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D E C I S I O N
of 24 June 2004

Case Number: T 0762/99 - 3.3.7

Application Number: 93913585.1

Publication Number: 0601163

IPC: A61K 7/06

Language of the proceedings: EN

Title of invention:

Composition for treating keratinous fibers

Applicant:

Kao Corporation

Opponent:

Henkel Kommanditgesellschaft auf Aktien

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56, 83, 84, 114(2), 123

EPC R. 57a

Keyword:

"Disclosure - sufficiency (no) (main request)"

"Disclosure - sufficiency (yes) (first auxiliary request)"

"Amendments - allowable (yes) (first auxiliary request)"

"Late filed evidence - admitted (no)"

"Novelty - (yes) (first auxiliary request)"

"Inventive step - (yes) problem and solution (first auxiliary request)"

Decisions cited:

T 0435/91, T 0156/84, T 0219/83

Catchword:

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Case Number: T 0762/99 - 3.3.7

D E C I S I O N
of the Technical Board of Appeal 3.3.7
of 24 June 2004

Appellants: Henkel Kommanditgesellschaft auf Aktien
(Opponents) Patente (TTP)
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Representative: -

Respondents: Kao Corporation
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
2 June 1999 concerning maintenance of European
patent No. 0601163 in amended form.

Composition of the Board:

Chairman: R. E. Teschemacher
Members: G. Santavicca
B. J. M. Struif

Summary of Facts and Submissions

I. The grant of European patent 0 601 163, in respect of European patent application 93 913 585.1, filed on 25 June 1993 as international application PCT/JP93/00868 (published under N° WO-A-94/00099) and claiming a right of priority in Japan of 29 June 1992 (JP 170911/92), was published on 20 March 1996. The patent as granted contained the following independent claims:

"1. A composition for treating keratinous fibers, which comprises:

(A) A first agent containing a metal ion,

(B) A second agent comprising:

(B-1) An organic or inorganic compound which is capable of readily permeating into the keratinous fibers and can form a water-insoluble or sparingly soluble complex together with said metal ion of component (A), and

(B-2) An organic compound which cannot readily permeate into the keratinous fibers, and which reacts with said metal ion of component (A) to form a water-soluble complex."

"2. A composition for treating keratinous fibers according to claim 1, which comprises:

(A) A first agent containing a metal ion,

(B) A second agent comprising:

(B-1) An organic or inorganic compound which has molecular weight of 180 or less and can form a water-insoluble or sparingly soluble complex together with said metal ion of component (A), and

(B-2) An organic compound which has molecular weight over 180 and which reacts with said metal ion of component (A) to form a water-soluble complex."

"10. A method for treating keratinous fibers which comprises steps A and B:

A: treating keratinous fibers with a first agent containing a metal ion,

B: when predetermined time elapses after step A, treating the hair which had undergone step A treatment with a second agent comprising: an organic or inorganic compound which is capable of readily permeating into the keratinous fibers and can form a water-insoluble or sparingly soluble complex together with the metal ion of the first agent, and an organic compound which cannot readily permeate into the keratinous fibers and which reacts with the metal ion of the first agent to form a water-soluble complex."

II. A notice of opposition was filed on 20 December 1996, in which revocation of the patent was requested on the grounds of Article 100, paragraphs (a) and (b), EPC, that the claimed subject-matter lacked novelty and inventive step and that the patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. The following documents were mentioned:

D1: JP-A2-01 233 208 (referred to as Chemical abstract 112:185567 (D1A));

D2: JP-A-55 108 812;

D3: EP-A-0 114 414;

D4: DE-A-3 833 681.

III. In a decision notified in writing on 2 June 1999, which was based on five sets of claims as the main and the first to fourth auxiliary requests submitted during the oral proceedings, the Opposition Division found that the patent could be maintained in amended form according to the fourth auxiliary request. Claim 1 of the fourth auxiliary request read as follows:

"1. A method for treating keratinous fibers which comprises steps A and B:

A: treating keratinous fibers with a first agent containing an ion of a metal selected from Mg, Ca, Zn, Ag, Al, Ba, Mn, Fe and Ni,

B: when predetermined time elapses after step A, treating the hair which had undergone step A treatment with a second agent comprising:

(B-1)an organic or inorganic compound which is capable of readily permeating into the keratinous fibers and can form a water-insoluble or sparingly soluble complex together with the metal ion of the first agent, wherein the organic sources of component (B-1) are selected from formic acid, acetic acid, proprionic acid, butyric acid, isobutyric acid, valeric acid, isovaleric acid, sorbic acid, lactic acid, oxalic acid, malonic acid, succinic acid, glutaric acid, maleic acid, fumaric acid, citraconic acid, itaconic acid and tartaric acid, and wherein the inorganic sources

of component (B-1) are selected from chlorine ion, hydroxyl ion, nitrite ion, sulfate ion, phosphate ion, borate ion and carbonate ion, and

(B-2)an organic compound which cannot readily permeate into the keratinous fibers and which reacts with the metal ion of the first agent to form a water-soluble complex, wherein said second organic compound is selected from the group consisting of polycarboxylic acid, oxypolycarboxylic acid, aminopolycarboxylic acid and polyphosphonic acid."

In its decision, the Opposition Division held that:

- (a) The claims according to the main, first and second auxiliary requests, which all contained a disclaimer, contravened the requirements of Article 123(2) EPC and were not admissible;
- (b) the claims according to the third auxiliary request fulfilled the requirements of Article 123, paragraphs 2 and 3, EPC. However, due to functional definitions in Claim 1, the requirements of Article 83 EPC were not fulfilled;
- (c) the claims according to the fourth auxiliary request fulfilled the requirements of the EPC. So did the description that had been brought into line with those claims. Therefore, the amended patent fulfilled the requirements of the EPC.

- IV. On 27 July 1999, the opponents (appellants) lodged an appeal against that decision; the fee for appeal was paid on the same day. The statement setting out the grounds of appeal was received on 8 October 1999.
- V. In a letter dated 24 May 2004, the respondents maintained the set of claims according to the fourth auxiliary request underlying the impugned decision as the main request and enclosed two sets of amended claims as the first and second auxiliary requests.
- VI. Oral proceedings were held on 24 June 2004. The appellants submitted a translation of parts of JP-A2-01 233 208 (D1) and requested that they be allowed to submit a provisional translation of the complete specification of D1. The respondents filed a set of amended claims replacing the first auxiliary request submitted with letter dated 24 May 2004. Claim 1 of the first auxiliary request reads as follows:

"1. A method for treating keratinous fibers which comprises steps A and B:

A: treating keratinous fibers with a first agent containing an ion of a metal selected from Mg, Ca, Zn, Ag, Al, Ba, Mn, Fe and Ni, wherein said metal ion is contained in said first agent in an amount of from 0.05 to 20.0% by weight based on the total weight of the first agent

B: when predetermined time elapses after step A, treating the hair which had undergone step A treatment with a second agent comprising:

(B-1)an organic or inorganic compound which has a molecular weight of 180 or less and is capable of readily permeating into the keratinous fibers and can form a water-insoluble or sparingly soluble complex together with the metal ion of the first agent, wherein the organic sources of component (B-1) are selected from formic acid, acetic acid, propionic acid, butyric acid, isobutyric acid, valeric acid, isovaleric acid, sorbic acid, lactic acid, oxalic acid, malonic acid, succinic acid, glutaric acid, maleic acid, fumaric acid, citraconic acid, itaconic acid and tartaric acid, and wherein the inorganic sources of component (B-1) are selected from chlorine ion, hydroxyl ion, nitrite ion, sulfate ion, phosphate ion, borate ion and carbonate ion, wherein said component (B-1) is contained in said second agent in an amount of from 0.1 to 10.0% by weight based on the total weight of said second agent, and

(B-2)an organic compound which has a molecular weight over 180 and cannot readily permeate into the keratinous fibers and which reacts with the metal ion of the first agent to form a water-soluble complex, wherein said second organic component is selected from the group consisting of polycarboxylic acid, oxypolycarboxylic acid, aminopolycarboxylic acid and polyphosphonic acid, wherein said component (B-2) is contained in said second agent in an amount of from 0.01 to 20.0% by weight based on the total weight of said second agent."

VII. The appellants argued essentially as follows:

- (a) No formal objections were raised against the amendments in the main and first auxiliary requests discussed during the oral proceedings.

- (b) As regards sufficiency of the disclosure, organic compounds (B-2) in Claim 1 according to the main request were only defined in general terms. Further, Claim 1 contained functional features such as "capable of readily permeating", "cannot readily permeate" and features having a relative meaning such as "water-soluble complex". According to the description, components having a molecular weight below 180 would easily permeate inside the fibres, components with a molecular weight greater than 180 would not and a "sparingly water soluble complex" would have a solubility of less than 0.2g/100g at 25°C. However, these features were not mentioned in Claim 1. Furthermore, the definitions for components B-1 and B-2 in Claim 1 both included polycarboxylic acids and the description did not disclose how to differentiate between these components. Since the solubility mentioned in the description only related to the water insoluble or sparingly soluble complex, the term "water-soluble" lacked a clear definition. Therefore, the composition defined in Claim 1 encompassed embodiments that could not be carried out.

- (c) As to novelty, Claim 1 according to the first auxiliary request specified a concentration for the components used in the method but the

predetermined time between steps A and B was not limited and could be zero. Since natural water contained high amounts of calcium and magnesium, it was suitable as a first agent as defined in the claimed method. Example 2 of D3 disclosed a method of treating the hair comprising the use of water, lactic acid and a copolymer of acrylic acid, which components fell within the definitions of Claim 1 for the first agent and components B-1 and B-2, respectively. Calcium lactate was sparingly soluble in water. D1A disclosed a method of treating the hair comprising the use of water, sodium oxalate and the sodium salt of ethylenediamine tetraacetic acid (sodium EDTA). Calcium oxalate was sparingly soluble in water. Even if the predetermined time was not zero, the sequence of the application would not confer novelty. The translation of parts of D1 as submitted during the oral proceedings showed that the sequence of the application of the agents in D1 was not different from that as claimed. In that respect, the appellants were prepared to file a complete provisional translation of D1, which concerned a document cited from the outset of the proceedings. Example 7 of D3 showed that aluminium ions precipitated in a basic environment and that the combination of anionic and cationic copolymers also precipitated. These precipitations implied that a water-soluble complex was formed between the aluminium ions and the anionic copolymer. Therefore, the method of Claim 1 according to the first auxiliary request was not novel.

- (d) As regards inventive step, the closest prior art document was D1A, which disclosed a method of hair preparation comprising the steps of applying a first agent, containing components that fell within the definitions for components B-1 and B-2 in Claim 1 in suit, and of successively applying an agent containing a metal ion, also falling within the definition for the first agent in Claim 1 in suit. D1A aimed at producing insoluble substances within the hair to improve the firmness and the elasticity thereof. Claim 1 in suit defined a reversed order of application, i.e. treating the hair first with the agent containing the metal ion and then with the agent containing components B-1 and B-2. Since a reversal of the order of the application still produced a precipitation of insoluble components within the hair, as in D1A, the sequence of the steps of application was not important. The only question was, whether or not a sufficient amount of metal ion was applied, not which sequence of steps was applied. The proprietors, who amended the claims in view of the disclosure of D1A, had the onus to demonstrate any improvements. This burden had not been discharged, however, since it had not been shown that an improved effect was associated with a reversal of the treating steps. Thus, the problem underlying the patent in suit over D1A merely consisted in the provision of an alternative method. For the skilled person looking for an alternative method, however, a reversal of the application steps was an obvious measure. Therefore, the claimed method was not inventive.

VIII. The respondents argued essentially as follows:

- (a) The amendments to the claims of the main and the first auxiliary requests were all based on the application as filed.

- (b) As regards sufficiency of the disclosure, components B-2 were defined in clear chemical terms as organic substances that did not permeate easily into the fibres and should be capable of forming a water-soluble complex with the metal ion. The patent in suit disclosed a way to find out whether or not a compound did not permeate easily into the fibre, e.g. a molecular weight greater than 180. The term water-soluble was common. Furthermore, according to the description, a complex formed between a metal ion and components B-2 was water-soluble, if its water-solubility was greater than 0.2g/100g at 25°C. All components B-2 formed water-soluble complexes, which fulfilled the conditions defined in Claim 1. In Example 7 of D3 a separation layer was formed by the precipitation of aluminium hydroxide, on the one hand, and of the gel obtained from the combination between anionic and cationic copolymers, on the other hand. Thus, that example did not teach the formation of a water-soluble complex between the anionic copolymer and the aluminium ion. Since sufficiency had been acknowledged by the Opposition Division, the burden of proof was on the appellants. However, they had not produced any concrete facts showing that the disclosure was insufficient.

- (c) The translation of parts of D1 was a new document, on which new arguments were based. Further, no conclusion could be drawn from that translation, because the meaning of terms such as anionic and cationic components were not clear, and no certified complete translation was available. Hence, that translation of parts of D1 should be disregarded. A provisional translation was not reliable and its filing during the oral proceedings should not be permitted.
- (d) As to novelty of the subject-matter of Claim 1 according to the first auxiliary request, the specified amounts for the metal ions distinguished the first agent from natural water. Furthermore, Claim 1 made clear that the first and second agents should not be applied together.

Document D1A disclosed the application of a shampoo, containing sodium oxalate and sodium EDTA, and a rinse containing $ZnSO_4 \cdot 7H_2O$. The shampoo was applied before the rinse to produce insoluble substances within the hair. Since the sequence of application of the agents as claimed was reversed with respect to that of D1A, i.e. a metal ion was applied firstly, D1A was not prejudicial for novelty.

The exact composition of the anionic copolymer of vinyl acetate, crotonic acid and acrylic acid was not indicated in Example 7 of D3. Hence, a reproduction of that copolymer to measure the solubility of a complex formed with aluminium ion was not possible. Furthermore, Example 7 of D3 did

not disclose that a water-soluble complex between aluminium and that anionic copolymer was formed. On the contrary, the description of D3 made clear that a separation layer was formed, which included the separate precipitation of the metal ion. Example 2 of D3 mentioned a pretreatment with an agent containing lactic acid but no metal ions. If water was used before, it would only provide metal ions in trace amounts, which would not form a water insoluble complex. In any case, D3 did not disclose that natural water provided metal ions for reaction with an oxalate anion to form a water insoluble complex. The same conclusion applied to Example 6. Hence, D3 was not prejudicial either for novelty.

Therefore, the claimed subject-matter was novel.

- (e) As regards inventive step, the closest prior art document was D1A, which aimed at a durable springiness and toughness to be imparted to the hair. Since by the claimed sequence of steps, compared to that of D1A, a higher amount of metal ion penetrated into the fibres and formed even more insoluble complex, the objective problem underlying the patent in suit was to provide a method by which firmness and elasticity of the fibres could be further improved. The solution consisted in the method as claimed, having the particular sequence of steps. The examples showed that the problem had been solved. The appellants had not proven anything to the contrary.

D1A gave no hint on how to improve the firmness and elasticity of the treated hairs. On the contrary, since the application of a rinse agent necessarily followed the application of a shampoo, D1A did not render it obvious to reverse the order of application of the agents. Without reversing the sequence of the application steps, however, the effect of the claimed subject-matter would not be obtained.

D2, D3 and D4 did not concern permanent waving of the hair and could not supplement the teaching of D1A.

Therefore, even if the problem was the mere provision of an alternative method, the method of Claim 1 in suit would not be rendered obvious by the cited prior art. Consequently, the claimed subject-matter involved an inventive step.

IX. The appellants (opponents) requested that the decision be set aside and that the European patent be revoked.

The respondents (proprietors) requested that the appeal be dismissed, alternatively that the patent be maintained on the basis of either the first auxiliary request submitted during the oral proceedings or the second auxiliary request filed with letter dated 24 May 2004.

Reasons for the Decision

1. The appeal is admissible.

Main request

2. *Amendments*

The amendments to the claims according to the main request, which is identical to the fourth auxiliary request underlying the impugned decision, have not been objected to by the appellants, i.e. neither during the opposition proceedings nor during the appeal proceedings. The Board has no reason to take a different position.

3. *Sufficiency of the disclosure*

- 3.1 An invention is sufficiently disclosed within the meaning of Article 83 EPC if a person skilled in the art can carry it out on the basis of the information provided in the patent specification as filed in the light of common general knowledge.

- 3.2 The appellants do not contest that the invention can be carried out under the particular conditions exemplified in the patent in suit. Their objection is based on the argument that component B-2, to be used in the claimed method, is defined *inter alia* by its function in Claim 1, i.e. "which cannot readily permeate into the keratinuous fibres".

That functional feature used to define component B-2 is given without any measuring conditions under which it can be ascertained whether or not the feature is fulfilled. Further, component B-1 includes dicarboxylic acids such as oxalic acid, malonic acid, succinic acid, glutaric acid, maleic acid, fumaric acid, citraconic acid, itaconic acid and tartaric acid, which dicarboxylic acids are polycarboxylic acids according to the definition for component B-2. Thus, Claim 1 does not exclude that the same polycarboxylic acid is used for component B-1 and for component B-2. Consequently, the skilled person does not get any clear teaching on how to distinguish the two components from each other. However, since components B-1 and B-2 have to fulfil different functions, it is apparent that if an identical compound is used for both components the claimed invention cannot be carried out.

- 3.3 Furthermore, the definition of component B-2 relates to an indefinite number of possible alternatives, provided that they achieve the desired result. To meet the requirements of Article 83 EPC, they must all be available to the skilled person (T 435/91, OJ 1995,188, in particular point 2.2.1 of the Reasons). According to that decision, the available information must enable the skilled person to achieve the envisaged result within the whole ambit of the claim containing the "functional" definition without undue difficulty, and the description with or without the relevant common general knowledge must provide a fully self-sufficient technical concept as to how the envisaged result is to be achieved. Therefore, it has to be established whether or not the patent specification discloses single embodiments or a technical concept fit for

generalisation which makes available to the skilled person the range of variants encompassed by the functional definition in Claim 1.

- 3.4 The patent in suit discloses only one way to fulfil that functional definition, namely that the molecular weight of organic compound B-2 should be higher than 180, otherwise it would easily permeate into the keratinous fibres, where it would hinder the deposition of the water-insoluble complex (page 3, lines 41 to 45). However, the feature defining that way of fulfilling the functional definition in Claim 1 is presented as a preferred embodiment only. Consequently, the patent in suit does not disclose any concept fit for generalisation, which would enable the skilled person using common general knowledge to achieve the envisaged result (non readily permeable) without undue burden within the whole ambit of Claim 1.
- 3.5 In this respect, the respondents have not shown that it was possible to identify, on the basis of the information in the patent and using common general knowledge, compounds B-2 other than those having a molecular weight higher than 180 which could reasonably be expected to bring about the desired effect.
- 3.6 Thus, it is not apparent that the patent specification or the relevant common general knowledge provide any guidance other than the molecular weight as to how further components B-2 may be selected.
- 3.7 Therefore, since the patent does not disclose a self-sufficient technical concept which adequately corresponds to the functional definition for component

B-2 in Claim 1, the invention as defined in Claim 1 of the main request does not fulfil the requirements of Article 83 EPC.

3.8 Consequently, the main request is not allowable.

First auxiliary request

4. Amendments

4.1 Claim 1 according to the first auxiliary request, compared to Claim 1 according to the main request, contains the following further amendments:

- (a) "wherein said metal ion is contained in said first agent in an amount of from 0.05 to 20.0% by weight based on the total weight of the first agent" - in step A;
- (b) "which has a molecular weight of 180 or less and" and "wherein said component (B-1) is contained in said second agent in an amount of from 0.1 to 10.0% by weight based on the total weight of said second agent" - in the definition of component B-1;
- (c) "which has a molecular weight over 180" and "wherein said component (B-2) is contained in said second agent in an amount of from 0.01 to 20.0% by weight based on the total weight of said second agent" - in the definition of component B-2.

- 4.2 Amendment (a) has a basis in Claim 4 as filed, which is identical to Claim 4 as granted.
- 4.3 Amendments (b) have a basis in the application as filed (page 4, lines 22 to 23) and in Claim 7 as filed, which is identical to Claim 7 as granted.
- 4.4 Amendments (c) have a basis in the application as filed (page 7, lines 1 to 9) and in Claim 9 as filed, which is identical to Claim 9 as granted.
- 4.5 The amendments are occasioned by the grounds of opposition (Rule 57a EPC) and do not introduce any ambiguities in Claim 1 (Article 84 EPC).
- 4.6 Claim 2, the only further claim of the first auxiliary request, corresponds to Claim 5 as filed, which is identical to Claim 5 as granted.
- 4.7 Therefore, the patent in suit has not been amended in such a way that it contains subject-matter which extends beyond the content of the application as filed (Article 123(2) EPC). Claim 1 according to the first auxiliary request has not been amended in such a way as to extend the protection conferred (Article 123(3) EPC).
- 4.8 Consequently, the first auxiliary request is admissible.

5. *Sufficiency of the disclosure*

- 5.1 The objection of the appellants is now based on the argument that component B-2, to be used in the method of Claim 1, reacts with the metal ion of the first agent to form any water-soluble complex. The feature "a

- water soluble-complex", however, has a relative meaning, since the water-solubility used to define the complex is without any limitation.
- 5.2 The definition of component B-2 now relates to a group of components having a molecular weight higher than 180. Therefore, the question arises whether or not the present specification discloses sufficient information such that the skilled person can identify components B-2 suitable for forming a water-soluble complex within the whole ambit of the definition of component B-2.
- 5.3 According to the patent in suit, an insoluble or sparingly water-soluble complex is formed as a result of the reaction between the permeated component (B-1) in the keratinous fibres and the metal ion, which complex has a solubility of 0.2g/100g or less at 25°C (page 3, lines 7 to 13).
- 5.4 Although the water-solubility of the complex formed as a result of the reaction between the permeated component (B-1) and the metal ion is not expressly related to that of the complex formed by component B-2 and the metal ion, it is nevertheless an indication in which direction the skilled person has to proceed. Furthermore, it has not been shown that the water-solubility of the above complexes is not a well known property in the field of compositions for treating hairs.
- 5.5 In this respect, the following facts from the patent specification should be considered:

- (a) The complex formed as a result of the reaction between the metal ion and component B-2 should be readily soluble in water (page 3, lines 34, 36 and 41), such that no insoluble or sparingly soluble complex remains on the fibres (page 3, lines 36 to 39), which imparts a rough feel to the touch;
- (b) the sparingly water soluble complex has a solubility of 0.2g/100g or less at 25°C (page 3, line 13).

5.6 The skilled person looking for a readily water-soluble complex would thus preferably select a component B-2 such that the complex formed with the metal ion has a water solubility much greater than 0.2g/100g at 25°C.

5.7 The appellants have not shown that in the field of hair compositions the water-solubility cannot be measured, nor that the skilled person is unable to find out in the context of the patent in suit suitable candidates for component B-2 that form complexes having the required water-solubility. Furthermore, they have not shown that selecting a metal ion and a component B-2 such that the resulting complex be water-soluble constitutes an undue burden for the skilled person. Hence, the appellants have not shown that the skilled person using common general knowledge could not identify, on the basis of the information in the patent, suitable components B-2 other than those exemplified, which could reasonably be expected to result in a complex which is water-soluble as desired. Consequently, the burden of proof, which is on the appellants, has not been discharged (T 219/83, OJ 1986, 211).

5.8 Therefore, the patent specification and the relevant common general knowledge provide sufficient guidance as to how further components B-2 may be selected for obtaining a water-soluble complex with a metal ion.

5.9 Consequently, the invention as defined in Claim 1 according to the first auxiliary request fulfils the requirements of Article 83 EPC.

6. *Late filed facts and evidence*

6.1 A translation in English of parts of D1 (the Japanese patent application specification) has been submitted during the oral proceedings. That translation consists of a page with excerpt translations of selected parts of D1, i.e. some paragraphs of page 2 and a paragraph of page 3 of D1.

As admitted by the representative, that translation was available to Henkel since 1996. Since the translation could have been submitted before, it is therefore late filed.

According to the Case Law of the Boards of Appeal (4th edition, 2001, VI.F.2, in particular landmark decision T 156/84 (OJ 1988, 372)), the admissibility of late filed documents in the proceedings is in particular decided with respect to its relevance.

In the present case, the evidence submitted is not a complete translation but a typical excerpt translation from which not all necessary items of information can be derived.

In that respect, the translation mentions that both water-soluble substances, which when reacting within the fibres would form the insoluble components, are contained in separate compositions, which are applied separately to the hair. One possible way is a shampoo and a rinse (last paragraph). As far as the shampoo is concerned, the order of application is in particular as given in D1A. The parts in parentheses which imply that a cationic component could be present in the shampoo appear to have been added by the translator and it is not apparent whether they are correct and complete or not. The terms cationic and anionic substances are neither explained nor exemplified in that translation. Hence, from these elements, it is not apparent that the late filed translation of parts of D1 is more relevant than D1A. Therefore, the late filed translation can be disregarded under Article 114(2) EPC.

- 6.2 The appellants, during the oral proceedings, have also requested that they be permitted to file a provisional translation of D1.

The Board has considered the following facts:

- (a) The appellants had to take into account the possibility that late filed material would be disregarded and do their best to submit the facts, evidence and arguments relevant to their case as early and completely as possible;
- (b) As the translation was available since 1996, the appellants failed to do so without adequate excuse;

(c) The respondents were surprised by the submission of that translation, and were not in a position to react to it nor to verify its correctness and completeness. They considered the late filing of a provisional translation as an abuse of procedure and requested that, if the document were admitted, no decision be given orally and the proceedings be continued in writing, whereby the appellants should bear the relevant costs thereof. Hence, the respondents could not adequately consider and respond to the provisional translation during the oral proceedings;

(d) admitting the evidence would thus have led to an excessive delay in the proceedings.

6.3 Due to the above considerations, the Board saw no possibility to admit the document and to take it as a basis for a possible decision at the end of the oral proceedings without violating the respondents' right to properly verify its correctness. Therefore, the Board refused to take into account the late filed provisional translation of D1 even before it was actually submitted, on the basis of its discretionary power under Article 114(2) EPC, which serves to ensure that proceedings be concluded swiftly in the interests of the parties, the public and the EPO (cf. Article 11(3) of the Rule of Procedure of the Boards of Appeal).

7. *Novelty*

7.1 D1A discloses hair preparations for improvement of keratin properties. Keratin fibres such as hairs are treated with water-soluble substances (inorganic salts)

which produce water-insoluble substances within the hairs and help maintaining the hair body. Keratin fibres are reinforced by the insoluble substances, which are not washed out by shampooing.

A hair preparation according to D1A comprises:

- (i) A shampoo containing Na-lauryl ether sulphate 15.0, lauric acid diethanolamide 2.0, 2-Na EDTA 0.1, methylparaben 0.1, Na-oxalate 3.0 and water 79.8%, and
- (ii) a rinse containing lanolin quaternary salt 0.8, hydroxyethyl cellulose 1.0, methylparaben 0.1, $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ 10.0 and water 88.1%.

D1A discloses that the application to the hair of composition (i), followed by composition (ii) produces insoluble substances within the hair.

Na-oxalate in composition (i) falls under the definition for component B-1; 2-Na EDTA is encompassed by the definition of component B-2; $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ dissolves in water and provides metal ions Zn^{++} , as defined for first agent A in Claim 1 in suit.

Thus, D1A discloses a method for treating keratinous fibres which comprises the application of components B-1 and B-2 before the application of the metal ion. With respect to the method of Claim 1 in suit, the order of application is thus reversed.

Therefore, D1A is not novelty destroying.

7.2 D3 discloses a process for a selective permanent shaping of the regrowth of hair, whereby the hair is at first treated with a liquid aqueous pretreatment composition, rolled onto rollers, treated with an aqueous reducing permanent shaping composition, rinsed and neutralized oxidatively and then treated as usual, characterized in that the pretreatment composition and the permanent shaping composition are selected so as to form a separating layer at their contact face during contact, thus making an admixture of the pretreatment composition with the permanent shaping composition more difficult or preventing the same (Claim 1).

In particular, a aqueous preparation is used as the pretreatment composition which contains an anionic polymer and as a permanent shaping preparation a composition which contains a cationic polymer (Claim 12) or an aqueous preparation is used as a pretreatment composition which contains a cationic polymer and a preparation is used as the permanent shaping composition which contains an anionic polymer (Claim 13).

More particularly, a copolymer of vinyl acetate, crotonic acid and acrylic acid is used as an anionic copolymer (Claim 15) and a copolymer of vinylpyrrolidone and dimethyl aminoethyl methacrylate is used as a cationic polymer which is quaternized with dimethyl sulfate, or a dimethyl diallyl ammonium chloride-homopolymer (Claim 16).

Preferably, the pretreatment composition additionally contains at least one of the weak acids, citric acid,

tartaric acid, lactic acid, phosphoric acid, acetic acid or acid phosphates or neutral or acid amino acids (Claim 17) and may further contain sodium bromate, aconitic acid, acetylene dicarboxylic acid, ethylene dicarboxylic acid, ethylmaleic acid, .alpha.-ethyl crotonic acid, i-amylmaleic acid, angelic acid, n-butyl fumaric acid, n- and i-butylmaleic acid, citraconic acid, crotonic acid, fumaric acid, transglutaconic acid, isopropyl maleic acid, itaconic acid, maleic acid, mesaconic acid, alpha-methylitacononic acid, cis-beta-methyl glutaconic acid, trans-alpha-methyl glutaconic acid, propiolic acid or cinnamic acid (Claim 18).

The pretreatment substance for performing the process in accordance with D3 can contain a water soluble aluminum salt and a cationic polymer (Claim 20).

- 7.2.1 In Example 2 of D3, the hair is first treated with water, then with a pretreatment composition, which contains a copolymer of acrylic acid as well as lactic acid, hence a component B-2 and a component B-1 as claimed. That pretreatment composition is used with a permanent shaping composition A or B as described in Example 1, whereby Composition A contains ammonium and ammonium hydrogen carbonates, hence a component B-1 as claimed. However, D3 neither discloses that the water should contain a sufficient amount of metal ion as claimed, nor that the treatment is deliberately carried out such that these metal ions should react with components B-1 to form insoluble compounds within the fibres and with components B-2 to form a water-soluble complex. Example 6 of D3 is not more relevant than Example 2.

7.2.2 According to another embodiment of D3, described in Example 7 and explained on page 9 (first paragraph), the contact of the pretreatment composition with the permanent shaping composition produces a separation layer in two modes: by the precipitation of the aluminium in the alkaline medium and by the precipitation, which is the result of the combination of the cationic and anionic polymers. In Example 7, the pretreatment composition contains $KAl(SO_4)_2 \cdot 12H_2O$ as well as maleic acid, hence an agent A and a component B-1. The permanent shaping composition contains a copolymer of vinylacetate, crotonic acid and acrylic acid as well as ammonium carbonate and ammonium hydrogen carbonate, hence a component B-2 and components B-1 as claimed. It is a fact that neither Example 7 nor the relevant explanation thereof on page 9 mention the formation of a water soluble complex between the copolymer in the permanent shaping composition and the aluminium in the pretreatment composition. On the contrary, these components form separate precipitates.

7.2.3 Therefore, Examples 2, 6 and 7 of D3 do not prejudice the novelty of the method of Claim 1 in suit.

7.3 Further documents have not been used to attack the novelty of the method defined in Claim 1 in suit. The Board has no reason to take a different position.

7.4 Consequently the method of Claim 1 according to the first auxiliary request is novel.

8. *Inventive step*

- 8.1 The patent in suit concerns a method for treating keratinous fibres, in which a particular composition is used (page 2, lines 5 to 7).
- 8.2 Such a method is known from D1, as acknowledged in the patent in suit (page 2, lines 20 to 21).
- 8.3 D1, referred to by its Chemical Abstract D1A (point 7.1, *supra*), discloses a method, in which a water-soluble substance is contacted with a keratinous fibres to form a water-insoluble or sparingly soluble salt inside the fibre (patent in suit, page 2, lines 20 to 21). That method is good in that a certain degree of firmness and elasticity can be imparted, and they can last after the fibres undergo several shampoos (patent in suit, page 2, lines 31 to 33). However, when the concentration of the active ingredients is raised with an aim to improve the effect considerable amounts of water-insoluble or sparingly soluble salts deposit on the surface of the hair fibre, causing objectionable frictional and rough feeling of the hair (patent in suit, page 2, lines 33 to 35). Therefore, D1A represents the closest prior art document for assessing inventive step for the claimed subject-matter, in line with the patent in suit and the position of the parties.
- 8.4 During the oral proceedings, relying on the reversed order of the application and the alleged effects thereof, the respondents have tried to reformulate the problem stated in the patent as follows: to provide a method by which firmness and elasticity of the fibres could be further improved.

However, this reformulated problem no longer addresses the wish to avoid objectionable frictional or rough feeling to the touch, which is the objective and the alleged advantage of the claimed method over D1A (patent in suit, page 2, lines 36 to 37). Nor does this reformulation take into account that according to the patent in suit in the method of D1A the firmness could be increased as well (patent in suit, page 2, lines 33 to 35).

Therefore, since the reformulation of the problem is not in line with the problem/solution approach, it is not allowable.

- 8.5 In view of D1A, the problem underlying the patent in suit is to provide a method for treating keratinous fibres which can provide the fibres with excellent firmness and elasticity while avoiding objectionable frictional or rough feeling to the touch (patent in suit, page 2, lines 36 to 37).
- 8.6 The solution to that problem is represented by the method having the features defined in Claim 1.
- 8.7 The patent in suit exemplifies different formulations of the first and second agents which have been used for treating hair (Examples 1 to 3). The treatments according to the method of Claim 1, when using the claimed formulations, secure a better or at least the same level of firmness as the comparative formulations and provide significantly superior results with respect to reduced rough feel (Tables 5 and 6). Although, no comparison over D1A (i.e. over a method with reversed

application) is exemplified in the patent in suit, the mechanism for binding the metal ion on the fibre by component B-2, to produce a water-soluble complex, can be understood as follows:

The claimed method resides in two steps: in the first step, a metal ion is applied to the fibres and permeates into the fibres; in the second step, a second agent is applied, which consists of two components, a first component that permeates inside the fibres where it forms a water-insoluble complex with the metal ion and a second component that does not permeate into the fibres but is adsorbed on the surface of the fibres, where it forms a water-soluble complex with the metal ion. Since the hair is first treated with an agent A containing metal ions and then treated with competing components B-1 and B-2, that order of application permits the external surface of the fibres to be relatively free from metal ions, hence to prevent their reaction with components B-1 which forms insoluble complexes that impart a rough feeling to the touch of the surface of the hair. Thus, the technical effect of the claimed method over that of D1A is plausible.

In this respect, the appellants have not shown that the method of D1A would provide the same feel to the touch of the surface of the hair. On the contrary, according to the method of D1A, while component B-1 would penetrate into the fibres, component B-2 would be adsorbed on the surface of the fibres; the metal ion, applied after the application of components B-1 and B-2, would not only preferentially react with component B-2 adsorbed on the surface of the fibres to form a water soluble complex but also with any component B-1

that has not penetrated inside the fibres, with the result that the metal ion does not penetrate completely into the fibres and forms insoluble complexes on the surface of the fibres, such that to improve firmness and elasticity the hair becomes rough to the touch.

It follows from the above, that the method of Claim 1 represents an effective solution to the problem underlying the patent in suit.

8.8 It remains to be decided whether or not the claimed methods are made obvious by the cited prior art.

8.8.1 D1A addresses the problem of firmness of the hair fibres and suggests the use of water-soluble components, which would form insoluble salts within the fibres, so that firmness lasts even after repeated shampooing. However, D1A is essentially concerned with improving firmness. D1A does not address the possible deposit of insoluble salts on the hair, which would cause a rough feel to the touch. Although D1A exemplifies the application of agents containing ingredients as used in the method as claimed, D1A does not suggest how to control or reduce the rough feel to the touch. In particular, D1A does not suggest to reverse the order of application of shampoo and rinse. Therefore, D1A does not render obvious the subject-matter of Claim 1 according to the first auxiliary request.

8.8.2 D2, D3 and D4 have to do with permanent waving of the hair. They do not address the reduction of the rough feel to the touch of the hair. Therefore, they provide no incentive to modify the teaching of D1A towards the

reverse order of application of the agents as defined in the claimed method.

8.8.3 Furthermore, the appellants have not shown that the claimed subject-matter is made obvious by any other prior art, since they have not based their obviousness objection on any further prior art document or evidence.

8.9 Therefore, it has not been established that the claimed subject-matter lacks an inventive step. Consequently, the claims according to the first auxiliary request are considered to fulfil the requirements of the EPC.

9. In view of the above conclusion, the Board does not need to decide on the further auxiliary request.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to maintain the patent on the basis of claims 1 and 2 in the version of the first auxiliary request as submitted during the oral proceedings and a description yet to be adapted.

The Registrar:

The Chairman:

C. Eickhoff

R. Teschemacher