 347 and 0.18 micron for emulsion 929 (page 66, paragraph bridging left and right column), which values all lie within the claimed range. In Table 1, characteristics of several commercial macro- and microemulsions employed in conditioning treatments are listed, amongst which emulsion DC 929 by Dow Corning, which is described as a reactive cationic macroemulsion system having an average diameter of 180 nm.

- 3.4 In view of the information contained in D2 that usual commercial emulsions have particle sizes well under 50 microns and that a cationic silicone emulsion 929

manufactured by Dow Corning has a particles size well within the claimed range, it is highly unlikely that the particle size of the silicone compound actually used in D1 would not have met the requirement of being less than 50 microns.

- 3.5 However, likelihood is not a sufficient criterion for deciding against novelty. D2 has a date of 1993, whereas D1 was filed in 1985 and there is no evidence that the product actually used in D1 did have a particle size below 50 microns at the filing date of D1. Therefore, it cannot be said that there is a clear and unambiguous disclosure of the claimed particle size and hence of the present combination of features.

Inventive step

Closest state of the art

4. The patent in suit concerns hair conditioning compositions comprising cationic silicone emulsion. Such compositions are known from the prior art, in particular D1, which the examining division regarded as the closest prior art document for the claims then under consideration. The appellant accepted that D1 could be considered as the closest prior art for the purpose of present claim 1 as well. The board sees no reason to deviate from that approach, since D1 corresponds to a purpose or technical effect similar to that of the invention and requires a minimum of structural and functional modifications and thus represents a suitable starting point for the purpose of assessing inventive step (Case Law of the Boards of

Appeal of the European Patent Office, 5th Edition 2006, I.D.3.2).

Problem and solution

5. The application in suit aims at a hair conditioning composition that provides increased hair volume-up while not deteriorating conditioning benefits such as softness, moisturized feel, and fly-away control (page 2, third paragraph; page 27, lines 19 to 21; page 31, last but one paragraph). Although the definition of the technical problem in the application as filed is directed to an improvement (increase in hair volume-up), it is, however, not stated in relation to precisely which prior art such improvement would be achieved.

5.1 In support of the argument that the desired effect had effectively been achieved, the appellant referred to two paragraphs in the application as filed, reading:

"The particle size of the silicone compound is believed to affect the deposition of the silicone compound on the hair." (page 5, lines 17 to 19).

"Hair volume-up as used herein relates to increase of the bulk of the hair. Consumers having fine hair have a desire to achieve hair volume-up while controlling undesirable flyaway of the hair." (page 2, lines 11 and 15).

Those passages are mere general remarks. They do not contain any information whatsoever in relation to any prior art at all, let alone in relation to the closest

document, D1, nor do the other parts of the description or the examples. Therefore, the description does not allow any conclusion regarding an improvement vis-à-vis the prior art in general and D1 in particular, so that the appellant, already for that reason, cannot rely on it for support of his arguments.

- 5.2 Furthermore, the examples of the application as filed disclose eight formulations of hair conditioning compositions which are said to be suitable for rinse-off and leave-on products (pages 28 to 30, in particular page 28, sentence above table). However, none of those compositions has, according to the examples, actually been applied to hair and no effects regarding the deposition of the silicone compound on the hair or the hair volume-up or flyaway of the hair are shown.

By emphasizing that the particle size of the silicone compound was a key difference between D1 and the subject-matter now being claimed, the appellant implied that the particles of D1 would include sizes above 50 microns. It is not clear, what effect the alleged key difference with D1, the particle size of the silicone compound, would have on the properties of the claimed composition and in which way those properties would be changed by using particles below 50 microns instead of above.

- 5.3 As no test results have been provided during the examination or appeal proceedings, it is not possible to conclude what effect, if any, over the prior art would be achieved by the claimed composition.

The problem of improving flyaway control (see point 5.1 above) had already been addressed and solved in D1 (see column 2, lines 28 to 36) and there is no evidence, such as comparative tests, from which the Board could deduce that any existing properties of a composition according to D1 would necessarily be improved by meeting the requirement of present claim 1 that the particle size be less than 50 microns.

Since the broad definition of particle sizes in claim 1 covers the particle size of conventional emulsions normally used by the skilled person in preparing hair conditioning compositions (see D2; point 3.3 above), the statement of an increased hair volume-up due to the alleged difference is, in the absence of experimental evidence over D1, a pure allegation which cannot be taken into account for the purpose of considering inventive step.

- 5.4 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, of the Boards of Appeal of the European Patent Office, 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 an improvement has in fact been achieved. A mere statement in the description with respect to an alleged advantage is not sufficient for establishing that an increase of hair volume-up over that of the closest prior art

exists. Consequently, such a statement cannot be considered when formulating the problem posed.

- 5.5 As stated in decision T 215/95 (*supra*, 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 if an applicant/appellant wishes to rely on a certain effect, it is up to him to show that such an effect does exist (T 939/92, *supra*, Reasons, point 2.4.3 and 2.6).

According to T 37/82 (*supra*), 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.). 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 (T 0079/05 of 20 October 2005, point 5.3; compare also T 939/92, *supra*, Reasons, point 2.5).

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

- 5.6 In view of the above, the Board can only formulate the problem to be solved vis-à-vis D1 as to provide further hair conditioning compositions.
6. Due to the similarity between the claimed hair conditioning compositions and those used in D1, the Board can accept that that problem has effectively been solved by the claimed subject-matter.

Obviousness

7. It remains to be decided whether the claimed subject-matter is obvious having regard to the documents on file.
- 7.1 In D1 the aqueous cationic silicone emulsion No. 929 sold by Dow Corning Corporation is used in all exemplified hair care compositions (see point 3.1 above). In view of the good results obtained with those compositions, (column 7, lines 12 to 16), D1 contains a clear incentive to use emulsion No. 929 by Dow Corning Corporation and the skilled person would not have hesitated to use the commercial product. And by using a product by the same company, carrying the same number, which was shown to have average particle sizes far below the upper limit of the claimed range (D2, point 3.3 above) he would inevitably have arrived at the claimed subject-matter.
- 7.2 Moreover, according to D2, the surface properties of the modified hair fibers are affected by the amount, distribution and thickness of the deposited oil layer, which is determined by the deposition process which again is influenced by -among other factors- the size

of the particles in the dispersed phase. Systematic investigations had shown that silicone microemulsions were more substantive than macroemulsions and coated hair more uniformly (page 67, left column, lines 4 to 13 from bottom). Therefore, in D2 there is a clear incentive for the skilled person to use smaller particle sizes.

7.3 For the above reasons, the use of a cationic silicone emulsion having a particles size of less than 50 microns in the otherwise known composition of D1 cannot be inventive.

8. It should be noted that while the examining division and the Board both have arrived at the conclusion that the invention is not inventive, their respective reasoning is quite different. Both the examining division and the Board started from D1 as the closest prior art document. However, in order correctly to formulate the problem to be solved, it should be assessed whether there was any evidence which would allow the acknowledgement of an improvement over D1, an improvement that could be attributed to the distinguishing particle size feature. In the absence of such evidence, such as tests comparing a composition of D1 to one in accordance with claim 1, the problem could not be formulated as being to achieve an improvement over D1, but only as being to provide further compositions having the properties mentioned in D1. For the problem so formulated, D1 by itself or in combination with D2 renders the claimed subject-matter obvious.

- 8.1 In the decision under appeal, the problem-solution approach has not been properly applied and no problem has been formulated over D1. Rather, it was questioned whether an objective problem in the form of an alternative solution existed over D1 or whether the applicant only arbitrarily isolated a part of the prior art (grounds of impugned decision, page 5, third and fourth paragraph). Those passages in the reasoning of the examining division had been criticized by the appellant as being inappropriate, unfounded and in contradiction with the principle of good faith in view of the passage cited in the application as filed (grounds of appeal, page 3, last paragraph).
- 8.2 Contrary to the examining division, the board followed the established problem-solution approach, which allows assessment of inventive step on a case to case basis by establishing (a) which document is the closest state of the art, (b) which is the problem to be solved vis-à-vis that document, (c) whether the claimed subject matter solves the thus formulated problem and (d) whether the claimed subject-matter is obvious with regard to the closest prior art document, possibly in combination with other documents on file. That approach allows a more objective assessment of whether or not the claimed subject-matter is obvious over the cited prior art whilst considering the specific circumstances of each case and it is not open to objections of being inappropriate, unfounded and in contradiction with the principle of good faith.
9. 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

D. Sauter

S. Perryman