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**Datasheet for the decision
of 13 September 2007**

Case Number: T 0735/04 - 3.3.07

Application Number: 96925701.3

Publication Number: 0839022

IPC: A61K 7/06

Language of the proceedings: EN

Title of invention:

Antimicrobial hair treatment composition

Patent proprietors:

UNILEVER PLC, et al

Opponents:

KPSS-Kao Professional Salon Services GmbH

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56

Keyword:

"Novelty - main request - no"

"Inventive step - problem and solution - auxiliary request -
(no)"

Decisions cited:

-

Catchword:

-



Case Number: T 0735/04 - 3.3.07

DECISION
of the Technical Board of Appeal 3.3.07
of 13 September 2007

Appellants: KPSS-Kao Professional Salon Services GmbH
(Opponents) Pfungstädterstrasse 92-100
D-64297 Darmstadt (DE)

Representative: -

Respondents: UNILEVER PLC
(Patent proprietors) Unilever House
Blackfriars
London EC4P 4BQ (GB)

and

UNILEVER N.V.
NL-3013 AL Rotterdam (NL)

Representative: James, Helen Sarah
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
15 April 2004 concerning maintenance of
European patent No. 0839022 in amended form.

Composition of the Board:

Chairman: S. Perryman
Members: B. Struif
G. Santavicca

Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 839 022 with respect to European patent application No. 96 925 701.3 filed as international application PCT/EP96/03013 on 6 July 1996 was published on 24 October 2001. The granted patent was based on nine claims. Independent claims 1, 7, 8 and 9 read as follows.

"1. An antimicrobial hair treatment composition comprising:

- (a) at least one surfactant;
- (b) fine particles of an insoluble particulate metal pyrithione, in which at least 90% by weight of the particles have a size of 1 micron or less; and
- (c) a polymeric, water-soluble cationic deposition aid for the fine particles."

"7. A non-therapeutic method of treating dandruff comprising applying to the hair an antimicrobial composition comprising:

- (a) at least one surfactant;
- (b) fine particles of an insoluble particulate metal pyrithione, in which at least 90% by weight of the particles have a size of 1 micron or less; and
- c) a polymeric water-soluble cationic deposition aid for the fine particles."

"8. Non-therapeutical use in an antimicrobial hair treatment composition of fine particles of an insoluble particulate metal pyrithione in which at least 90% by weight of the particles have a size of 1 micron or less in combination with a polymeric water-soluble cationic deposition aid for the fine particles."

"9. Use of a composition according to any one of claims 1 to 6 in the manufacture of a medicament for treating dandruff."

II. A notice of opposition was filed against the granted patent, in which revocation of the patent in its entirety was requested on the grounds of lack of novelty and lack of an inventive step pursuant to Article 100(a) EPC. The opposition was supported *inter alia* by the following documents:

D1: EP-B-0 173 259

D2: EP-B-0 463 780

III. In an interlocutory decision posted on 15 April 2004, the opposition division found that the amended subject-matter in the form based on a set of claims 1 to 8 submitted with letter of 27 February 2003 as the main request fulfilled the requirements of the EPC.

Amended claims 1, 6 and 7 differed from claims 1, 7 and 8 as granted, respectively, in that the polymeric, water-soluble cationic deposition aid for the fine particles was supplemented by the following feature:

"which is a cationic derivative of guar gum or a cationic polyacrylamide".

In amended claim 8, the back reference was adapted to the new claim version.

IV. The decision can be summarized as follows:

- (a) Amended claim 7 was clear, since the added feature was not linked with the arguably missing purpose feature. Lack of clarity was no ground of opposition.
- (b) The amended version of claim 7 had a basis in the application as filed and did not extend the protection conferred (Article 123, paragraphs (2) and (3) EPC).
- (c) The deposition aid in the claims was defined by its chemical structure and by its function, i.e. to enhance deposition of the metal pyrithione particles. According to D1, product 43 comprised zinc pyrithione having the claimed particle size, a surfactant, a cationic copolymerization product of dimethyldiallyl ammonium chloride and acrylamide with a high amount of sodium chloride. Since the copolymer was only used as dispersant, it was not directly and unambiguously disclosed that this copolymer acted also as a deposition aid. The burden of proof in that respect was considered to lie with the opponent. In D2, the size of the zinc pyrithione particles was not disclosed. Thus, the claimed subject-matter was novel over D1 and D2.

- (d) The closest state of the art as acknowledged in paragraph 0006 of the patent in suit was described in EP-A-136 914. That document concerned an enhanced deposition of zinc pyrithione on the scalp by using large particle size of agglomerates in the absence of deposition interfering polymeric and clay type suspension agents. The technical problem disclosed in the patent in suit was the provision of an antimicrobial hair treatment composition having excellent anti-dandruff ability. Example 3 of the patent in suit showed that a composition comprising a guar hydroxylpropyl trimonium chloride and the claimed zinc pyrithione particles led to an enhanced deposition of the latter.
- (e) Neither D1 nor D2 dealt with the deposition problem mentioned in the patent in suit. D1 aimed at compositions wherein metal pyrithione particles were stably dispersed and settlement or separation in the composition was avoided. According to D1 the problem of settlement and separation in the composition differed from the problem of enhancing deposition of the particles on the hair. Since according to D1 cationic polymers produced considerable coagulation, the skilled person would get no incentive in the direction of the claimed invention. D2 did not provide any hint for solving the deposition problem. Consequently, the claimed subject-matter involved an inventive step.

V. On 5 June 2004, the opponent (appellant) filed a notice of appeal against the above decision, the prescribed

fee being paid on 8 June 2004. With the statement setting out the grounds of appeal filed on 20 August 2004, the appellant submitted the following document:

D3: EP-A-0 093 601

VI. In a communication attached to the summons to oral proceedings dated 2 March 2007, the board addressed the points to be discussed including novelty and inventive step.

VII. By communication of 28 March 2007, a document headed "third-party observations according to Article 115 EPC", was sent to the proprietor and the copy thereof to the opponent. The document cited therein was CA-A-2 047 104 (D6).

VIII. By letter of 9 August 2007 the appellant submitted a first auxiliary request.

Independent claims 1, 6 and 7 of the first auxiliary request differed from the corresponding claims of the main request in that the following feature has been omitted:

"or a cationic polyacrylamide".

IX. Oral proceedings were held on 13 September 2007. Both parties relied on the following document cited in the patent in suit:

D5: WO-A-95/22311.

X. The appellant argued in substance as follows:

- (a) Product 43 of D1 disclosed a composition comprising a surfactant, a cationic acrylamide copolymer and zinc pyrithione having a particle size distribution within the claimed range. The patent in suit mentioned cationic polyacrylamides as suitable deposition aid whilst claim 1 did not mention any further limiting features such as the molecular weight or the charge density of the cationic polyacrylamide. The term "deposition aid" concerned an intended use which had no limiting meaning and should be disregarded when deciding on novelty of product claims. Furthermore, polymer B of Experiment 3 according to D3 showed that a dimethyldiallylammonium chloride/acrylamide copolymer acted as deposition aid. Thus, the subject-matter of each of claims 1, 7 and 8 was not novel over D1.

- (b) Regarding the auxiliary request no formal objections were raised. As regards novelty, Experiment 5 of D3 disclosed a shampoo composition comprising zinc pyrithione particles, a surfactant and a cationic guar gum (Jaguar-C-13-S). The pyrithione particles might have an average size as low as 0.2 μm . According to page 11 a suitable particle size might be 0.5 μm . Also D6 was highly relevant, since it was novelty destroying and it disclosed a smaller particle size of zinc pyrithione than D3. Thus, the claimed subject matter was anticipated by D3 or D6.

(c) As regards inventive step, the problem of the patent in suit was to solve the instability and insufficient deposition of the pyrithione particles of prior art composition in order to provide a satisfactory anti-dandruff effect. The solution to that problem was a composition comprising fine particles of the pyrithione compound in combination with a specific deposition aid. D3 disclosed washing compositions to deposit substantially insoluble particles such as antimicrobial substances onto hair. Cationic polymers, such as cationic guar gums enhanced the deposition of zinc pyrithione. The lowest average particle diameter disclosed in D3 overlapped with the particle size distribution as claimed. Since the compositions of Example 3 of the patent in suit did not allow a direct comparison to the closest state of the art, there was no evidence on file that the claimed composition provided an improvement over D3. Compositions A and B and A and C differed in more than one feature. Compositions B and C in addition to composition A contained dimethicone emulsion and Carbomer which might act as deposition aid as well. Thus, the problem to be solved could only be seen in providing a further shampoo composition.

According to D1, it was necessary to prevent that the agglomeration of the pyrithione particles in the suspended medium caused a loss in performance. D1 also addressed the enhancement of the deposition. The teachings of D1 and D3 were closely related to one another and could be combined. D1 provided an incentive to the skilled

person to modify the compositions of D3 by adding smaller pyrithione particles within the claimed range. Hence, the subject-matter defined in the claims of the auxiliary request lacked an inventive step.

XI. The respondent argued in substance as follows:

- (a) As regards novelty, the expression "deposition aid" in the independent claims defined a functional feature of the main request, which further limited the cationic polymers in question such that they should be suitable to achieve an enhanced deposition of the fine particles of metal pyrithione on the scalp and/or hair. In D1 the cationic polyacrylamide was not a deposition aid, because that property depended on the molecular weight and the charge density. The cationic polyacrylamide Merquat (R) mentioned in D3 did not function as a deposition agent as shown by D5. Thus, the claimed subject-matter of the main request was novel over D1.

- (b) As regards novelty of the subject-matter defined in the auxiliary request, D3 did not disclose the claimed particle size distribution. It has not been shown that the average particle size disclosed in D3 corresponded to the claimed particle size distribution. Document D6 was late filed, was not novelty destroying for the claimed subject-matter and did not come closer to the claimed subject matter than the documents on file. Thus, D6 should not be admitted into the proceedings.

(c) As regards inventive step, D3 disclosed the closest prior art. The subject-matter of the independent claims of that auxiliary request differed from that of D3 which did not mention the particle size distribution. Comparative Examples 3B and 3C of the patent in suit showed that the specified particle size distribution resulted in an improved deposition if a composition comprising guar hydroxypropyltrimonium chloride was used as deposition aid. No evidence to the contrary was submitted by the appellant. In D1 fine particulate zinc pyrithione might be stably dispersed in water by specific dispersants. The problem of settling and separating as mentioned in D1 differed from the problem of enhancing deposition as disclosed in D3. Thus, D1 and D3 concerned entirely different technical problems and could not be combined. D6 did not disclose the average particle size distribution so that there was no incentive to modify the teaching of D3 in the direction as claimed.

XII. The appellant requested that the decision under appeal be set aside and that the patent be revoked.

XIII. The respondent requested as main request that the appeal be dismissed or that the patent be maintained on the basis of claims 1 to 8 of the auxiliary request submitted on 9 August 2007.

Reasons for the Decision

1. The appeal is admissible.

Procedural matters

2. Document D6 was cited in anonymous third party observations according to Article 115 EPC dated 15 March 2007 about four months prior to the oral proceedings. The observations have been filed in writing and comprised D6 as annex. That document was filed at a late stage of the appeal proceedings but concerned an application filed in the name of Unilever PLC as the applicant, one of the proprietors of the patent in suit. Thus, the finding of D6 and its filing in the proceedings could not be a surprise for the proprietor (respondent).

Since D6 was highly relevant for the patentability of the claimed subject-matter and could cause that the patent be revoked, it was introduced into the proceedings (see point 8.2 below).

The B-publication of D1 was submitted in the opposition proceedings and its publication of grant dated 6 November 1991 is well prior to the priority date of the patent in suit. The other B publication (D2) does not play a role in the decision taken by the board.

Amendments

Main request

3. The finding in the decision under appeal that the amended claims met the requirements of Article 123(2) and (3) EPC, has not been challenged by the appellant. The board has no reason to take a different position.

Auxiliary request

4. The amendments to claims 1, 6 and 7 have a basis in the application as filed (claim 5 and page 9, lines 34 and 35). Furthermore, in all of the examples a cationic derivative of guar gum is used and the amendment results in a restriction of the scope of protection of the patent as granted. Hence, the amended claims meet the requirements of Article 123 paragraphs (2) and (3) EPC.

Novelty

5. D1 discloses an antimicrobial suspension comprising a dispersant and from 0.0015 to 80 wt.-% of a fine particulate polyvalent metal salt of 2-mercaptopyridine-N-oxide, characterized by having a size distribution in which particles having a size below 0.2 μm are contained in amounts of smaller than 50 wt %, particles having a size from 0.5 to 1.0 μm being 15 wt.-% or less and particles having a size over 1.0 μm being 2 wt.-% or less and the dispersant being selected from (A), (B) and (C):

(A) a polyglycol/polyamine condensation polymer, polyglycol/polyamine/alkylamine condensation polymer or alkyleneamine condensation polymer;

(B) at least one water-soluble polymer compound selected from hydroxyalkylcellulose and partly quaternized products thereof, and at least one nonionic surfactant;

(C) at least one cationic polymer compound and at least one alkali metal salt, alkaline earth metal salt or aluminum salt of an inorganic acid (claim 1).

5.1 Product 43 concerns a shampoo composition comprising 20 wt.-% of a suspension of inventive product 25, 40 wt.-% of sodium polyethylene (2.5) lauryl sulfate (active ingredient 25%) and 5 wt.-% of coconut oil fatty acid diethanolamide (Table 9). The suspension 25 comprises 10 wt.-% of fine particle size Zpt (zinc pyrithione according to referential Example 2; active ingredient 50%; average particle size of 0.18 μm), 63% of a copolymerization product of dimethyldiallylammonium chloride and acrylamide (active ingredient 8%, specified as Merquat (R) from Merck & Co. Inc), 15 wt.-% sodium chloride and 12 wt.-% water (Table 7). According to the particle distribution given in Referential Example 2 (Table 2), 100% of the particles have a particle size smaller than 0.78 μm . Consequently, the composition of Example 43 comprises zinc pyrithione having the claimed particle size distribution, a surfactant (sodium polyethylene (2.5) lauryl sulfate), a copolymerization product of dimethyldiallylammonium chloride and acrylamide and sodium chloride.

The chemical formula of the cationic copolymer compounds of dimethyldiallylammonium halide and acrylamide is specified on the bridging paragraph, pages 6 and 7. As a specific example of those compounds, Merquat (R) 550 is mentioned, in which the halogen atom is chlorine (page 7, line 19).

Both parties agreed that the copolymerisation product of dimethyldiallylammonium chloride and acrylamide mentioned in Example 43 is a "cationic polyacrylamide" within the meaning of terms in claim 1 under dispute. The board has no reason to take a different view.

- 5.2 Although the composition of D1 comprises all the product features of claim 1 of the main request, the opposition division and the respondent were of the opinion that the term "deposition aid" defined a functional feature, which further limited the cationic polymers in question such that they achieved an enhanced deposition of the fine particles of metal pyrithione on the scalp and/or hair.
- 5.3 According to patent in suit by "deposition aid" is meant an agent which enhances the deposition of the fine particle of metal pyrithione on the intended site, i.e. the hair and/or the scalp (paragraph 0033). The patent in suit also gives some indications with respect to the charge density of the deposition aid (at least 0.1 meq/g to not exceeding 4 meq/g and the pH value to be observed of about 3 to 9 (paragraph 0035). None of these further limiting features are however defined in claim 1.

5.4 Preferred deposition agents are cationic derivatives of guar gum and cationic polyacrylamides (paragraph 0036). Suitable cationic polyacrylamides are described in D5 (paragraph 0039) to which the claimed subject-matter is however not restricted. D5 also mentions Merquat (R) 550, a specific copolymer of dimethyldiallylammonium chloride and acrylamide having a high weight average molecular weight of 2.8 million which is available from Croxton and Garry. However, that molecular weight of the commercial product was disputed, since according to measurements in D5 by using an intrinsic viscosity method, it should have a weight average molecular weight of only 700 000 (D5, page 21, lines 14 and 18 to 21). The deviation in the molecular weight from the producer Croxton and Garry's indicated figure (2.8 million) is however four times and extraordinary and cannot be explained by the (specific) method of measurement. It is noted that the higher molecular weight polyacrylamides tested in Examples 3 to 8 ($M_w > 3\,000\,000$) which molecular weights are near to the producer's indicated molecular weight of 2.8 million show "surprisingly increased" silicone retention (see page 22, last paragraph).

Furthermore, according to Experiment 3 of D3, a copolymer of dimethyldiallylammonium chloride and acrylamide which is a Merquat (R) type copolymer having a charge density of 0.0015 provides an enhanced deposition of a polystyrene latex in a shampoo composition (Table 3). That known charge density is within the range of 0.1 meq/g and 4 meq/g as specified in the patent in suit (paragraph 0035). Since D3 discloses preferred shampoo compositions which contain water-insoluble particles of metal pyrithione (page 8,

line 33 to page 9, line 2) and most of the other exemplified shampoo compositions illustrate the deposition of zinc pyrithione on hair, there is no reason to conclude that the copolymer of dimethyldiallylammonium chloride and acrylamide as used in D3 and D1 was not suitable as deposition aid for metal pyrithione.

- 5.5 From the above it follows that according to the patent in suit, all cationic polyacrylamides including a copolymer of dimethyldiallylammonium chloride and acrylamide (Merquat) (R) used in D1 act as deposition aid for metal pyrithione and are suitable for that purpose, since the claimed subject-matter does not include any further structural or parametric limitation to the "cationic polyacrylamides", in order to make any distinction over the prior art polyacrylamides. Consequently, the term "deposition aid" only defines a general purpose characteristic which all the polyacrylamides should fulfil, including those known from D1. According to the established Case Law, the indication of an intended use is only seen as limiting to the extent that the product has to be suitable for the stated purpose. Since the known copolymer of D1 is considered to be suitable as deposition aid for metal pyrithione, the term "deposition aid" does not provide a distinction over the cited prior art (Case law of the Boards of Appeal of the European Patent Office I.C.5.3.3). Hence, novelty of the claimed subject-matter of the main request over D1 cannot be acknowledged.

Auxiliary request

Novelty

6. The appellant was of the opinion that the claimed subject-matter was not novel over D3 and D6.
- 6.1 D3 discloses an aqueous washing composition for washing a surface to deposit thereon substantially water-insoluble particles, comprising an anionic surfactant, the particulate substance and a water-soluble cationic non-cellulosic polymer for enhancing the deposition of the particulate substance onto the surface but which cationic polymer does not form in the composition a water-insoluble complex with the anionic surfactant, wherein the cationic charge density of the polymer is from 0.0001 to 0.0017; the concentration of the cationic polymer in the washing composition is from 0.0001% to 0.01% by weight; and the concentration of the surfactant in the washing composition is from 0.01% to 5% by weight (claim 1). The water-insoluble particles are particles of an anti-microbial agent, in particular a pyridinethione salt (claims 4 and 5).
- 6.2 In experiment 5 shampoo compositions are prepared which contain in shampoo N: 16.6% triethanolamine lauryl sulphate (surfactant), 3,5% lauryl isopropanolamide, 3.0 % Ethylene glycol monostearate, 0.4 % zinc pyridinethione (50%), 0.1 % $ZnSO_4 \cdot 7H_2O$, 2.0 % NaCl and water to 100.0 %. Shampoo composition O differed from shampoo composition N in that 0.04 % Jaguar C-13-S is added, which is a commercially available hydroxypropyltrimethylammonium guar gum (page 5, last paragraph). In these experiments, there is used either

a polystyrene latex comprising polystyrene particles having a diameter of about 0.5 μm and having a solids content of 10%, or a 50% aqueous suspension of zinc pyridinethione particles.

6.3 The shampoos are diluted 10 times with water to form the aqueous washing compositions used to treat the hair switches. The deposition of the zinc pyridinethione was determined by analysis for pyridinethione in the liquid withdrawn after treatment of the hair switches since in this experiment the cationic polymer also enhanced deposition of the ethylene glycol monostearate. The results given in Table 5 show that the deposition of zinc Pyridinethione of shampoo N is 11 ± 5 and of shampoo O is 50 ± 3 . Consequently, the test results show that the presence of cationic derivative of guar gum in the shampoo leads to a considerably enhanced deposition of zinc pyridinethione on the hair compared to the shampoo N which does not contain that component. However, experiment 5 of D3 does not disclose any particle size distribution as claimed.

6.4 According to the description of D3, the average particle diameters of the antimicrobial agents is from 0.2 to 50 μm (page 8, line 21 to 26). However, that particle size refers to an average particle size and does not clearly and unambiguously disclose that at least 90% by weight of the particles have a size of less than 1 μm . According to page 11, in the experiments there is used either a polystyrene latex comprising polystyrene particles of diameter about 0.5 micron and having a solids content of 10%, or a 50% aqueous suspension of zinc pyridinethione particles. However, this statement does not directly relate to the particle

size of the zinc pyridinethione particles and hence does not disclose the claimed particle size distribution. Consequently, the claimed shampoo composition cannot clearly and unambiguously be derived from the cited document D3.

6.5 D6 discloses a shampoo system comprising

(A) a first pack containing a base shampoo composition comprising a surfactant chosen from anionic, nonionic and amphoteric surfactants, and mixtures thereof, and the cationic conditioning polymer; and

(B) a second pack containing a shampoo additive composition comprising particles of a benefit agent which imparts a benefit to the hair, the particles having an average size of less than 2 μm , wherein the first and second packs are adapted to be mixed together before use (claim 1).

6.5.1 The cationic conditioning polymer can be guar hydroxypropyl trimonium chloride (claim 5). The preferred average size of the particles of the benefit agent lies in the range of 0.01 to 1 μm . (claim 6). As benefit agent *inter alia* anti-dandruff agents including zinc pyrithione are mentioned (claim 8 and page 10, last paragraph).

6.6 Examples 1 and 2 describe base shampoo compositions and Examples 3 to 12 disclose shampoo additive compositions. The base compositions contain Jaguar C-13-S, which is a cationic derivative of guar gum (see page 5, first paragraph) and sodium lauryl ether sulfate 2 EO and

ammonium lauryl sulfate, respectively, as surfactants. According to Example 4, the shampoo additive composition contains *inter alia* zinc pyrithione. This additive composition imparts an anti-dandruff benefit to the hair when it is used as part of the shampoo system of the invention, i.e. when it is mixed together with either the base composition of each of Example 1 or Example 2 (page 15 last paragraph, and page 14, first paragraph).

6.7 Since, Example 4 does not disclose the particle size of zinc pyrithione and since the particle size of the benefit agent is only generally disclosed as an average size, there is no clear and unambiguous disclosure of the specific particle size distribution defined in claim 1.

6.8 Since all independent claims make reference to the particle size distribution, the conclusion drawn with respect to D3 and D6 apply to all other independent claims as well. Thus, documents D3 and D6 are not novelty destroying for the claimed subject-matter of the independent claims of the auxiliary request.

Inventive step

Problem and solution

7. The patent in suit concerns an antimicrobial hair treatment composition. Such compositions are known, in particular from D3, which the appellant and the respondent regarded as the closest prior art document. The board has no reason to take a different position.

- 7.1 According to Experiment 5 of D3, shampoo composition O provides an enhanced deposition of the zinc pyridinethione on the hair compared to composition N which does not include the cationic guar gum. Thus, that experiment shows that the problem of the patent in suit, namely to enhance the deposition and retention of the particles on the hair and/or the scalp, is already solved (patent in suit, paragraph 0001).
- 7.2 The respondent, however, was of the opinion that an improvement over D3 was nevertheless achieved as shown in the experiments described in the patent in suit.
- 7.2.1 According to the patent in suit a series of compositions are prepared to test the level of deposition on skin of zinc pyrithione from formulations according to the invention compared with control formulations containing no deposition polymer. In Example 3, compositions B and C contain sodium lauryl ether sulfate, cocamidopropyl betaine, dimethicone emulsion, zinc pyrithione, Carbomer, guar hydroxypropyl trimonium chloride and Veegum (colloidal magnesium aluminium silicate) in the same amounts.
- 7.2.2 In composition B, 90% of the particles of the zinc pyrithione have a size of less than 5 μm , while in composition C 90% of the particles of the zinc pyrithione have a size of less than 1 μm . However, composition B does not represent a composition according to D3, because in D3 the average particle size may be as low as 0.2 μm (see page 8, line 23). Since 10% of the particles in claim 1 in suit are not specified, those particles may well have a size above 1 μm , so that the average particle size of the particles

used in claim 1 may fall within the average particle size of 0.2 μm according to D3. Consequently, the difference over D3 may lie only in another definition (particle size distribution) of the same particles, which in D3 is defined by its average particle size.

7.3 On the other hand, the particle size distribution of composition B according to the patent in suit in which 90 % of the particles have a size of less than 5 μm may contain 10% particles having a size of more than 5 μm so that an average particle size of much more than the 0.2 μm according to D3 is used. Furthermore, compositions B and C contain dimethicone and Carbomer which may have an influence on the deposition of pyrithione as well. Thus, composition B does not represent a composition of the closest state of the art, so that no conclusion can be drawn whether or not an improvement over D3 has been achieved. Hence, the results shown in Table 1 of the patent in suit cannot demonstrate that the claimed shampoo composition provides an improvement over the closest state of the art.

7.4 Alleged advantages to which the patent proprietor merely refers without offering sufficient evidence supported by any comparison with the closest prior art, cannot be taken into consideration in determining the problem underlying the invention (Case Law, *supra*, I.D.4.2).

7.5 Therefore, the problem effectively solved over D3 can only be seen in providing a further shampoo composition which has good mechanical stability and excellent antidandruff ability by providing a similar deposition

and retention of the particles on the hair and/or the scalp from the composition, similar to that provided in D3 (paragraphs 0001 and 0011 of the patent in suit).

Obviousness

8. It remains to be decided whether the claimed subject-matter is obvious having regard to the documents on file.
- 8.1 D3 focuses on the deposition of zinc pyrithione on the hair by using specific deposition aids, in particular cationic derivatives of guar gum. However, the nature of the water-insoluble particles is not stated to be not critical and the essential stated requirement is that the material of the particles should be insoluble or only sparingly soluble in water (page 8, lines 12 to 18). Thus, the claimed subject-matter is not obvious from D3 alone.
- 8.2 According to D6, the combination of the cationic conditioning polymer (cationic derivative of guar gum) and the benefit agent (pyrithione salt) having a particle size of less than 2 μm gives a surprising effect. The particles of benefit agent are found to more effectively deposit on the hair, imparting the desired effect (page 4, last paragraph). Thus, D6 provides an explicit teaching that the average particle size is of importance for an enhanced deposition which lies in a preferred range of 0.01 to 1 μm (claim 6). Thus, D6 suggests that small average particle sizes provide an enhanced deposition effect. According to D1, particles having an average particle sizes of 0.08, 0.05 and 0.18 μm all fall within the lower part of the

range specified in D6, in which at least 90% by weight of the particles have a size of 1 micron or less (see D1, Tables 1 to 3). Hence, a preferred average particle size of 0.01 μm according to D6 will meet also the particle size distribution defined in claim 1.

8.3 Since D3 and D6 concern the same problem of providing an enhanced deposition of metal pyrithione on the hair or scalp, it is obvious for the skilled person to combine these teachings, in order to arrive at a further composition. In particular, the skilled person would modify the composition of D3 by using metal pyrithione particles having an average particle size of, for example, 0.01 μm according to D6 which also meet the now claimed particle size distribution.

8.4 Hence, the subject-matter of claim 1 of the auxiliary request is made obvious by the cited prior art and does not involve an inventive step. Consequently, the auxiliary request is not allowable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar

The Chairman

K. Götz

S.Perryman