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**Datasheet for the decision
of 15 April 2010**

Case Number: T 0309/07 - 3.3.07

Application Number: 97915125.5

Publication Number: 0889720

IPC: A61K 7/32

Language of the proceedings: EN

Title of invention:

Low residue antiperspirant stick composition

Patent Proprietors:

Colgate-Palmolive Company

Opponents:

HENKEL AG & CO. KGAA

Headword:

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Relevant legal provisions:

-

Relevant legal provisions (EPC 1973):

EPC Art. 56

Keyword:

"Inventive step - no"

Decisions cited:

-

Catchword:

-



Case Number: T 0309/07 - 3.3.07

D E C I S I O N
of the Technical Board of Appeal 3.3.07
of 15 April 2010

Appellants: Colgate-Palmolive Company
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Representative: -

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 19 December 2006
revoking European patent No. 0889720 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: S. Perryman
Members: D. Semino
G. Santavicca

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. 0 889 720, granted on European application No. 97 915 125.5, which was based on international application PCT/US97/04220 published as WO-A-97/34577.

II. The patent had been granted on the basis of 25 claims, claim 1 reading as follows:

"1. Antiperspirant stick composition exhibiting reduced or no visible residue after application to human skin, comprising:

(a) an antiperspirant active ingredient, in an amount of 10-30 wt.%;

(b) a gelling agent, in an amount of 17-40 wt.%;

(c) a vehicle for the gelling agent, in an amount of 30-50 wt.% and selected from the group consisting of cyclomethicone, hydrogenated polyisobutene, isodecane, isohexane and isoeicosane; and

(d) an emollient, the emollient comprising both at least one non-volatile silicone material and at least one nonvolatile emollient material that is not a silicone material, wherein (i) both the at least one non-volatile silicone material and the at least one non-volatile emollient material have refractive indices of at least 1.4460, (ii) the emollient is included in an amount so as to reduce or eliminate a whitening effect of the antiperspirant active ingredient on the skin, and (iii) the non-volatile silicone material is present in an amount of 5-20% by weight and the non-volatile emollient material that is not a silicone material is present in an amount of 10-27% by weight,

of the total weight of the composition; the at least one non-volatile emollient material being selected from the group consisting of isostearyl isostearate; glycereth-7-benzoate; C₁₂-C₁₅ alkyl benzoate; octyldodecyl benzoate; isostearyl lactate; isostearyl palmitate; benzyl laurate; laureth-4; laureth-7; oleth-2; PEG 4; PEG-12; PPG-2 Cetareth-9; PPG-2 Isodeceth-12; PPG-5 bureth-7; PPG 14 butyl ether; PPG-15 butyl ether; PPG-53 butyl ether; octyldodecanol; and polydecene."

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). The opposition was *inter alia* supported by the following documents:

D1: WO-A-93/23008
D2: CA-A-2 152 754
D3: EP-A-0 388 111
D4: EP-A-0 396 137
D5: US-A-5 449 511.

IV. According to the decision under appeal:

(a) D2, which was directed to a solid stick as the patent in suit, was to be considered as the closest state of the art, since it addressed the same technical problem and had more features in common with the invention underlying the patent in suit than D1, which instead related to gel sticks.

- (b) The stick of granted claim 1 differed from those of D2 in that it comprised a non-volatile non-silicone component in an amount of 10-27% by weight.
- (c) The technical problem to be solved was the provision of an alternative antiperspirant stick composition which exhibited reduced or no visible residue after application to the human skin.
- (d) Having regard to the teaching of D4, according to which the problem of low residue was best solved by masking the antiperspirant active agent with a blend of liquids having a refractive index close to the refractive index of the active agent, including e.g. C₁₂-C₁₅ alcohols benzoate, considering D2 itself, which mentioned PPG-14 butyl ether in an amount of 1-25 wt. % as a suitable additional component, and taking into account the high cost of silicone emollients such as phenyltrimethicone, the skilled person would obviously replace a portion of phenyltrimethicone used in the compositions illustrated in the examples of D2 with PPG-14 butyl ether.
- (e) Therefore, the product of granted claim 1 did not involve an inventive step.

V. On 22 February 2007 the patent proprietors (appellants) filed a notice of appeal against the above decision, the prescribed appeal fee being paid on the same day. On 27 April 2007 the appellants filed a statement setting out the grounds of appeal and requested maintenance of the patent as granted as their Main

Request. With a letter dated 15 March 2010 the appellants submitted a further set of 24 claims as the Auxiliary Request. Claim 1 according to the Auxiliary Request read as follows:

"1. Antiperspirant stick composition exhibiting reduced or no visible residue after application to human skin, comprising:

- (a) an antiperspirant active ingredient, in an amount of 10-30 wt.%;
- (b) a gelling agent, in an amount of 17-40 wt.%;
- (c) a vehicle for the gelling agent, in an amount of 30-50 wt.% and selected from the group consisting of cyclomethicone, hydrogenated polyisobutene, isodecane, isohexane and isoeicosane; and
- (d) an emollient, the emollient comprising both at least one non-volatile silicone material and at least one nonvolatile emollient material that is not a silicone material, wherein (i) both the at least one non-volatile silicone material and the at least one non-volatile emollient material have refractive indices of at least 1.4460, (ii) the emollient is included in an amount so as to reduce or eliminate a whitening effect of the antiperspirant active ingredient on the skin, and (iii) the non-volatile silicone material is present in an amount of 5-20% by weight and the non-volatile emollient material that is not a silicone material is present in an amount of 10-27% by weight, of the total weight of the composition; the at least one non-volatile emollient material being PPG 14 butyl ether."

VI. Oral proceedings were held on 15 April 2010. After the closure of the debate and the deliberation by the Board, the decision was announced.

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

Main Request

Inventive step

- (a) D2 mentioned PPG-14 butyl ether in a list of various possible components and indicated a possible amount of 1 to 25% by weight of these components. However, there was too much latitude in the disclosure of D2, in particular as regards the variation of the concentrations of the other ingredients if a high amount of PPG-14 butyl ether was chosen. Also, D2 did not disclose how to achieve low residue and high emolliency. Hence, D2 did not disclose PPG-14 butyl ether in a quantity of 10-27% by weight in combination with the other components as defined in granted claim 1 in the desired quantities. Example 1 of D2 illustrated the closest embodiment.
- (b) The stick of granted claim 1 differed from that illustrated by example 1 of D2, which disclosed four out of the five components of the claimed composition in the right quantities, in that the at least one non-volatile emollient material that is not a silicone material had a refractive index of at least 1.4460, was present in an amount of 10 to 27% by weight of the total weight of the

composition and was selected from a specific group of emollient compounds. None of the requirements for the non-volatile non-silicone emollient material was met by example 1 of D2, which contained PPG-8-distearate in an amount of 4% by weight instead.

- (c) Even if no comparative example had been provided, the improvement indicated in the disputed patent was credible in view of the distinguishing features, so that the objective technical problem starting from D2 as the closest state of the art was the provision of a low-cost antiperspirant stick composition providing both improved properties, such as a high degree of emolliency, and reduced whitening effect.

- (d) There was no hint in the available prior art to modify the composition of Example 1 of D2 in the way required to come to the claimed invention. In particular D2 itself mentioned PPG-14 butyl ether only accidentally in the description, but was completely silent on the refractive index of the various components and its possible effect and disclosed PPG-14 butyl ether only in a comparative example with high residue, so that it taught away from adding it to the composition of example 1. In any case, even if the skilled person would consider adding more than 10% by weight PPG-14 butyl ether to the composition of example 1, he would need to reduce correspondingly the quantities of the other components, so that at least the quantity of cyclomethicone would fall outside the claimed range. D4 contained a very

specific teaching, namely that the refractive index of the whole vehicle and not of the emollient should match the one of the antiperspirant component and mentioned vehicles which were not only different from the claimed ones, but also incompatible with the ones of D2, so that, even if D2 were combined with D4, this combination would lead the skilled person to a stick different from the claimed one. D5 suggested the use of a masking agent, but did not indicate the relevance of the refractive index. Even if the vague teaching in D5 related to the interaction of the masking agent with the particulates to reduce light scattering were understood as pointing to the choice of masking agents with a specific refractive index, the limit of 9% by weight for their quantity would make this disclosure insufficient to come to the claimed composition. In summary, none of the available documents would hint at the proposed solution. Even if the problem were the provision of an alternative, the skilled person would not arrive at the claimed composition without hindsight.

- (e) If D1, which concerned sticks in which the type of stick and the gelling agent had been specifically chosen to avoid white residue and whose example XIV differed from the claimed stick only in the lower quantities of gelling agent and of non volatile non-silicone emollient, were considered as the closest state of the art, the technical problem remained the same as above. Here again, the skilled person would find in the available prior art no hint to raise the gelling agent

amount, since D1 concerned gel sticks with a maximum amount of gelling agent of 15% by weight, nor any incentive to increase the quantity of non-volatile non-silicone emollient, in particular because D1 gave no specific information on the relevance of the choice of the emollients and of its refractive index and the other documents added no hint in this respect. In particular, D3 was directed to different non-silicone components.

Auxiliary Request

Extension of scope of protection

- (f) Amended claim 1 included a limitation on the total amount of non-volatile non-silicone emollient material, which according to the claim could be only PPG-14 butyl ether, so that no extension of the scope of protection was present.

Inventive step

- (g) The same arguments as detailed for the Main Request applied a *fortiori* to the composition of claim 1 of the Auxiliary Request, in particular considering that, when starting from D2, neither D4, nor D5 disclosed PPG-14 butyl ether.

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

Main Request

Inventive step

- (a) The sticks of granted claim 1 differed from those of D2, which represented the closest state of the art, in the specific non-volatile non-silicone emollient material and in its specific quantity.
- (b) In the application as filed, however, no relevance had been given to the choice of the specific emollients and to the quantities of the ingredients of the composition, so that the problem to be solved had to be seen simply as the provision of a further composition.
- (c) The proposed solution was obvious already in view of D2 itself, which mentioned PPG-14 butyl ether in the general part of its description in a quantity overlapping with the claimed range. In this respect the disclosure of comparative example 1, which differs from example 1 in many respects, cannot be seen as teaching away from the use of PPG-14 butyl ether. In addition D4 suggested to use a vehicle with a refractive index close to the one of the active agent and mentioned to this purpose some of the claimed non-volatile non-silicone emollient materials and D5 mentioned at least indirectly the relevance of the refractive index and indicated quantities of the masking agent going beyond 9% by weight.

- (d) The skilled person, therefore, aware of the costs of the different components, would obviously come to the claimed stick in view of these disclosures.

- (e) D1 disclosed in its example XIV a gel stick which differs from the claimed one in the lower amount of gelling agent and of non-volatile non-silicone emollient material; neither of these difference could justify the presence of an inventive activity, since the skilled person would obviously increase the amount of gelling agent if aiming at solid sticks and would raise the amount of non-volatile non-silicone emollient material, when addressing the problem of further improving the residue properties, in view of the disclosure of D3, which suggested to use non-volatile non-silicone emollients in order to reduce the visible residue.

Auxiliary Request

Extension of scope of protection

- (f) The deletion of most components from the list of the non-volatile non-silicone emollients implied that compositions including PPG-14 butyl ether in an amount of 10-27% by weight together with some of the deleted components in an amount such that the total amount of non-volatile non-silicone emollients was above 27% by weight were now covered by claim 1 according to the Auxiliary Request. Since these compositions did not fall under the scope of protection of granted claim 1,

the amendment resulted in an extension of the scope of protection.

Inventive step

(g) The same arguments of lack of an inventive step in view of D2 alone as detailed for the Main Request applied equally to the composition of the Auxiliary Request.

IX. The appellants (patent proprietors) requested that the decision under appeal be set aside and that the patent be maintained as granted or on the basis of the Auxiliary Request submitted on 15 March 2010.

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

Reasons for the Decision

1. The appeal is admissible.

Main Request

Inventive step

2. *Closest state of the art*

2.1 The patent in suit is directed to a low residue antiperspirant stick composition, i.e. a composition which reduces or eliminates the residue left on the skin after application (paragraph [0001]).

Antiperspirant stick compositions are known *inter alia* from D1 and D2.

- 2.2 D1 concerns antiperspirant gel stick compositions comprising a gelling agent, a liquid base material and an antiperspirant active, wherein the gelling agent is selected from the group consisting of n-acyl amino acid amides, and mixtures of n-acyl amino acid amides and 12-hydroxystearic acid (page 6, lines 10-17, "Summary of the invention"). The level of the gelling agent is from 1% to 15%, preferably from 3% to 12%, most preferably from 5% to 10% total weight of the gel composition (page 6, lines 28-31). The liquid base materials are preferably used at levels from 10% to 95%, more preferably from 30% to 80% of the composition. These liquid base materials generally comprise non-polar emollient oils having solubility parameters from about 5 to about 11, or mixtures thereof such that the average solubility parameter of the liquid base material is from about 6 to about 10 (page 8, line 30 - page 9, line 1). Non-polar emollient oils are selected from a group consisting of silicone oils and several non silicone oils and mixtures thereof (page 9, lines 19-25), wherein silicone oils include both volatile and non-volatile silicone oils (page 9, lines 30-31), the volatile silicone oils include cyclomethicone (page 10, lines 11-33) and the non-volatile silicone oils include esters of C₁₂-C₂₂ alcohols and benzoic acid, such as the commercial product Finsolv TN (page 11, lines 18-19). The antiperspirant actives are used at levels from 1% to 60%, preferably from 5% to 35% of the antiperspirant gel composition (page 12, lines 22-24).

- 2.2.1 Example XIV (Table on the bottom of page 19) of D1 concerns a composition comprising 25% by weight of Aluminium Zirconium Trichlorohydrate Gly (an antiperspirant material), 2% by weight of N-lauroyl-L-glutamic acid-di-n-butyl amide with 6% by weight of 12-hydroxystearic acid (making up 8% by weight of a gelling agent), 43% by weight of cyclomethicone (a vehicle for the gelling agent), 5% by weight of polyphenylmethylsiloxane (a non-volatile silicone emollient with a refractive index of at least 1.4460, as attested in D4, page 3, line 15) and 8% by weight of C₁₂-C₁₅ alcohols benzoate (a non-volatile non-silicone emollient with a refractive index of at least 1.4460, as confirmed in the patent in suit, Table at the bottom of page 5, fourth line).
- 2.2.2 The antiperspirant gel stick compositions of D1 have superior stability, low residue on the skin, low skin irritation, and excellent aesthetic characteristics (page 1, lines 5-8). In particular in D1 the different antiperspirant stick classes, i.e. compressed powder sticks, gel sticks and wax sticks, are illustrated (page 2, line 3 - page 4, line 17) and it is noted that gel sticks avoid the use of waxy solidifying agents and, therefore, do not suffer from the aesthetic disadvantages associated with wax sticks such as difficult application and high residue (page 3, line 34 - page 4, line 2). In view of this knowledge, the object of D1 is presented as being the provision of antiperspirants stable gel sticks having excellent efficacy and reduced residue on the skin (page 6, line 1-3).

2.3 D2 discloses a low-residue antiperspirant solid stick composition comprising a volatile silicone material, a non-volatile silicone material, a high-melting-point wax, a low-melting-point wax, dimethicone copolyol and an antiperspirant active material (claim 1). In a preferred embodiment, the volatile silicone material is cyclomethicone in an amount of 10-60% by weight, the non-volatile silicone material is phenyltrimethicone in an amount of 5.01-50% by weight, the high-melting-point wax is castor wax in an amount of 2-10% by weight, the low-melting-point wax is stearyl alcohol in an amount of 2-30% by weight, dimethicone copolyol is in an amount of 1-15% by weight and the antiperspirant active material includes an antiperspirant active metal salt in an amount of 10-30% by weight (claim 7, dependent on claim 2). Illustrative compositions of D2, with preferred ranges for the volatile silicone material (30-40% by weight) and for the non-volatile silicone material (5.01-15% by weight), are indicated on page 4, lines 2-15. Additional emollient, such as PPG-14 butyl ether, are mentioned on page 6, lines 12-16. The compositions can include additional components that improve glide of the stick composition on the skin, such as PPG-14 butyl ether, in an amount of 1.0-25.0% by weight (page 7, lines 19-28).

2.3.1 Example 1 (Table on page 16) of D2 concerns a composition comprising 20% by weight of Reach 908-0 (an antiperspirant material), 20% by weight of stearyl alcohol and 4% by weight of castor wax (making up 24% by weight of a gelling agent), 31% by weight of cyclomethicone (a vehicle for the gelling agent), 10% by weight of phenyltrimethicone (a non-volatile silicone emollient with a refractive index of at least

- 1.4460, as confirmed in the patent in suit, paragraph [0045], third ingredient) and 4% by weight of PEG-8-distearate (a non-volatile non-silicone emollient). Comparative example 1 contains 6.5% by weight of PPG-14 butyl ether, however in combination with 41% by weight cyclomethicone, 12% by weight of stearyl alcohol, 8% by weight of castor wax and 22% by weight of Reach AZP-908 (a different antiperspirant material).
- 2.3.2 It is the purpose of D2 to propose an antiperspirant solid stick composition which is silicone-based and contains silicone materials and waxy-type materials, which leaves little, or substantially no, visible residue on skin after application and after drying, has superior antiperspirant efficacy and superior cosmetic properties, is easy to manufacture, easily glides on during application, has a powdery feel upon application, and is not sticky or tacky after drying (page 1, lines 1-11). Indeed no residue was obtained by application of the composition of example 1 (page 17, lines 9-18 and Table I on page 18).
- 2.4 D1 and D2 aim at the same objective as the patent in suit, namely to eliminate the white residue while obtaining good cosmetic properties, and disclose at least individually all the components of the claimed composition. However, D1 solves this problem by means of a gel stick with a specific gelling agent in a specific quantity, which quantity is incompatible with the one indicated in granted claim 1, so that it cannot constitute a reasonable starting point to arrive at the claimed invention. Instead, D2 discloses together with the same objective and all the individual components, also quantity ranges which overlap with the claimed

ones and therefore is to be considered as the closest state of the art.

3. *Problem solved*

3.1 According to the patent in suit (paragraph [0010]), the underlying invention seeks "to provide an antiperspirant stick composition that exhibits reduced and preferably no whitening (residue) upon application to the skin or after drying thereon, which has desired cosmetic properties and antiperspirant efficacy, and which can be formed at reduced cost". The same object is aimed at in D2 (see point 2.3.2, *supra*) with the only exception that the reduction of cost is not mentioned therein.

3.2 In the patent in suit a product according to the granted claim is compared in performance (visible white residue) with five commercial products of unknown composition (paragraphs [0049]-[0054]). These tests do not allow any comparison with the compositions of the closest state of the art and no other comparative tests are present in the file.

3.3 Moreover, there is no evidence available which would corroborate an improvement with respect to the product according to the closest state of the art over the whole breadth of the claim. This is all the more the case in view of breadth of the claim, which by fixing only a lower limit on the refractive index of the emollients and leaving the choice of the antiperspirant active ingredient fully open even includes compositions in which the refractive index of the emollients and the

one of the antiperspirant active ingredient can differ relevantly from each other.

- 3.4 As far as the cost of the components is concerned, it cannot be considered as relevant for formulating a technical problem. In any case, the cost of products changes with time and place, so that its reduction cannot be necessarily considered as a characteristic showing an improvement.
- 3.5 The patent in suit and D2 address the same problem (see point 3.1, *supra*). Moreover, application of compositions according to the patent in suit and D2 leaves no or very little visible residue (cf. paragraphs [0054]-[0055] in the patent in suit and page 17, lines 9-18 together with Table I on page 18 of D2). In the absence of any direct comparison between the two products, the solved technical problem, starting from D2, can only be seen in the provision of a further composition with little or no residue upon application to the skin or after drying thereon and desirable cosmetic properties.

4. *Obviousness of the solution*

- 4.1 It remains to be decided whether the claimed composition was obvious for the person skilled in the art in view of the available prior art when trying to solve the objective technical problem.
- 4.2 The skilled person, starting from the compositions of D2 and looking for further compositions with similar properties would gather from the whole of the disclosure of D2 that the inclusion of PPG-14 butyl

ether in quantities largely overlapping with the claimed ones (10-27% by weight in claim 1, 1-25% by weight in D2, page 7, lines 24-28) is envisaged and suggested as a further addition.

4.2.1 Although comparative example 1 of D2 illustrates that a composition containing PPG-14 butyl ether can lead to unsatisfactory results (Tables on pages 16 and 18), this cannot be considered as teaching away from the suggested addition of PPG-14 butyl ether to the composition, in particular because the comparative example concerns a composition which differs in many respects from the composition of example 1 (the quantities of cyclomethicone, stearyl alcohol and castor wax are largely modified; phenyltrimethicone, dimethicone copolyol, PEG-8-distearate and cornstarch are not present; glyceryl stearate, PPG-14 butyl ether and talc are added; a different antiperspirant active material is used). Hence, the lack of success cannot be attributed to the presence of a single individual component, such as PPG-14 butyl ether.

4.3 The skilled person looking for further compositions would therefore obviously consider adding PPG-14 butyl ether to the compositions of D2 in a quantity falling under the claimed range in view of the disclosure of D2 itself (almost two thirds of the range disclosed in D2 overlap with the claimed range). In doing so, he would take into account the whole of the disclosure of D2 and therefore, while rearranging the quantities of the different components, would maintain the essential components within their preferred ranges which largely overlap with the claimed ones (e.g. he would keep the cyclomethicone in the preferred range 30-40% for the

volatile silicone material, see page 4, lines 6-7 of D2).

4.4 The addition of PPG-14 butyl ether in the claimed quantities to the compositions of D2 while maintaining the other essential components within their preferred ranges would result in an antiperspirant stick composition according to claim 1 as granted.

4.5 The composition of granted claim 1 is therefore not inventive.

Auxiliary Request

5. *Inventive step*

5.1 The arguments regarding lack of an inventive step of granted claim 1 equally apply to claim 1 according to the Auxiliary Request, since they concern exactly the embodiment with PPG-14 butyl ether, which has been singled out in the Auxiliary Request. The composition of claim 1 according to the Auxiliary Request is therefore not inventive for the same reasons as for the Main Request (points 2-4, *supra*).

6. *Extension of the scope of protection*

6.1 Since the composition according to claim 1 of the Auxiliary Request is not inventive, it is not necessary for the Board to decide whether an extension of the scope of protection results from the amendment made.

Order

For these reasons it is decided that:

1. The appeal is dismissed.

The Registrar:

The Chairman:

S. Fabiani

S. Perryman