Datasheet for the decision
of 4 May 2012

Case Number: T 0112/09 - 3.3.07

Application Number: 03762506.8

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IPC: A61K 8/365, A61K 8/49,
     A61Q 5/02, A61Q 5/06

Language of the proceedings: EN

Title of invention:
Hair treatment compositions containing xanthine and
alpha-hydroxy acid

Patent Proprietors:
Unilever N.V.
Unilever PLC

Opponents:
Henkel AG & Co. KGaA

Headword:
-

Relevant legal provisions:
EPC Art. 56, 84, 123(3)

Keyword:
"Main request - inventive step (no)"
"Auxiliary request 2 - lack of clarity (yes) - extension of
scope of protection (yes) - allowable (no)"

Decisions cited:
-

Catchword:
-
Case Number: T 0112/09 - 3.3.07

DECISION
of the Technical Board of Appeal 3.3.07
of 4 May 2012

Appellants: Henkel AG & Co. KGaA
(Opponents)
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Respondents: Unilever N.V.
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Composition of the Board:
Chairman: G. Santavicca
Members: F. Rousseau
D. T. Keeling
Summary of Facts and Submissions

I. The appeal by the Opponents (Appellants) lies against the interlocutory decision of the Opposition Division, posted on 5 December 2008, according to which European patent No. 1 555 987 as amended according to the Third Auxiliary Request submitted with letter of 12 August 2008 met the requirements of the EPC. Claim 1 of that request read as follows (compared to the claim as granted, the deletions are indicated in strikethrough and the additions in bold):

"1. A method of treating hair comprising the step of applying to the hair a leave on hair treatment composition comprising:

i) 0.1 to 20 wt% of an α-hydroxy acid selected from the group consisting of citric acid, tartaric acid, their salts or mixtures thereof; and

ii) 0.1 to 20 wt% of a xanthine consisting of caffeine substituted xanthine or mixture thereof, wherein the ratio of i) to ii) is from 1:0.01 to 0.01:1."

II. The patent had been opposed in its entirety on the grounds of lack of novelty and lack of an inventive step under Article 100(a) EPC, as well as insufficiency of disclosure under Article 100(b) EPC. The following documents were inter alia submitted in the opposition proceedings:

D4: DE-C1-197 35 865

III. According to the reasons of the decision under appeal, the requirements of sufficiency of disclosure and novelty were satisfied in respect of the subject-matter defined in the Third Auxiliary Request. As concerned inventive step, D4, which related to leave-on hair treatment compositions improving hair-style, was considered, in agreement with the parties, to disclose the closest prior art. In particular, D4 disclosed the use of green tea extract as active ingredient, its Example 3 disclosing in combination also the use of citric acid. The subject-matter of Claim 1 of the Third Auxiliary Request was distinguished from D4 in that it required a specific amount of caffeine and a defined ratio of components i) to ii). Since the experimental data presented in paragraph [0079] of the patent specification convincingly demonstrated decreased curl drop-out values upon application of citric acid and caffeine to hair switches, the technical problem objectively solved over D4 was the provision of hair treatment compositions bringing about improved hair styling. As the skilled person starting from D4 could not deduce in an obvious manner that the combination of features (i) and (ii) as defined in Claim 1 had a synergistic effect and would solve this particular problem, an inventive step was acknowledged for the subject-matter claimed in the Third Auxiliary Request.

IV. In the statement setting out the grounds of appeal, filed on 12 March 2009, further evidence D12 (BE-A-903 646) was invoked, purporting to show that
Claim 1 of the Third Auxiliary Request underlying the decision under appeal lacked novelty.

V. Comments from the Respondents concerning the relevance of D12 with respect to novelty and inventive step were submitted with letter of 22 February 2012.

VI. In preparation of the oral proceedings, the Board issued a communication on 2 March 2012, in which the opinion was given that D12 did not appear to be prejudicial to the novelty of the claims underlying the decision under appeal. It was also indicated that Claim 1 according to the Third Auxiliary Request underlying the decision under appeal appeared to lack an inventive step over the leave-on-lotion described in Example 3 of D4. Starting from Example 3 of D4, the skilled person, especially when aiming at improving hair's shape retention, would obviously increase in view of D4 the amount of green tea extract, arriving thereby at compositions comprising the amounts of citric acid and caffeine defined in Claim 1.

VII. In response to the Board's communication, the Respondents indicated with letter dated 21 March 2012, that they would not attend oral proceedings and requested that a decision be made on the basis of the written submissions. They also submitted for consideration by the Board an amended set of Claims 1 to 7 labelled "Aux Request 2", Claim 1 of which reads as follows (compared to the claim as granted, the deletions are indicated in strikethrough and the additions in bold):
"1. A method of treating hair comprising the step of applying to the hair a leave on hair treatment composition comprising:
i) an α-hydroxy acid selected from the group consisting of citric acid, tartaric acid, their salts or mixtures thereof; and
ii) a xanthine which is caffeine substituted xanthine or mixture thereof, wherein the ratio of i) to ii) is from 1:0.01 to 0.01:1 3:1 to 1:3 and where the total level of xanthine and α-hydroxy acid is from 1 to 10 wt% of the composition."

VIII. Oral proceedings took place on 04 May 2012 in the previously announced absence of the Respondents, according to Rule 115(2) EPC.

IX. The submissions of the Appellants that are relevant to the present decision can be summarized as follows:

(a) In view of the Board's preliminary opinion expressed in the communication of 2 March 2012, novelty over D12 was no longer contested.

(b) As regards inventive step, regardless of whether naturally curly or straight hair was concerned, the problem to be solved according to Paragraphs [0006] and [0008] of the patent in suit was to improve hair style retention. Thus, D4 which also concerned the problem of providing hair style retention, as shown on page 2, lines 4-5, 15 and 23-26, could be considered the closest prior art document. In particular, its Example 3, which described a hair treatment lotion comprising 0,2 wt% of citric acid and 0,5 wt% of green tea
extract represented the closest embodiment. In view of D7 and D11, to which it was referred to on page 2, lines 43-45, of D4, the calculated amount of caffeine in green tea extract lay within the range of 3.5 to 4 wt%. This meant that the claimed method differed from the embodiment shown in Example 3 of D4, where use was made of a lotion comprising between 0.017 and 0.02 wt% of caffeine, only in more caffeine being employed. Although the use of at least 0.1 wt% of caffeine could be seen in view of the examples of the patent in suit to result in an improvement of the styling properties, it had not been shown that caffeine and citric acid, when used in amounts as low as 0.1 wt%, would provide any synergistic hair styling effect. D4 taught, that 0.1 to 10 wt% of green tea extract would bring about improved styling properties. Hence, the use of 10 wt% of green tea extract represented in view of D4 an obvious solution to the problem of further improving the styling properties of the lotion according to Example 3 of D4, leading to a method encompassed by Claim 1 of the Main Request. That Claim 1 of the Main Request allowed the use of green tea extract as a source of caffeine, was confirmed by Paragraph [0014] of the amended specification submitted on 21 March 2012. An inventive step should therefore be denied.

(c) Claim 1 of the Auxiliary Request (labelled "Aux Request 2") did not meet the requirement of clarity (Article 84 EPC), as it was ambiguous whether the word "xanthine", used for defining the amount from 1 to 10 wt%, referred to caffeine, as
at the beginning of the definition of compound ii) in Claim 1, or to xanthines within the meaning given in Paragraph [0009] of the patent in suit, i.e. xanthine and substituted xanthines, including caffeine. If the word "xanthine" used for defining the amount from 1 to 10 wt% referred to caffeine, then it should be concluded that Claim 1 of the Auxiliary Request had no basis in the application as filed in breach of Article 123(2) EPC, because the original disclosure did not contain any basis for defining a level of caffeine and α-hydroxy acid from 1 to 10 wt% of the composition. If the word "xanthine" used for defining the amount from 1 to 10 wt% did not refer only to caffeine, but also included xanthine per se or any xanthine derivative other than caffeine, then Claim 1 now allowed ratios of compound (i) to xanthine and substituted xanthines or mixtures thereof which were outside those defined in Claim 1 as granted, contrary to the requirements of Article 123(3) EPC. Hence, irrespective of the meaning to be attributed to the word xanthine used for defining the amount from 1 to 10 wt%, Claim 1 of the Auxiliary Request was not allowable.

X. The submissions of the Respondents that are relevant to the present decision can be summarized as follows:

(d) Concerning novelty, D12 was introduced for the first time at the Appeal stage and should be considered as late filed. Moreover, D12 did not clearly and unambiguously disclose a method of treating the hair with a composition comprising
the level of caffeine and the ratio of caffeine to α-hydroxy acids as defined in the patent in suit.

(e) As regards inventive step, D4 could be considered the closest prior art. The present invention differed from D4 in that it related to a method of lengthening the hair as well as holding the style. The first examples of the patent showed that when hair swatches were treated with formulations of the invention, i.e. with tartaric acid and caffeine, and left to dry, they were longer in length than those treated without the tartaric acid and caffeine. The second set of examples demonstrated the humidity resistance of hair treated with the claimed methods. D4 merely taught that caffeine, together with a cationic polymer and a quaternary ammonium compound could be used to retain the style of permed hair, that is to keep the hair curly. This was in direct contrast to what the patent in suit required, namely to straighten the hair and maintain hair style in humid conditions. Moreover, D4 failed to teach the importance of having an α-hydroxy acid together with a caffeine derivative. Starting from D4 the skilled person would first have to realize that it was caffeine within D4 that was having the desired effect and that the effect could be significantly enhanced by the addition of an α-hydroxy acid at the required ratio, resulting in a synergistic effect. This was not foreshadowed by the teaching of D4.

(f) Basis for the claims of the Auxiliary Request (labelled "Aux Request 2") could be found on
Page 3, Paragraphs [020] and [021]. It should be noted that the limit of the total amount of xanthine and α-hydroxy acid to 1 to 10 wt% together with the ratio of 3:1 to 1:3 meant that the 1-20 wt% level could be removed from the claim, as the amended claim was narrower in scope. Concerning inventive step of the claimed subject-matter of the Auxiliary Request, it was only noted that the ratio of α-hydroxy acid to caffeine was narrowly defined and the claimed level of α-hydroxy acid and caffeine was higher.

XI. The Appellants requested that the decision under appeal be set aside and that the patent be revoked.

XII. The Respondents had requested in writing that the appeal be dismissed on the basis of the specification submitted as Main Request, i.e. on the basis of claims labelled Third Auxiliary Request in the contested decision and the specification as amended in appeal proceedings. Should document D12 be admitted, they submitted that the case be remitted to the first instance. Alternatively, they requested that the patent be maintained on the basis of the set of Claims 1 to 7 submitted with letter of 21 March 2012, labelled "Aux Request 2".

XIII. At the end of the oral proceedings the decision of the Board was announced.

Reasons for the Decision

1. The appeal is admissible.
Main Request

2. The Board is satisfied that the subject-matter of the claims as amended is sufficiently disclosed, as well as novel, in particular over the disclosure of D12. It is however not necessary in the present case to provide any reasoning in this respect, as the Board came to the conclusion that Claim 1 is not patentable, because it lacks an inventive step, as explained below. It follows that the Respondents' procedural request for remittal to the first instance, should D12 be considered to be crucial to the case, has become pointless, as D12 also is not relevant with respect to the issue of inventive step.

Closest prior art

3. According to Paragraphs [0006] and [0008] of the patent in suit, one of the objects of the present invention is to provide a composition useful in hair styling. In agreement with the finding of the opposition division and the parties' submissions in the appeal proceedings, the Board is satisfied that document D4, in particular the composition according to its Example 3, represents a suitable starting point for assessing inventive step.

4. D4 is concerned, according to Claim 1 thereof, with the use of an aqueous formulation for increasing colour stability and/or shape retention of coloured and/or permed hair, said formulation containing (a) at least a quaternary ammonium compound with at least an alkyl- or alkenyl-group having 10 to 22 carbon atoms, (b) green tea extract and (c) a cationic polymer. Example 1 and
Example 3 of D4 illustrate specific formulations corresponding to this definition which are described as improving the shape retention of permed and/or coloured hair.

5. More specifically, Example 3 of D4 describes a leave-on lotion holding hair's style which comprises inter alia 0.6 wt% distearyldimethylammonium chloride, 0.5 wt% green tea extract, 0.3 wt% Polyquaternium-11 and 0.2 wt% citric acid. It is pointed out in this context that the patent in suit explicitly foresees the use as optional components of quaternary ammonium surfactants (see Paragraphs [0040] to [0045]), which class of compounds encompasses distearyldimethylammonium chloride used in Example 3 of D4, but also cationic styling polymers (see Paragraphs [0061] and [0062]), in particular Polyquaternium-11 (see Paragraph [0070]) also employed in Example 3 of D4. Moreover, it follows from the use in Claim 1 of the patent in suit of the wording "comprising", for defining the hair treatment composition, that any source of caffeine, for example green tea extract, can be used in the framework of the invention as claimed. This is explicitly confirmed in Paragraph [0014] of the amended specification submitted with letter dated 21 March 2012, according to which "caffeine may be used in the present invention in substantially pure form, in the form of unpurified natural extracts, or as a mixture of substantially pure form and natural extract", reference being made in the preceding sentence to tea leaves as a source of caffeine.

6. As to the caffeine content in the leave-on lotion of Example 3, it is not disputed that 0.5 wt% of green tea
extract as used in Example 3 of D4 results in a level of caffeine below the minimum level required by Claim 1 of the present Main Request. Said amount, based on the general knowledge of the skilled person on tea extracts reflected in D7 and D11, is approximated to 0.017 wt%. This calculation is based on the amount of caffeine, theobromin and theopyllin, all of which are xanthine derivatives, present in green tea, i.e. 4 wt% as indicated in D11, which the closest prior art D4 refers to on Page 2, lines 43-45, and the respective amounts of caffeine, theobromin and theopyllin in black tea indicated on page 4472 of D7, the composition of black tea essentially corresponding to that of fresh leaves (see D7, page 4472, left-hand column, lines 8-9). It follows from the foregoing that the weight ratio of citric acid to caffeine present in the leave-on lotion of Example 3 of D4 is about 11.7, i.e. within the range defined in Claim 1 of the Main Request. Hence, the subject-matter of Claim 1 of the Main Request acquires novelty over Example 3 of D4 merely by the fact that it requires a minimum amount of caffeine of 0.1 wt%, which is above the level used in Example 3 of D4.

Problem solved over the closest prior art

7. The Respondents did not define which technical problem was solved over Example 3 of D4, but submitted that the present invention differed from D4 in that it related to a method of lengthening the hair, as well as holding the style, in particular in humid conditions. According to Paragraphs [0006] and [0008] of the patent in suit, and in line with Paragraph [0075] describing the treatment of naturally curly hair (Examples 1 and 2), it is an object of the patent in suit to provide a
composition which prevents frizzing of hair, by virtue of which an increase in hair volume is prevented and the length of swatches of hair is maximized. In Examples 1 and 2, the treatment composition is applied to swatches made from naturally curly hair after a washing step, the application step being followed by combing and drying. Also, another objective of the present invention is to retain the form of hair curls in humid conditions as shown in Examples 3 and 4 of the patent in suit. In these further embodiments of the patent in suit, the treatment solution is applied on hair curls rolled on perming rods, the hair being dried before removing the rods. The hold of the obtained hair curls is then tested in humid conditions. Thus, whether the treatment solution is applied to naturally curly hair before combing and drying or to hair on perming rods before drying and removal of the rods, the purpose of the treatment in Examples 1 to 4 is to retain hair styling, i.e. depending on the type of hair, either to reduce frizzing of naturally curly hair after combing or to reduce curl drop out of waved hair. It follows from the above, that in the absence of any feature in Claim 1 of the Main Request restricting the claimed method to a method of holding straight naturally curly hair, or to a method of lengthening the hair (using the Respondents' own wording), the claimed method can only be defined in more general terms as a method to provide hair style retention.

8. In line with the decision under appeal, it is not disputed by the Parties that in comparison to the method of treatment disclosed in Example 3 of D4, an increase of the caffeine concentration provided by a larger amount of green tea extract will provide
improved hair style retention. The Board is also satisfied that additional caffeine will provide such a technical effect, as this follows first from the effect of the use of green tea extract reported in D4, in particular on page 2, lines 24-26 and in Example 1, and second from the experimental results summarized in the patent in suit on Page 9 (comparison between experiments "Negative Control" and Example C, as well as between experiments Example E and Example 3), which show that the additional use of 1 wt% of caffeine reduces curl drop out of waved hair.

9. The parties' opinions, however, diverge on whether the treatment composition used in the presently claimed method of treatment provides an unexpected improvement of the hair style retention resulting from a synergism between caffeine and citric acid. It is the established case law of the Boards of Appeal that, in opposition proceedings before the EPO, each party carries the burden of proof for the facts it alleges. In the present case, the Respondents, who bear the burden of proof for the alleged synergism existing between caffeine and citric acid, referred to the experimental data provided in the patent in suit by comparative Examples A to F and Examples 1 to 4. The comparative tests based on Examples A and B and Examples 1 and 2 are not pertinent as they do not concern the use of citric acid. As to the data provided in Examples 3 and 4 of the patent in suit, they only relate to aqueous solutions which comprise ten or fifty times more citric acid than in Example 3 or 4 of D4 and which, contrary to the compositions of D4, do not contain a further styling agent, i.e. Polyquaternium 11 (see point 5 above), which like citric acid or caffeine also
improves hair style retention. Additional experimental data relating to much lower amounts of citric acid and to compositions which comprise in addition a cationic styling polymer, have not been submitted. Moreover, a technical explanation concerning the phenomenon underlying the alleged synergism, which might have made it possible to extrapolate the improvement of hair style retention observed for Examples 3 and 4 of the patent in suit to the situation of the closest prior art when modified by the use of more green tea extract is also not available. Under these circumstances, on the question as to whether a synergism between caffeine and citric acid exists in relation to hair style retention when using more green tea extract than in the treatment composition of Example 3 of D4, so as to provide the amount of caffeine presently claimed, the Board cannot decide in favour of the Respondents, since they have not provided evidence for their allegation.

10. In view of the above, the objective problem solved by the claimed method over the method of treatment disclosed in Example 3 of D4, is merely to provide a method of treating hair providing improved hair style retention.

Obviousness

11. It still have to be judged whether or not the skilled person starting from the method disclosed in Example 3 of D4 and wishing to solve the above defined problem would have been guided by the available prior art to apply the treatment composition defined in Claim 1 of the Main Request.
12. As indicated in above point 8, D4 teaches on page 2, lines 24-26 and in Example 1 the beneficial effect of green tea extract on hair style retention. Moreover, D4 teaches in Claim 2 that amounts of green tea extract up to 10 wt% are preferred. Consequently, the skilled person starting from the hair treatment method disclosed in Example 3 of D4 and with a view to obtaining a method of treating hair providing improved hair style retention, would be prompted by the teaching of D4 to increase the proportion of green tea extract in the hair treatment lotion of Example 3 of that document, preferably up to 10 wt%. This corresponds to 20 times more green tea extract than in Example 3 of D4, i.e. approximately 0.34 wt% caffeine, resulting in a weight ratio of citric acid to caffeine of 0.58, and therefore in a method of treating hair according to Claim 1 of the Main Request. Methods of treating hair embraced by Claim 1 would in fact already be obtained when using about 3 wt% of green tea extract in Example 3 of D4, i.e. when using amounts lying in the middle of the range recommended in D4. Consequently, the skilled person would have been guided in an obvious way to a method falling within the ambit of Claim 1 of the Main Request. Thus, Claim 1 of the Main Request, which embraces obvious modifications of the method of treating hair disclosed in Example 3 of D4, lacks at least to that extent an inventive step.

13. It follows from the above reasoning that it was not necessary for the skilled person, in order to arrive in an obvious manner at a method of treatment encompassed by present Claim 1, to be aware of the effect of caffeine on hair style retention, but that it would have been sufficient for him to be prompted to increase
the amount of green tea extract. Hence, the Respondents' argument that the skilled person starting from D4 would first have had to realize, in order to arrive at the claimed subject-matter, that it was caffeine within D4 that was having the desired effect, fails to convince in the absence of any limitation in the Main Request to the use of caffeine for achieving hair style retention. The additional argument that D4 does not teach the importance of having an $\alpha$-hydroxy acid together with a caffeine derivative is also irrelevant, as first an $\alpha$-hydroxy acid is already employed in the embodiment of D4 serving as the starting point for assessing inventive step and second the presently claimed subject-matter is not directed to the use of citric or tartaric acid for achieving the effect underlying the present invention.

14. As the subject-matter of Claim 1 according to the Main Request does not meet the requirements of Article 56 EPC, the Main Request is not allowable.

Auxiliary Request (labelled "Aux Request 2")

15. It is first observed that the definition in Claim 1 of compound ii) being "a xanthine which is caffeine" is in itself a contradiction in terms, as caffeine is not the compound named xanthine, but a specific substituted form of it. Second, it is not clear whether the term "xanthine" at the second occurrence is also, in the absence of any limitation to caffeine, meant to define caffeine in the same incorrect way as at its first occurrence, or whether it should be attributed the more general meaning given in Paragraph [0009] of the patent as granted, i.e. xanthine and substituted xanthines,
including caffeine. Third, in contradiction with the total level of xanthine and α-hydroxy acid from 1 to 10 wt% of the composition defined in Claim 1, Paragraph [0020] of the amended specification labelled "Aux Request 2" defines a total amount of caffeine and α-hydroxy acid which is generally within the range of 0.2 to 40 wt% based on the hair treatment composition. Hence, the ambiguities introduced at the appeal stage within Claim 1 or between Claim 1 and the description are in themselves sufficient to hold amended Claim 1 unallowable in view of the requirements imposed by Article 84 EPC.

16. Furthermore, should the meaning to be attributed to the term "xanthine" at its second occurrence be caffeine, one would arrive at the conclusion that amended Claim 1 would not meet the requirements set out in Article 123(2) EPC, because the application as filed has not been shown to disclose a total amount of caffeine and α-hydroxy acid within the range of 1 to 10 wt% in combination with a ratio of α-hydroxy acid selected from the group consisting of citric acid, tartaric acid, their salts or mixtures thereof to caffeine of 3:1 to 1:3. First, the passages cited by the Respondents do not show that the most preferred weight ratio of xanthine to α-hydroxy acid, i.e. from 3:1 to 1:3 is directly and unambiguously disclosed in combination with the preferred total amount of xanthine and α-hydroxy acid from 1 to 10 wt%, whereas a narrower most preferred total amount from 2 to 5 wt% is also disclosed. Second, said passages do not allow the inference that this specific combination of weight ratio of xanthine to α-hydroxy acid and total amount of xanthine and α-hydroxy acid is disclosed in combination
with the selection of citric acid, tartaric acid, their salts or mixtures thereof for compound (i) and the choice of caffeine for compound (ii). Moreover, as the term "comprising" in Claim 1 allows the use of the compound xanthine per se or in form of substituted xanthines different from caffeine in unlimited amounts, Claim 1 as amended would contravene Article 123(3) EPC, i.e. by allowing ratios of compound (i) (citric acid, tartaric acid, their salts or mixtures thereof, for example 0.25 wt%) to compound (ii) (caffeine, for example 0.75 wt% and other substituted xanthines and xanthine for example in an amount of 30 wt%) below the minimum value of 0,01 defined in Claim 1 as granted.

17. Finally, should the term "xanthine" at its second occurrence cover the compound xanthine per se and substituted xanthines, including caffeine, Claim 1 as amended would encompass embodiments which were outside of the scope of claim 1 as granted, in breach of Article 123(3) EPC. For example a composition comprising 0,05 wt% citric acid, 0,05 wt% caffeine and 9,9 wt% of other substituted xanthines would fall under Claim 1 as amended, as it contains a total amount of "xanthine" (within the meaning given in this paragraph) and α-hydroxy acid of 10 wt%, and exhibits a ratio of citric acid to caffeine of 1, while the same composition would fall outside of the scope of claim 1 as granted, because the ratio of compound (i) (citric acid) to compound (ii) (caffeine and other substituted xanthines) would be below 0,01.

18. It follows from the above that Auxiliary Request (labelled "Aux Request 2") 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

S. Fabiani

G. Santavicca