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D E C I S I O N
of 10 July 1996

Case Number: T 0169/93 - 3.3.1

Application Number: 84301035.6

Publication Number: 0117135

IPC: C11D 3/37

Language of the proceedings: EN

Title of invention:
Detergent compositions

Patentee:
Johnson & Johnson Baby Products Company

Opponent:
HENKEL KGaA TFP / Patente
Dralle GmbH
L'OREAL

Headword:
Dandrifugal compositions/JOHNSON & JOHNSON

Relevant legal provisions:
EPC Art. 54, 56, 83, 84, 106(2), 107 and 123(2)

Keyword:
"Scope of appeal - entitlement of non-appealing parties to re-argue matters already at issue before the opposition division"
"Extension beyond the content of the application as filed (no)"
"Sufficiency of disclosure (yes)"
"Support by the description (yes)"
"Novelty (yes) - prior public use not substantiated"
"Inventive step (no) - problem and solution approach applied - improvement to be expected"

Decisions cited:
G 0009/91; G 0010/91; G 0009/92; T 0328/87; T 0133/85;
T 0409/89; T 0093/89; T 0441/91; T 0465/92; T 0939/92

Catchword:
-



Case Number: T 0169/93 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 10 July 1996

Appellant:
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 18 December 1992
revoking European patent No. 0 117 135 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: A. J. Nuss
Members: J. M. Jonk
W. Moser

Summary of Facts and Submissions

I. The Appellant (proprietor of the patent) lodged an appeal against the decision of the Opposition Division by which European patent No. 0 117 135 was revoked in response to three oppositions, based on Article 100(a) and (b) EPC, which had been filed against the patent as a whole.

II. The opposition was supported by several documents including:

(11) US-A-4 185 106,

(12) K. Löttsch et al: "Radiometrische Untersuchungen zur Substantivität des Antischuppenmittels Pirocton Olamin an Humanhaar", 11th International I.F.S.C.C. Congress "Cosmetics: Research and Technology, 23/26 September 1980, pages 103 to 125),

(13) Specification of "Rich Balancing Shampoo" (20 July 1977) (Marbert GmbH),

(13A) Sworn Statement by Prof. Dr. Lothar Motischke, and

(16) US-A-4 372 869.

III. The decision was based on a set of claims filed on 1 December 1992, Claim 1 reading as follows:

"A detergent composition consisting essentially of:

a) from 2 to 20% by weight of an alkyl sulfate, alkyl ether sulfate, α -olefin sulfonate, alkyl sulfosuccinate, alkyl sarcosinate, alkyl

monoglyceride sulfate, alkyl monoglyceride sulfonate, alkyl benzene sulfonate, acyl isethionate or acyl methyl tauride anionic surfactant;

- b) from 2 to 20% by weight of a betaine, sultaine, phosphobetaine, phosphitaine, N-alkylaminopropionate, N-alkyliminodipropionate or imidazoline amphoteric surfactant;
- c) from 0.05 to 1.00% by weight of: a quaternary nitrogen-substituted cellulose ether derivative; a nitrogen-containing free sulfonic acid polymer; an adipic acid/dimethylaminohydroxypropyl diethylenetriamine copolymer; an acrylamide copolymer; or a quaternary ammonium polymer formed by the reaction product of dimethyl sulfate and a copolymer of vinyl pyrrolidone and dimethylaminoethylmethacrylate; as a water-soluble, nitrogen containing polymer; and
- d) from 0.1 to 5% by weight of a 1-hydroxy-2-pyridone or a magnesium sulfate adduct of 2, 2' dithiobis-(pyridine-1-oxide) as a water-soluble, non-particulate anti-dandruff agent,

wherein the total amount of the anionic and amphoteric surfactants does not exceed 20% by weight of the composition, and

wherein the surfactants form a coacervate with the water-soluble, nitrogen-containing polymer upon dilution of the composition with water."

IV. The Opposition Division held that the subject-matter of this Claim 1 was sufficiently disclosed and novel, but that it did not involve an inventive step in the light of the documents (11) and (12).

V. Oral proceedings were held on 10 July 1996.

VI. In the annex to the summons to the oral proceedings the Board informed the parties that the documents (13) and (13A) submitted by Respondent 2 (Opponent 2) did not seem to meet the criteria for sufficient proof of the alleged prior use such as indicated in the decision T 93/89, and that in examining whether or not the claimed subject-matter involved an inventive step, in accordance with the established jurisprudence of the boards of appeal, the "problem-solution-approach" was to be applied.

VII. The Appellant defended the maintenance of the patent in suit in amended form on the basis of Claims 1 to 9 submitted on 7 June 1996 (main request) or Claims 1 to 9 filed during oral proceedings (sole auxiliary request).

Claim 1 of the present **main request** differed from the Claim indicated above (point III) only in that the expression "detergent" in the first line was replaced by "clear, dandrifcidal".

Claim 1 of the **auxiliary request** differed from Claim 1 of the present main request in that the amounts of anionic and amphoteric surfactants were restricted to 2 to 7% by weight and 2 to 5% by weight, respectively, and in that, as a consequence of these restrictions, the upper limit of 20% by weight with respect to the total amount of the anionic and amphoteric surfactants was deleted.

The Appellant argued that the scope of appeal had to be restricted to the formal allowability of the claims and the issue of inventive step. In this context, he relied on the decisions of the Enlarged Board of Appeal

G 9/91, G 10/91 and G 9/92, and on Article 106(2) EPC. In case the Board would decide to consider also the issues of sufficiency of the disclosure in the sense of Article 83 EPC, lack of support in the sense of Article 84 EPC and prior use, he contested the Respondents' submissions in these respects substantially in line with the findings of the Opposition Division. Concerning in particular the objections with respect to sufficiency of disclosure, the Appellant queried the pertinence of the test-report filed by Respondent 3 (Opponent 3) on 2 November 1993 in the light of the discrepancy between the Experiments 1 and 5 using identical compositions. Moreover, he argued that the description of the patent in suit gave sufficient information to remedy an occasional failure of the forming of a coacervate. In case of Experiment 9 of his test-report filed on 23 April 1993 he contended that a coacervate could be obtained by a further dilution with water.

Regarding the observations of the Board in the annex to the summons to the oral proceedings with respect to the assessment of inventive step, he disagreed with applying the "problem-solution-approach" on the basis of decision T 465/92 (OJ EPO 1996, 32). However, if the Board would decide to use this approach, he submitted that in the light of the closest state of the art (document (11)) the technical problem to be solved was the provision of a clear dandrifical composition providing an enhanced retention of the water-soluble anti-dandruff agent on hair. In this context, he referred to his test-report filed on 23 April 1993 in order to demonstrate an unexpected increase in the retention of anti-dandruff agent on hair as compared to prior art compositions according to the documents (11) and (12), and to show that the amounts of anionic and amphoteric surfactants for obtaining this effect were critical. Furthermore, he argued that the claimed

solution of this technical problem by providing a composition containing as essential constituents certain amounts of anionic and amphoteric surfactants in combination with a water-soluble nitrogen-containing polymer allowing the forming of a coacervate upon dilution of the composition with water involved an inventive step. A combination of the teachings of documents (11) and (12) did not lead to the claimed invention, since the skilled person would not have had any reason to start from the composition according to Example 6 of document (11) and then to add a nitrogen containing polymer and to reduce the amounts of anionic and amphoteric surfactants used therein to the amounts as claimed.

VIII. The Respondents argued that the subject-matter of present Claim 1 of the main request and that of Claim 1 of the sole auxiliary request did not meet the requirements of Articles 123(2), 83, 84, 54 (1) and (2), and 56 EPC.

Concerning their objection with respect to Article 123(2) EPC, they submitted that the claimed feature "wherein the surfactants form a coacervate with the water-soluble, nitrogen-containing polymer upon dilution of the composition with water" extended beyond the application as filed.

With respect to the ground of insufficient disclosure in the sense of Article 83 EPC, they contended that the disputed patent neither disclosed which measures were necessary to achieve clear compositions, nor which measures were needed to provide a coacervate. In this context, they referred to Appellant's own test-report showing that Experiment 9 falling under the scope of the claimed invention did not form a coacervate. Moreover, Respondent 3 referred to a test-report filed by him on 2 November 1993 in order to show that out of

5 experiments using anionic surfactants falling under scope of the present claims only one resulted in forming a coacervate. In view of Experiments 1 and 5 of this test-report using "Sodium Trideceth Sulfate" (sold by ICI Surfactant under the name "TENSAGEX DLM 970") and "Sodium Trideceth Sulfate" (sold by Lipo Chemicals Inc. under the name "LIPOSURF EST-30"), respectively, he concluded that the nature of the anionic surfactant was critical for the forming of a coacervate. In this context, and in reply to Appellant's submission in his letter filed on 6 June 1996 that in the light of the discrepancy between the Experiments 1 and 5 using identical compositions no weight could be given to this test-report, Respondent 3 filed during oral proceedings two documents, namely

(22) ICI Surfactants: Specification of TENSAGEX DLM 970, and

(23) Lipo Chemicals Inc.: Specification of LIPOSURF EST-30,

in order to certify that the commercial anionic surfactants "TENSAGEX DLM 970" and "LIPOSURF EST-30" were not identical but only very similar. Having regard to these documents, Respondent 3 also submitted that the presence of unsulphated organic matter in "TENSAGEX DLM 970" in an amount of at most 3.5% by weight, including 0.5% by weight PEG 1500, was presumably the reason for the different properties of the surfactants in forming a coacervate.

Concerning the ground of lack of support in the description in the sense of Article 84 EPC, Respondent 2 (Opponent 2) submitted that the claimed subject-matter was an unreasonable generalisation of the examples.

Regarding the ground of lack of novelty, Respondent 2 also maintained his objection that the claimed subject-matter lacked novelty in view of prior use, since a product named "Rich Balancing Shampoo" having a composition falling under the scope of the claimed invention was put on the market by Marbert GmbH before the priority date of the patent in suit. He submitted that the prior use - contrary to the opinion of the Opposition Division - was sufficiently substantiated by document (13) filed on 24 April 1991, in order to show that the composition of the product in question was examined and approved by the developing, quality control and production department of Marbert GmbH, and by document (13A), i.e. a sworn statement by Prof. Dr. Lothar Motischke (managing director of Marbert GmbH), filed on 13 November 1992 in order to prove that the product in question was sold in Germany, Switzerland and Belgium in 1977.

With respect to the ground of lack of inventive step, the Respondents argued that the claimed subject-matter did not involve an inventive step in the light of documents (11) and (12), optionally in combination with document (16). In this context they submitted that the closest state of the art was represented by the shampoo composition of Example 6 of document (11) concerning a clear liquid composition containing an amphoteric surfactant having, as disclosed in document (12), an enhancing effect on the retention of the anti-dandruff agent on hair. This known composition differed from the claimed compositions only in that it contained a slightly higher total amount of anionic and amphoteric surfactants, and also in that it did not contain a water-soluble nitrogen-containing polymer as specified in the present claims. However, it was known from

document (12) that the presence of such a polymer improved the retention of the anti-dandruff agent on hair. Moreover, they contended that the use of low contents of surfactants in shampoos was trivial in view of document (16).

- IX. The Appellant requested that the decision under appeal be set aside and a patent be maintained on the basis of Claims 1 to 9 of the main request, submitted on 7 June 1996, or on the basis of Claims 1 to 9 of the sole auxiliary request filed during oral proceedings.

The Respondents requested that the appeal be rejected.

Reasons for the Decision

1. The appeal is admissible.

2. *Scope of appeal*

- 2.1 The Appellant submitted that the issues to be dealt with in the present appeal proceedings had to be restricted to the formal allowability of the claims and the issue of inventive step, because none of the Respondents filed an appeal against the decision of the Opposition Division with respect to its findings that the claimed subject-matter was sufficiently disclosed and was novel as regards the alleged prior use. In this context, he relied on the decisions of the Enlarged Board of Appeal G 9/91, G 10/91 and G 9/92 in order to provide support to his allegation that the scope of appeal was set by the appeal statement(s) and that it was not possible for parties which did not appeal to raise again in appeal proceedings issues decided by the first instance against which no appeal was filed.

Moreover, he supported his submission by referring to Article 106(2) EPC allowing the filing of an appeal even if the patent had been surrendered or had been lapsed for all the designated States.

2.2 However, it is to be noted that in the present case the Opposition Division has revoked the patent in suit, and that the Respondents (Opponents) are **not adversely affected** by this decision within the meaning of Article 107 EPC, first sentence, because that decision is in conformity with the Respondents' requests. Consequently, in view of Article 107 EPC none of the Respondents was entitled to appeal against the decision of the Opposition Division.

2.3 In this context, the Board observes that the decision G 9/91 and the opinion G 10/91 (containing identical "Summary of Facts and Submissions" and "Reasons for the Decision"), relied on by the Appellant, concern questions in relation to Rule 55(c), namely, whether or not the **scope of appeal of an opponent is dependent upon the extent to which the patent is opposed in the notice of opposition, and whether or not the scope of appeal is restricted to the grounds referred to by the opponent in his statement of grounds of opposition, respectively** (see, particularly, points 7, 8 and 12 of the Reasons for the Decision of G 9/91). Thus, these questions, as well as the answers to them by the Enlarged Board of Appeal as set out in the Orders of this decision and this opinion are unrelated to the Appellant's submission. Moreover, the Board observes that in this decision and in this opinion the Enlarged Board of Appeal confirmed that amended claims - such as those in the present case - **are always to be fully examined as to the compatibility with the requirements of the EPC** (see point 19 of the Reasons).

2.4 Furthermore, decision G 9/92 essentially concerns the possible binding effect of the statement by an appellant in the notice of appeal of the "extent to which amendment or cancellation of the decision is requested" (Rule 64(b) EPC) in subsequent appeal proceedings, or in other words **the possible binding effect of the appeal request** (see points 7 and 10 of the Reasons for the Decision). In this respect, the Enlarged Board of Appeal considers inter alia that requests by non-appealing parties to the appeal proceedings which are filed after the time limit in accordance with Rule 65(1) EPC expired, and **which go beyond the appellant's original appeal request pursuant to Rule 64(b) EPC**, are not admissible (see point 10 of the Reasons).

However, in the present case, the Appellant's appeal request aims to set aside the decision of the Opposition Division revoking the patent in suit, and to maintain the patent in amended form. Therefore, in the Board's judgment, the scope of appeal as defined by this request cannot be exceeded if the non-appealing Respondents file a request for rejecting the appeal in order to defend no more than the result obtained before the Opposition Division, a worse outcome for the Appellant being excluded. Moreover, this point of view is entirely in line with the considerations in decision G 9/92 that non-appealing parties as respondents (being parties as of right) have the opportunity to make what they consider to be appropriate and necessary submissions in the appeal proceedings to defend the result obtained before the first instance (see points 8 and 11, second paragraph, of the Reasons).

2.5 Concerning Article 106(2) EPC relied upon by the Appellant, it is to be noted that this provision opens the possibility of filing an appeal against the decision of an Opposition Division by an opponent, even if the patent has been surrendered or has lapsed for all the designated States, provided that the opponent in question is adversely effected pursuant to Article 107 EPC by the decision of the Opposition Division and further bearing in mind that the surrender or lapse of an European patent as such does not constitute an appealable decision within the meaning of Article 106 EPC. Thus, in such a case, a final decision revoking the patent can be obtained, so that, pursuant to Article 68 EPC, all effects of the patent are set aside retrospectively (ex tunc), whereas by a surrender or lapse of the patent these effects would only be withdrawn or lifted from that point of time on (ex nunc). However, in the present case, this aim of Article 106(2) EPC does not apply, so that the referral to this article also cannot support the Appellant's submission.

2.6 Thus, in the circumstances of the present case wherein an appeal is filed against a decision revoking a patent pursuant to Article 102(1) EPC, it is open to the Respondents to re-argue matters which had already been on issue before the Opposition Division. Consequently, if a Respondent wishes to contend in the appeal proceedings that a particular issue in the decision under appeal was wrongly assessed, i.e. not in compliance to his submissions, and even though the overall result of said decision was in his favour, there is nothing in the EPC which could prevent him from doing so.

3. *Main request*

3.1 The amendments to Claim 1 as granted are based on Claim 1 in combination with page 2, lines 29 to 65 and Example 1 (indicating the use of soluble components leading to clear liquid compositions), and page 7, lines 24 to 31, of the patent in suit, and are also supported by Claims 1 to 3, 7, 8, 13 and 16 in combination with page 5, lines 26 to 29, page 7, lines 16 to 22, page 10, lines 20 to 23, page 2, line 6 to page 3, line 19, Example I, and page 13, line 32 to page 14, line 7, of the patent application as filed.

Present Claims 2 to 9 correspond essentially to Claims 2, 3, 5, 6, 7, 8 and 9, 10 and 11, respectively, of the patent as granted, and are also supported by Claims 4, 5, 10, 17, 18, and the examples of the originally filed patent application.

3.1.1 The Respondents submitted that the feature indicating that the surfactants form a coacervate with the water-soluble, nitrogen-containing polymer upon dilution of the composition with water, as claimed, extended beyond the content of the application as filed. They argued, that in the description of the originally filed patent application the forming of a coacervate was only described in order to explain the improved deposition and retention of the water-soluble dandrifical substances, whereby the Applicant did not wish to be bound by said explanation (cf. page 13, lines 32 to 37). Therefore, in their view, the disclosure in the original application concerning the forming of a coacervate was solely speculative. Moreover, they argued that the statement in the originally filed

application that the coacervation was a function of dilution and/or changes in pH (cf. page 13, line 37 to page 14, line 5) showed that dilution - in contrast to what was suggested by the feature as claimed - would not necessarily lead to a coacervate.

3.1.2 However, although the originally filed patent application indeed indicates that the Applicant did not wish to be bound by his explanation of the alleged enhanced retention of the active constituents, it unambiguously describes the coacervate as being "a basically neutral macromolecule formed by the water-soluble nitrogen-containing polymer/surfactant interaction as a result of changes in the electrokinetic effects brought about primarily by a lowering of the zeta potential of the system as a function of dilution and/or changes in pH" (cf. page 13, line 37 to page 14, line 5). Moreover, it also describes that "polymers and surfactant should be of different electrical charge prior to dilution and subsequent coacervate formation" (cf. page 14, lines 5 to 7). Therefore, having regard to the disclosure concerning the nature of the coacervate, its forming as a function of dilution and/or changes in pH (comprising also either dilution or changing the pH), and the conditions to be met by the polymers and surfactants prior to dilution and coacervation, in the Board's judgment, the amendment in Claim 1 as granted by introducing the feature relating to the forming of a coacervate, as specified in the claim, does not represent objectionable subject-matter in the sense of Article 123(2) EPC.

3.1.3 Furthermore, the amendments in question are clearly limiting features, so that they do not contravene Article 123(3) EPC either. This was not contested by the Respondents.

3.2 The Board, in accordance with the established jurisprudence of the Boards of Appeal, considers that the requirement of Article 83 EPC is fulfilled if a claim, on the basis of the broadest possible meaning of the functional definition contained in it (here the forming of a coacervate by the surfactants and the water-soluble, nitrogen-containing polymer on dilution with water), relates to an invention which, having regard to the information given in the patent description, can be performed in the whole area claimed by a person skilled in the art, using common general knowledge, without undue burden.

3.2.1 It is true that according to Experiment 9 of Appellant's test-report no coacervate is obtained. However, in this Experiment the anionic surfactant is used in an amount of 2% by weight and the amphoteric surfactant in an amount of 18% by weight, i.e. in extreme amounts representing end points of the claimed ranges for the surfactants in question and also in a total amount for both corresponding to the maximum of at most 20% by weight. Moreover, the Appellant contended that having regard to the description of the patent in suit indicating that a coacervate consisting of a basically neutral macromolecule is formed by the water-soluble nitrogen containing polymer/surfactant interaction on dilution (see page 7, lines 27 to 30), and the application in this Experiment of the extreme total amount of the surfactants and the extreme high amount of amphoteric surfactant, a person skilled in the art would realise that such a coacervate could be obtained by using higher amounts of water in order to neutralise the solubilising effect of the surfactants and/or the effect of the cationic group on the amphoteric surfactant. Nothing was submitted by the Respondents, which would invalidate this contention.

3.2.2 Furthermore, the objection of lack of sufficiency was also based on the test-report filed by Respondent 3. In accordance with this report Experiments 1 to 4 using "Sodium Trideceth Sulfate" (sold by ICI Surfactant under the name "TENSAGEX DLM 970") as anionic surfactant did not show the forming of a coacervate, whereas Experiment 5 using "Sodium Trideceth Sulfate" (sold by Lipo Chemicals Inc. under the name "LIPOSURF EST-30"), i.e. a closely related anionic surfactant, confirmed the forming of such a coacervate. However, Respondent 3 also contended by referring to documents (22) and (23) - in order to show that the nature of the anionic surfactant is critical for the forming of a coacervate - that the presence of unsulphated organic matter in an amount of at most 3.5% by weigh including 0.5% by weight PEG 1500 in "TENSAGEX DLM 970" was likely to be the reason for the different properties of the surfactants in forming a coacervate. Therefore, in this situation wherein the Respondent apparently has no difficulties in both identifying and understanding the reason for the failure, in the Board's view, it cannot be an undue burden to a skilled person to remedy the failure of obtaining a coacervate by using an anionic surfactant which does not contain such interfering matter.

3.2.3 Thus, in the circumstances of the present case, wherein the burden of proof is upon the Respondents to establish on the balance of probabilities that a skilled reader of the patent in suit using his common general knowledge would be unable to carry out the invention, in the Board's judgment, the alleged insufficiency has not been made credible.

3.3 The objection of lack of support by the description in the sense of Article 84 EPC on the ground that present Claim 1 is an unreasonable generalisation of the examples contained in the description of the patent in

suit also cannot, in the Board's judgment, be validly raised in the present case, since the expression "support by the description" means that a claim must include all technical features stated in the description as being essential features of the invention (see T 133/85, OJ EPO 1988, 441, point 2, and T 409/91, OJ EPO 1994, 653, point 3.2). In the present case, the Respondents failed to identify any technical feature to be regarded as an essential feature of the claimed invention and not forming part of present Claim 1, nor could the Board find any such feature.

- 3.4 The objection that the claimed subject-matter lacked novelty in view of prior use as submitted by Respondent 2 is supported by document (13) in order to show that a composition falling under the scope of present Claim 1 was examined and approved by the developing department, the quality control department and the production department of Marbert GmbH, and by a sworn statement (document (13A)) by Prof. Dr. Lothar Motischke (managing director of Marbert GmbH) in order to prove that the product in question was sold in Germany, Switzerland and Belgium in 1977. However, the Board informed the parties in the annex to the summons to the oral proceedings that this support did not seem to meet the criteria for sufficient proof of the alleged prior use such as indicated in the decision T 93/89 (OJ EPO 1992, 718). Moreover, Respondent 2 admitted during the oral proceedings that, in view of the fact that the prior use arised a relatively long time ago, namely in 1977, he could not provide further or more detailed support. In this context, the Board observes that according to the constant jurisprudence of the boards of appeal, an objection based on prior public use is considered only if (a) the date on which the prior use occurred, (b) exactly what was in prior use, and (c) the circumstances surrounding the prior use has been sufficiently substantiated (see for

example T 328/87, OJ EPO 1992, 701), and if this substantiation can be understood by the EPO and the other parties without the needing to conduct own investigations (see T 441/91 of 18 August 1992, not published in the OJ EPO). In the present case the support for the alleged prior use is substantially based on a declaration of only one witness, who did not provide any detailed information, such as about specific offers, orders or deliveries made to anyone, concrete dates of deliveries, the nature of the merchandised products (for instance, concerning their labels indicating the constituents of the contents), and particular buyers, to permit an examination whether or not the criteria for proof of prior public use as set out above are met. Therefore, the Board considers that the Respondent's submission in this respect is not sufficiently substantiated.

3.5 Furthermore, the Board has reached the conclusion that the subject-matter of the claims is also novel over the cited prior art. As this point was not at issue, it is not necessary to give reasons for this finding.

3.6 This leaves the issue of whether the subject-matter of the present claims involves an inventive step.

3.6.1 Article 56 EPC provides that an invention involves an inventive step if, having regard to the state of the art (in the sense of Article 54(2) EPC), it is not obvious to a person skilled in the art.

3.6.2 For deciding whether or not a claimed invention meets this criterion, the boards of appeal consistently apply the "problem-solution-approach", which implies essentially (a) identifying the "closest prior art", (b) assessing the technical results (or effects) achieved by the claimed invention when compared with the "closest state of the art" established, (c)

defining the technical problem to be solved as the object of the invention to achieve these results, and (d) examining whether or not a skilled person, having regard to the state of the art in the sense of Article 54(2) EPC, would have suggested the claimed technical features for obtaining the results achieved by the claimed invention.

3.6.3 The Appellant argued by referring to the decision T 465/92 (OJ EPC 1996, 32) that the only question to be answered under Article 56 EPC was whether or not, in the light of the prior art, a skilled person would have provided the claimed compositions, and that, accordingly, the issue of inventive step had to be decided without regard to the solution of any technical problem. However, as already stated above, the boards of appeal indeed consistently decide the issue of inventive step in accordance with the problem-solution-approach since, as has been set out in detail in T 939/92 (OJ EPO 1996, 309, points 2.4 to 2.4.4), (a) it has for long been a generally accepted legal principle that the extent of the patent monopoly should correspond to and be justified by the technical contribution to the art, (b) it follows from this principle that the answer to the question what a skilled person would have done in the light of the prior art depends on the technical result he had set out to achieve, and (c) in decision T 465/92 that board of appeal defined the results which had been objectively achieved by the claimed invention, and then proceeded, on that basis, to decide whether or not the cited prior art would have suggested to the skilled person that these results could be achieved in the way indicated in the patent under consideration, i.e. proceeded actually in accordance with the "problem and solution approach", so that this decision cannot support the Appellant's submission.

3.6.4 The Board considers, in agreement with the parties, that the closest state of the art with respect to the composition according to present Claim 1 is the disclosure of document (11).

This document is concerned with dandrifugal compositions which comprise 0.05 to 10% by weight, or preferably about 0.5 to 2% by weight if the compositions are shampoos, of a 1-hydroxy-2-pyridone compound as anti-dandruff agent (see column 1, lines 6 to 38, column 4, lines 49 to 63, and column 7, lines 24 to 44). Apart from an excellent anti-dandruff effect, the 1-hydroxy-2-pyridones also show further advantages such as a good solubility in water, so that transparent compositions can be prepared (see column 7, line 50 to column 9, line 65, in particular column 9, lines 3 to 9). Furthermore, this document contains 2 examples concerning clear liquid shampoo compositions, namely the compositions of Examples 5 and 6. The shampoo in accordance with Example 6 (with an amphoteric surfactant) which comprises about 17% by weight of anionic surfactants, 10% by weight of an amphoteric surfactant and 0.5% by weight of ethanolamine salt of 1-hydroxy-4-methyl-6-cyclohexyl-2-pyridone as anti-dandruff agent, in the Board's judgment, is clearly representative of the general teaching of document (11) (see column 4, line 49 to column 7, line 17). Consequently, the disclosure of document (11) as a whole makes available to the skilled person a clear, dandrifugal composition which only differs from the compositions as claimed in that it does not comprise a water-soluble, nitrogen-containing polymer and in that the total amount of surfactants is more than 20% by weight.

Regarding this prior art the Appellant argued on the basis of experimental results that by using the compositions according to the claimed invention an improved retention of the water-soluble anti-dandruff agent on hair is achieved.

- 3.6.5 Therefore, in the light of this closest prior art, the Board sees the technical problem underlying the patent in suit as being the provision of a clear dandrifical composition providing an enhanced retention of the water-soluble anti-dandruff agent on hair.
- 3.6.6 The patent in suit suggests, as the solution to this problem, a clear, dandrifical composition according to claim 1, which comprises from 0.05 to 1% by weight of a water-soluble, nitrogen containing polymer, as defined in Claim 1 under (c), wherein the total amount of the anionic and amphoteric surfactants does not exceed 20% by weight of the composition, and wherein the surfactants form a coacervate with the water-soluble, nitrogen-containing polymer upon dilution of the composition with water.
- 3.6.7 In view of Appellant's test-report filed on 23 April 1993, the Board is, on the balance of probabilities, satisfied that the above technical problem is solved. This test-report shows that in the absence of either an anionic surfactant or an amphoteric surfactant no coacervate and no clear solution is formed (Experiments 1 to 6), and that in Experiment 14 made in accordance with document (11), using a total amount of anionic and amphoteric surfactants of 27% by weight, a clear composition is obtained, but no coacervate is formed. Moreover, it shows that in Experiments 7, 8 and 10, falling under the scope of present Claim 1 and providing a coacervate at dilution, an unexpected high retention of the anti-dandruff agent on hair can be obtained.

In this context, the Board observes that, as already set out under point 3.2.1 above, although Experiment 9 of Appellant's test-report fails to form a coacervate under the applied conditions, such a coacervate could nevertheless be expected to be obtained by a skilled person. Furthermore, the Board also does not accept the submission of Respondent 3 based on Experiments 1 to 4 of his test-report that the problem underlying the patent in suit is not solved in the whole area claimed, since - as set out under point 3.2.2 above - the failure of obtaining a coacervate in accordance with these experiments is likely to be corrected by the skilled person.

3.6.8 It remains to be decided, whether the requirement of inventive step is met by the claimed composition.

3.6.9 As indicated above (see point 3.6.4) document (11) is related to dandrifugal compositions which comprise 1-hydroxy-2-pyridone compounds as anti-dandruff agents in amounts within the scope of present Claim 1. It is true, that the composition according to Example 6 contains a total amount of anionic and amphoteric surfactants of about 27% by weight, but the general description of document (11) does not comprise any indication that such high amounts of surfactants are necessarily required in order to obtain useful dandrifugal shampoos. On the contrary, in view of the silence in the description in respect of particular concentration ranges to be chosen for these surfactants, a person skilled in the art would have no reason to suppose that some deviation from the concentrations mentioned in the examples would not be in accordance with that invention. In these circumstances, a person skilled in the art would rather assume that the surfactants could be applied in any suitable amount corresponding to the particular cosmetic composition (see column 4, line 49 to

column 5, line 3, and column 6, lines 28 to 32). Furthermore, this document also describes that resins having a hair setting and hair holding effect, such as quaternary copolymers of N-vinyl-pyrrolidone and dialkyl-amino-alkyl(meth)acrylates (falling under the scope of component (c) of the claimed compositions), can be incorporated in corresponding compositions (see column 6, line 48 to column 7, line 13). However, in the Board's judgment, document (11) does not give any pointer to the skilled person that the above defined technical problem could be solved by using such nitrogen-containing polymers in combination with certain amounts of anionic and amphoteric surfactants.

- 3.6.10 Document (12) relates to radiometric investigations concerning the retention of the anti-dandruff agent Piroctone olamine, i.e. the monoethanolamine salt of 1-hydroxy-4-methyl-6-(2,4,4-trimethylpentyl)-2(1H)-pyridone) or Octopirox (registered trade-mark of Hoechst AG), on human hair by using a standard shampoo composition containing 15.0% by weight of sodium C₁₂₋₁₄-alkyl diglycoether sulphate corresponding to the anionic surfactant indicated on page 3, lines 11 to 13, of the patent in suit, 0.5% by weight of the (¹⁴C-labelled) anti-dandruff agent and about 0.1% by weight (to pH 7.0) of citric acid under standard conditions (3 min., 40 °C, pH 7), and by examining its dependence on different parameters, in particular types of hair, different shampoos (surfactants), temperature, pH, repeated use with and without alternating cream rinse, and the addition of cationic and pseudocationic substances (see points 1, 2.3, and the Summary on page 112).

It describes that by means of cationic or pseudocationic substances as additives to the standard shampoo composition the retention of the anti-dandruff agent is normally increased as demonstrated by several

examples showing retention values at a concentration of such substances of 1.0% by weight of 177.4 to 262.5 µg/g European hair (I) (see point 3.4, second paragraph, and Table 4) compared with 140,8 µg/g European hair (I) achieved by using the standard composition (see point 3.1 and Table 1). The best improvements are thereby obtained by using nitrogen-containing polymers as defined in present Claim 1 (see Table 4, Experiments 5 to 8).

In addition, it describes that by replacing the anionic surfactant of the standard composition by other surfactants about the same or somewhat improved retention values of the anti-dandruff agent may be obtained, namely values of from 135,9 to 208,2 µg/g European hair (I) (see point 3.4, first paragraph, and Table 3) compared with the 140,8 µg/g European hair (I) obtained - as indicated above - by using the standard composition, whereby the largest improvement of the retention to 208,2 µg/g hair is achieved by using a fatty acid amidoalkyl betaine, i.e. an amphoteric surfactant falling under the scope of present Claim 1.

Therefore, document (12) gives, in the Board's judgment, a clear incentive to the skilled person trying to solve the problem of improving the retention of 1-hydroxy-2-pyridone anti-dandruff agents on hair obtained by using shampoos in accordance with document (11), in particular the shampoo containing an amphoteric surfactant specified in Example 6, to add a nitrogen-containing polymer in accordance with Claim 1 of the patent in suit, i.e. a clear pointer to the solution of the technical problem underlying the patent in suit defined above.

3.6.11 It is true, that in accordance with Example 6 of document (11) the total amount of the anionic and amphoteric surfactants is about 27% by weight, i.e. higher than the upper limit of 20% by weight as claimed in present Claim 1 of the patent in suit, but - as indicated above - document (11) as a whole does not comprise any requirement or restriction concerning the amounts of surfactants which impart properties desired for the dandrifical compositions.

Moreover, it is known from document (16) - published after the filing date of document (11), but well before the priority date of the patent in suit - that the total amount of the surfactants in shampoos having good foam properties, which contain a pyrophosphobetaine compound (an amphoteric surfactant falling under the scope of present Claim 1) and preferably at least one other surfactant such as an anionic surfactant, should be low in order to avoid ocular irritation problems, preferably from about 8 to 15% by weight of the total composition (see column 1, line 6 to column 2, line 26, column 4, lines 1 to 10, and column 6, lines 22 to 26 and 61 to 65). A typical example of a shampoo giving only a slight eye irritation and providing good foam properties is Example III of document (16) which comprises 4.00% by weight of lauric myristic imidazoline, 1.10% by weight of compound AA (a pyrophosphobetaine of the formula indicated in column 3, lines 42 to 49) and 4.99% by weight of tridecyl alcohol ether (4.2) sulphate, i.e. 5.10% by weight of amphoteric surfactants and 4.99% by weight of an anionic surfactant, all of them falling under the scope of present Claim 1 of the patent in suit.

Therefore, document (16), in the Board's judgment, clearly teaches to use in shampoos anionic and amphoteric surfactants, as claimed in accordance with the patent in suit, in such amounts that they fall within the now claimed ranges.

3.6.12 The Board observes that present Claim 1 also comprises a functional feature with respect to the forming of a coacervate at dilution with water. However, in the Board's judgment, this feature would not have led the skilled person to the provision of other compositions than the actually claimed ones, since - in the absence of any indication in the description of the patent in suit of any further concrete measure(s) for the forming of such a coacervate in addition to the usual dilution of the shampoo with water at use - it only constitutes, in the Board's view, an explanation for the improvement of the retention of the anti-dandruff agent on the hair to be expected in the light of the teaching of document (12).

3.6.13 From the above considerations the Board concludes that the cited documents (12) and (16) give the skilled person a clear indication that the use of about 1% by weight of a nitrogen-containing polymer (i.e. one in the sense of feature (c) of the patent in suit) and the use of amounts of surfactants as low as possible are decisive features for improving the shampoos disclosed in document (11) with respect to the retention of the anti-dandruff agent on the hair. Thus, this incentive leads the skilled person inevitably to compositions as defined in present Claim 1 and, therefore, to the solution of the technical problem underlying the patent in suit.

3.6.14 It follows that the subject-matter of present Claim 1 of this request lacks inventive step and, thus, does not comply with Article 56 EPC.

Claims 2 to 9 fall with Claim 1, since the Board can only decide on the request as a whole.

4. *Auxiliary request*

4.1 The subject-matter of Claim 1 of this request differs from that of Claim 1 of the main request in that the ranges for the amounts of anionic and amphoteric surfactants are restricted to 2 to 7% by weight and 2 to 5% by weight, respectively, and in that the therefore no longer required upper limit of the total amount of these surfactants (i.e. at most 20% by weight) is deleted.

4.2 The subject-matter of this Claim 1 finds its basis in the passages of the description of the patent in suit and the patent application as originally filed as indicated under points 3.1 to 3.1.3 above. In addition, the restricted ranges are based on page 4, lines 4 and 39, of the patent in suit, and also supported by page 5, lines 26 to 29, and page 7, lines 16 to 19, of the originally filed patent application.

Thus, all amendments made to the claims as granted comply with the requirements of Article 123 EPC.

4.3 In view of the considerations of the Board with respect to the main request indicated under points 3.2 to 3.4 above, the Board has no objections with respect to Articles 83 and 84 EPC.

4.4 Furthermore, after examination of the cited prior art, the Board has also reached the conclusion that the subject-matter as defined in all claims of the auxiliary request is novel. Since the novelty of the subject-matter of these claims was not disputed by the Respondents, it is not necessary to give reasons for this finding.

4.5 This leaves the issue of whether the subject-matter of the claims of this request involves an inventive step.

Since the subject-matter of Claim 1 in accordance with this auxiliary request, as indicated above, essentially differs from that of the main request only in that the amounts of the anionic and the amphoteric surfactants are restricted to 2 to 7% by weight and 2 to 5% by weight, respectively, in the Board's judgment, the considerations of the Board with respect to the issue of inventive step for the main request indicated above (see points 3.6.1 to 3.6.13) apply equally to the present auxiliary request.

In this context, the Board observes that - as set out above (see point 3.6.11) - document (16) gives a clear pointer to the skilled person that the total amount of the surfactants should be low in order to avoid ocular irritation problems, preferably from about 8 to 15% by weight of the total composition. In addition, Example III of document (16), representing a typical example of a shampoo with low eye irritation potential and good foam properties, comprises 4.00% by weight of lauric myristic imidazoline, 1.10% by weight of compound AA (a pyrophosphobetaine of the formula indicated in column 3, lines 42 to 49) and 4.99% by weight of tridecyl alcohol ether (4.2) sulphate, i.e. 5.10% by weight of amphoteric surfactants and 4.99% by weight of anionic surfactant, all surfactants falling under the scope of present Claim 1 of the auxiliary request.

4.6 It follows that the limitation in accordance with the Appellant's auxiliary request does not lead to patentable subject-matter either (Article 56 EPC).

Order

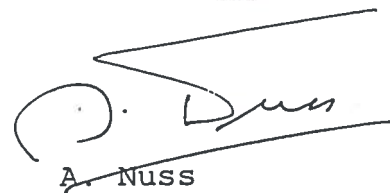
for these reasons it is decided that:

The appeal is dismissed.

The Registrar:


E. Gorgmaier

The Chairman:


A. Nuss