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Datasheet for the decision of 20 October 2010

Case Number: T 1777/06 - 3.3.07

Application Number: 96927317.6

Publication Number: 0845977

IPC: A61K 7/32

Language of the proceedings: EN

Title of invention:
Clear cosmetic gel composition

Patent Proprietors:
Colgate-Palmolive Company

Opponents:
HENKEL KGaA

Headword:
-

Relevant legal provisions:
-

Relevant legal provisions (EPC 1973):
EPC Art. 56

Keyword:
"Inventive step - non-obvious combination of known features"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1777/06 - 3.3.07

D E C I S I O N
of the Technical Board of Appeal 3.3.07
of 20 October 2010

Appellants: (Patent Proprietors)	Colgate-Palmolive Company 300 Park Avenue New York NY 10022-7499 (US)
Representative:	Jenkins, Peter David Page White & Farrer Bedford House John Street London WC1N 2BF (GB)
Respondents: (Opponents)	HENKEL KGaA VTP (Patente) D-40191 Düsseldorf (DE)
Representative:	-
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted 10 September 2006 revoking European patent No. 0845977 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: S. Perryman
Members: D. Semino
B. ter Laan

Summary of Facts and Submissions

I. The appeal of the patent proprietors lies against the decision of the Opposition Division to revoke European Patent No. 0 845 977, granted on European application No. 96 927 317.6, which was based on international application PCT/US96/12773, published as WO-A-97/06777.

II. The patent had been granted on the basis of 37 claims, claim 1 reading as follows:

"1. A clear and mild cosmetic gel composition comprising:

(a) an aqueous phase containing (i) water; (ii) at least one cosmetically active ingredient in an amount sufficient to have a cosmetic effect; and (iii) a glycol;
(b) an oil phase containing a material having a refractive index in the range of 1.40 to 1.50;
(c) 10-30% of at least one coupling agent such that the aqueous phase is uniformly distributed in the oil phase;
(d) an alkoxylated, alkyl substituted siloxane surface active agent in an amount so as to form a water-in-oil emulsion;

wherein said cosmetic gel composition is a water-in-oil emulsion and wherein the cosmetic gel composition has a refractive index in a range of 1.4026 - 1.4150, **characterised in that** the glycol is at least one polypropylene glycol and the alkoxylated, alkyl substituted siloxane surface active agent is a dimethicone copolyol."

III. A notice of opposition had been filed, in which revocation of the patent in its entirety was requested on the grounds of lack of an inventive step (Article 100(a) EPC) and lack of sufficiency (Article 100(b) EPC). The opposition was supported *inter alia* by the following documents:

D1: EP-A-0 407 089
D2: WO-A-91/08732
D3: WO-A-92/05767
D4: GB-A-2 283 914
D6: EP-A-0 404 532
D16: Measurements of the refractive index of several substances filed by the opponents with letter of 4 May 2006.

IV. The decision was based on the claims as granted as well as on first and second auxiliary requests filed during the oral proceedings on 4 July 2006. In the first auxiliary request dependent claims 13 and 26 specifying the viscosity of the composition had been deleted. In the second auxiliary request further dependent claims defining the composition as a soft gel had also been deleted.

V. According to the decision under appeal:

(a) The term "soft gel" was a common definition used in the field of cosmetics and did not result in lack of sufficiency.

(b) The viscosity of the composition at a specific temperature without any further indication of the

measuring device and of the physical conditions in which the measurement was carried out, resulted, in the light of the peculiarity of the gels as far as their viscosity measurement was concerned, in lack of sufficiency, so that the main request was not allowable; this objection was not relevant for the auxiliary requests where the claims mentioning the viscosity of the composition had been deleted.

(c) For the composition of claim 1 of both the first and the second auxiliary request, D1 was considered as the closest state of the art. Its disclosure differed from the claimed compositions in that D1 did not disclose polypropylene glycol but instead polyethylene glycol as a component of the formulation and no specific range for the refractive index was given. However, the refractive index was dependent on the nature of the ingredients involved and was just the measure of a property of the claimed composition which was equivalent to the one of D1, so that it could not represent a differentiating technical feature. Moreover, D6 taught that polypropylene glycol and polyethylene glycol were interchangeable and contained various pointers which would lead the skilled person to replace the polyethylene glycol of D1 with polypropylene glycol, expecting advantageous effects. For these reasons the composition of claim 1 according to both auxiliary requests did not involve an inventive step.

VI. On 21 November 2006 the patent proprietors (appellants) filed a notice of appeal against the above decision, the prescribed appeal fee being paid on the same day.

On 29 January 2007 the appellants filed a statement setting out the grounds of appeal and requested maintenance of the patent as granted as main request or on the basis of the auxiliary request filed with that statement.

VII. With letter dated 10 September 2010 the appellants filed a main request and four auxiliary requests replacing the requests then on file. The claims according to the main request corresponded to the granted claims with the deletion of dependent claims 13 and 26, in which the viscosity of the composition was specified. In addition, a test report was filed.

VIII. Oral proceedings were held on 20 October 2010. After the closure of the debate and the deliberation by the Board, the decision was announced.

IX. The arguments of the appellants that are relevant to the present decision can be summarised as follows:

(a) The composition of claim 1 of the main request was inventive starting from any of D1, D2, D3 or D4 as the closest state of the art. None of those documents disclosed a composition with a refractive index in the range of the claim and comprising polypropylene glycol. The value of the refractive index of the compositions in the examples of D4 was not credible, since it was in all examples higher than the refractive indices of the individual water and oil phases making up the composition. In addition, it was not clear whether the composition of D4 comprised a dimethicone

copolyol surfactant. As regards D2, the composition of D2 was not a gel, but a liquid.

(b) The refractive index as claimed made it possible to increase the amount of materials with a high refractive index in the gel composition while maintaining its clarity. None of the cited documents addressed the problem of increasing the amount of material with a high refractive index in gel compositions. In the prior art only the relevance of matching the refractive indices of the water and the oil phase to achieve clarity of the composition was discussed, but nothing was said about the advantages of a high value of the refractive index of the composition.

(c) As far as the presence of polypropylene glycol was concerned, it was specified in the patent in suit that its incorporation in the composition improved cosmetic properties, in particular it reduced tackiness and decreased the white residue left after application of the composition. The tests filed on 10 September 2010 confirmed that the presence of polypropylene glycol in the composition reduced its tackiness compared with propylene glycol. Even if the tests did not provide a direct comparison with the state of the art documents, which was not practical due to their large number, by means of the comparison of compositions in which only one component was changed, they showed clearly that such an effect was present.

D1 did not suggest the addition of polypropylene glycol in order to avoid tackiness and reduce white residue. It only disclosed in a general way the class of polyalkylene glycols as possible transparency structurants, polyethylene glycol being used in some examples.

D2, D3 and D4, which also concerned cosmetic compositions in the form of clear water-in-oil emulsions, did not mention the use of polypropylene glycol.

D6 would not be taken into consideration by the skilled person, trying to reduce the tackiness of the known compositions or even looking for an alternative, since that document did not concern water-in-oil emulsions. Polypropylene glycols were mentioned in D6 only as possible co-solvents among many others and the two examples referring to gel compositions showed that D6 concerned anhydrous compositions using polypropylene glycol as a co-solvent. There was no link in D6 between the use of polypropylene glycol and the reduction of tackiness. Also, entirely different components were mentioned in D6 as coupling agents, belonging in particular to the class of ethers, so that the use of polypropylene glycol as a coupling agent was not even hinted at. In that light, D6 did not suggest to add polypropylene glycol to any of the compositions of D1, D2, D3 or D4 in order to avoid tackiness or even as a possible alternative coupling agent.

(d) For those reasons, the two features distinguishing the claimed composition from the compositions of any of D1, D2, D3 and D4 were sufficient to support the presence of an inventive step.

X. The arguments of the opponents (respondents) that are relevant to the present decision can be summarised as follows:

(a) The claimed subject-matter lacked an inventive step irrespective of which of D1, D2, D3 or D4 was chosen as the starting point. Those documents disclosed compositions that differed from the claimed ones, if at all, in the value of their refractive index and in the absence of polypropylene glycol. The compositions of the examples of D4 in particular, contained a dimethicone copolyol, which had not been disputed by the patent proprietors in the previous proceedings.

(b) The present choice of the range for the refractive index did not amount to any difference with respect to the compositions of D4. The values given for the refractive indices of the compositions disclosed in the examples of D4, in the absence of any evidence as to the contrary, had to be accepted as being correct and they fell within the range of claim 1.

The refractive index range of the compositions of D2 overlapped with the range of present claim 1.

Since the refractive index range disclosed in D3 fell just outside the claimed range and differed only in the fifth significant digit, that difference could not form the basis for the definition of a problem solved by the refractive index range as claimed.

From the ingredients of the compositions according to D1, it could not be excluded that an overlap existed with the refractive index range now being claimed. In any case, since the refractive index range was not associated with any technical effect and depended only on the choice of the components, it could not render the claimed compositions inventive. Since useful cosmetic ingredients could have a wide range of refractive indices, high as well as low, no advantage could be attributed to the selection of a composition with a high value range in order to allow for the possibility to increase the amount of cosmetic ingredients with a high refractive index.

(c) Despite the allegation of the patent proprietors that the inclusion of polypropylene glycol in the composition provided several advantages, including the reduction of white residue, limitation of skin irritation and reduction of the tackiness of the composition, only the last effect had been supported by the tests filed on 10 September 2010. The problem to be solved starting from the compositions of any of D1, D2, D3 or D4 was therefore to provide a composition with reduced tackiness. D6 concerned the problem of reducing tackiness and disclosed to that end compositions

including a co-solvent which was preferably dipropylene glycol or tripropylene glycol. The teaching of D6 relating to the reduction of tackiness was independent of the galenic form of the composition and applied therefore also to water-in-oil emulsions. Moreover, the presence of polar and non-polar components, of surfactant and even of water was mentioned in D6 and the compositions of examples V and VI of D6 could be emulsions. In view of this, the skilled person, starting from the composition of any of D1, D2, D3 or D4 and trying to achieve a reduction in tackiness would follow the teaching of D6 and obtain in an obvious manner a composition according to claim 1 of the patent in suit. For those reasons the composition of claim 1 of the main request was not inventive.

(d) D2 disclosed compositions comprising very similar components as the present composition, which however were liquids instead of gels. That difference could not justify the presence of an inventive step either, since it was well known how to transform a liquid into a gel by means of shearing and homogenisation.

XI. The appellants (patent proprietors) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request or one of the four auxiliary requests, all filed with letter dated 10 September 2010.

XII. The respondents (opponents) requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

Main request

Amendments

2. The claims according to the main request correspond to the granted claims with the deletion of dependent claims 13 and 26 as a reaction to an objection of the opponents under Article 83 EPC. No objections under Articles 84 and 123 EPC, nor under Rule 80 EPC were raised against the amended claims and the objection under Article 83 EPC was not maintained in view of the amendments. The Board sees no reason to take a different view with respect to the amendments.

Inventive step

3. *Closest state of the art*

3.1 The patent in suit is directed to a clear cosmetic gel composition in the form of a water-in-oil emulsion and aims at compositions that have reduced whitening and tack, and reduced skin irritation, and which can include increased amounts of the cosmetically active ingredient, for example increased amounts of antiperspirant active ingredient, yet being clear (paragraphs [0001] and [0002]).

Similar compositions are disclosed in D1, D2, D3 and D4. The opposition division held that D1 was the

closest prior art document, whereas both parties developed lines of argument starting from any of D1 to D4.

3.2 D1 discloses a water-in-silicone oil transparent emulsion, suitable for topical application to mammalian skin or hair, comprising, in addition to water, a volatile polydimethylsiloxane, a silicone surfactant ingredient defined by a specific chemical formula and a transparency structurant which is at least one polyhydric alcohol (claim 1). The emulsion has preferably gel-like properties (page 5, line 7); a particularly preferred silicone surfactant is cyclomethicone and dimethicone copolyol (page 6, line 14); among the transparency structurants polyalkylene glycols are mentioned as well as sugar alcohols, including sorbitol as the preferred polyhydric alcohol (page 6, lines 27-40); several skin and hair cosmetic substances included in the compositions are listed, such as 2-hydroxyalkanoic acids having 3 to 28 carbon atoms and antiperspirant agents (page 7, lines 1-21).

3.2.1 Example 1 of D1 (page 8, line 46 - page 9, line 21) discloses a transparent gel comprising a volatile siloxane, a silicone surfactant (DC 3225C, being cyclomethicone and dimethycone copolyol; page 6, lines 14-15), 2-hydroxyoctanoic acid (a cosmetically active ingredient; page 7, line 5), sorbitol (a coupling agent according to the patent in suit, paragraph [0063]), polyethyleneglycol 400, butane-1,3-diol, a preservative, a buffer and water. A similar composition is disclosed in example 2 (page 9, lines 24-47).

3.2.2 The compositions of D1 possess excellent storage stability, can have gel like properties and have a transparent appearance and an attractive skin feel (page 4, lines 12-18).

3.3 D2 discloses a clear antiperspirant product comprising a stable water-in-oil emulsion with a viscosity of less than 1000 cps at room temperature, having an aqueous phase with an antiperspirant active ingredient in solution therein, an oil phase making up at least thirty percent of said product and a stabilizing agent having solubility in both phases to stabilize the emulsion without impairing the clarity of the product (claim 1). The product, unlike a gel, is a stable, free-flowing liquid water-in-oil emulsion (page 2, lines 3-8) and has preferably a refractive index of 1.39 to 1.42 (page 2, lines 30-31).

3.3.1 The compositions of examples 1 to 4 of D2 include an oil phase with cyclomethicone and dimethicone copolyol (DC 3225C) and dimethicone (DC-200 50 cs. with a refractive index of 1.4051 according to D16), a water phase with propylene glycol (a coupling agent according to the patent in suit, paragraph [0065]) and aluminium zirconium tetrachlorohydrex-gly (an antiperspirant according to the patent in suit, paragraph [0057]) and Oleth-5 and ethanol as stabilising agents.

3.3.2 D2 aims at products having smoothness, non-oiliness, non-tackiness and no readily visible residue (page 1, lines 20-25; page 2, lines 1-3).

3.4 D3 concerns an optically clear cosmetic product of the deodorant or antiperspirant type, comprising an emulsion with a viscosity of at least about 50,000 cps at 21°C and a refractive index in the range of 1.3975 - 1.4025, said emulsion having a water phase with an active ingredient incorporated therein and an oil phase (claim 1). The oil phase is typically a blend of liquids and includes among others a polyorganosiloxane, for example dimethicone, isopropyl myristate (with a refractive index of 1.4340) and a silicone emulsifying agent which is preferably a polyether substituted silicone of cyclomethicone (and) dimethicone copolyol, available as DC 3225C (page 2, lines 16-34). The water phase includes one or a combination of various polar species such as water, propylene glycol and sorbitol (coupling agents according to the patent, paragraphs [0063] and [0065]). The cosmetic products of D3 are obtained by adding the water phase slowly to the oil phase, after which the mixture is sheared with a suitable homogenising device to produce a gel with a viscosity of around 140,000 cps at 21°C (page 5, lines 6-18).

3.4.1 The products of D3 should have aesthetic characteristics of non-crumbling, smoothness, non-oiliness and non-tackiness and they should not to leave a visible residue after application to the skin (page 1, lines 12-19).

3.5 D4 discloses an antiperspirant composition comprising a long-chain hydrocarbon-modified polydiorganosiloxane polyoxyalkylene copolymer having a specific chemical formula, a volatile liquid, a solubilizing agent, water,

a refractive index adjuster and an astringent salt (claim 1).

3.5.1 Example 1 of D4 discloses water-in-oil emulsion clear gel antiperspirants (page 7, lines 29-30). Compositions III and IV of example 1 in particular include (Table 1 on page 9) an oil phase comprising inter alia isopropyl palmitate (with a refractive index of 1.4370, as specified in D3, page 2, line 23) and 218-1138 silicone terpolymer, and a water phase comprising inter alia water, propylene glycol (which is both a glycol as well as a coupling agent according to the patent in suit, paragraph [0065]), aluminium chlorohydrate (an antiperspirant according to the patent in suit, paragraph [0057]) or ZAG (aluminium-zirconium tertrachlorohydrex glycine, which is an antiperspirant, page 7, lines 30-31) and sorbitol (a coupling agent according to the patent in suit, paragraph [0063]). The compositions comprise 40% by weight of a 50% aqueous solution of the antiperspirant. For composition III the refractive indices of the oil phase, the water phase and the final composition are 1.4018, 1.4020 and 1.4032, respectively. For composition IV they are 1.4023, 1.4025 and 1.4034, respectively.

3.5.2 D4 aims at compositions that are clear, non tacky and non-whitening, leaving no visible residue on the skin (page 1, lines 1-5 and 12-18).

3.5.3 The patent proprietors expressed doubts about the reliability of the refractive index values of the exemplified final compositions of D4, because they are higher than those of the refractive indices of each of the water and oil phases which make up the compositions.

However, they did not provide any experimental evidence to show that those values are not correct. In the absence of any such evidence and in view of the difficulty of predicting how the refractive indices of the individual components and of the individual phases combine to make up the refractive index of the final composition, the Board has no reason to doubt the correctness of the values given in D4.

3.6 While D1 does not address any of the purposes of the patent in suit (see point 3.2, *supra*), D2, D3 and D4 all concern water-in-oil emulsions that have reduced whitening and tack. However, D2 concerns free-flowing liquid compositions, which are not in gel form, and D3 specifies as crucial feature a range of the refractive index, which, despite being only marginally different, does not overlap with the one of present claim 1. D4, in addition to addressing the problems of whitening and tackiness, concerns clear water in-oil emulsion gels and discloses compositions with a refractive index in the range of present claim 1 and containing high quantities of antiperspirant. For those reasons, D4 is to be considered as the closest state of the art.

4. *Problem solved*

4.1 One of the problems the patent in suit seeks to solve (see point 3.1, *supra*) is the possibility of including an increased amount of cosmetic components, in particular components with a high refractive index, such as antiperspirants. That problem is, according to the patent in suit, related to the choice of the refractive index range of the composition (paragraph [0032]). However, both a refractive index within the

present range as well as high quantities of antiperspirant are disclosed for the compositions of D4. Hence, the problem of increasing the amount of components with a high refractive index had already been solved in D4 by the same means as in present claim 1.

4.2 As to the further cosmetic properties (low residue, low tackiness, low irritation potential), both reduced whitening and decreased tackiness are also mentioned in D4.

4.2.1 In the patent in suit a number of illustrative compositions are listed, but their properties are neither tested nor compared with compositions according to the prior art.

4.2.2 In the tests filed with letter dated 10 September 2010, a comparison is made of the tackiness and white residue of four gel antiperspirant formulations all including a high quantity of antiperspirant (54% of aluminium zirconium tetrachlorohydrex glycine), water, cyclomethicone and dimethicone copolyol, SD alcohol 40, dimethicone and phenyl trimethicone, and additionally comprising a glycol, which is alternatively dipropylene glycol, propylene glycol, tripropylene glycol and polyglycol P-425 (page 4616-39). No details are given about the chemical composition of the polyglycol.

According to the test report, the tripropylene glycol variant produced the least amount of white residue, the polyglycol variant had a similar result as the propylene glycol variant while the composition with dipropylene glycol produced significantly more residue

(pages 4616-29 and 4616-30). Also, the propylene glycol variant was stickier than the other compositions (page 4616-29).

4.2.3 While it is true that the tests filed by the patent proprietors do not exactly reproduce the examples of D4, they do show the effect of replacing a single component of the composition (propylene glycol), which component is the one present in the examples of D4. Moreover, the opponents did not contest that the tests are evidence for a reduction in tackiness of the composition due to the replacement of propylene glycol by either di- or tripropylene glycol (which are polypropylene glycols as required by claim 1 of the main request).

4.3 The Board is therefore satisfied that, starting from the products of D4, the problem solved by the present gel composition is that of providing a reduction in tackiness.

5. *Obviousness*

5.1 D4 does not suggest to use polypropylene glycol in clear cosmetic gel compositions at all, let alone with the purpose of reducing tackiness. The same is valid for D2 and D3, neither of which mentions the use of polypropylene glycol. In D1 polyalkylene glycols are disclosed as a class of compounds used among others as transparency structurants (see point 3.2, *supra*), but polypropylene glycols as such are not mentioned, let alone in the context of reducing tackiness. Therefore, those documents, taken alone or in combination, cannot render the claimed subject-matter obvious.

5.2 The only document that mentions polypropylene glycols is D6, which concerns antiperspirant compositions, substantially free of soap-based gelling agents, comprising an antiperspirant active, a solvent selected from propylene glycol, glycerine, ethanol, water, and mixtures thereof, within which the antiperspirant active is solubilised, and a co-solvent selected from a long list of compounds including polypropylene glycols (claim 1). Preferred co-solvents include dipropylene glycol and tripropylene glycol (claim 4).

5.2.1 The compositions of D6 may be formulated as clear gel sticks, in which case they additionally contain a gelling agent (page 7, lines 23-24). Examples III and IV of D6 (page 10, lines 6-54) describe clear gel stick antiperspirant compositions comprising, among other ingredients, dipropylene glycol, IACH (improved efficacy aluminium chlorhydroxyde antiperspirant active; page 9, line 32), propylene glycol and a gelling agent. No water is present in those compositions.

5.2.2 In Examples V, VI and VII of D6 (page 10, line 56 to page 12, line 16) liquid antiperspirant compositions are obtained by forming a clear solution of IACH in water or propylene glycol and adding further components, including, in example V, dipropylene glycol. No information is given on whether that mixing results in the formation of an emulsion.

5.2.3 D6 aims at compositions that are excellent in antiperspirant efficacy and feel clean and not sticky when applied to the skin (page 3, lines 11-12; page 12, lines 43-44).

5.2.4 D6 does not disclose any gelled water-in-oil emulsions and does not even mention emulsions in the context of liquid compositions. The disclosure in D6 of dipropylene glycol and tripropylene glycol is only made in the context of co-solvents; the document contains no hint that their use might lead to reduced tackiness. Therefore, D6 does not suggest to replace the propylene glycol of D4 by a polypropylene glycol or to add polypropylene glycol to the compositions of D4 with the purpose of reducing tackiness.

5.3 For those reasons, the introduction of polypropylene glycol in the composition of D4 with the aim of reducing its tackiness is not obvious.

5.4 In view of the above, it is not relevant for the Board to decide on whether a dimethicone copolyol is included in the compositions of the examples of D4, on which the opposing parties did not agree.

6. The presence of an inventive step would have to be acknowledged also starting from any of the documents D1, D2 and D3, as none of them discloses compositions containing polypropylene glycols (see point 5.1, *supra*).

7. For those reasons, the composition of claim 1 of the main request meets the requirements of Article 56 EPC.

8. No separate attack has been made against the other independent claims and the Board sees no reasons to discuss them separately. Moreover, since the main request has been found to be allowable, the merits of the auxiliary requests need not be discussed.

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 the main request filed with letter dated 10 September 2010 and a description yet to be adapted thereto.

The Registrar | The Chairman

S. Fabiani | S. Perryman