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D E C I S I O N
of 27 November 2001

Case Number: T 0763/97 - 3.3.1

Application Number: 89123326.4

Publication Number: 0376104

IPC: C09K 3/30

Language of the proceedings: EN

Title of invention:
Aerosol composition

Patentee:
OSAKA SHIPBUILDING CO., LTD.

Opponent:
Goldwell AG
Wella Aktiengesellschaft

Headword:
Transparent aerosols/OSAKA SHIPBUILDING

Relevant legal provisions:
EPC Art. 56, 123(2),(3)
EPC R. 57a

Keyword:
"Exercise of discretion regarding "late filed" requests"
"Amendments - added subject-matter (no)"
"Inventive step (main request, no) - obvious alternative"
"Inventive step (auxiliary request I, yes) - surprising effect - not mere bonus effect"

Decisions cited:
T 0020/81, T 0197/86, T 0355/97, T 0301/87

Catchword:
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Case Number: T 0763/97 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 27 November 2001

Appellant: (Proprietor of the patent)
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Respondent 1: (Opponent 1)
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Representative:
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Respondent 2: (Opponent 2)
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Representative:
-

Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 9 May 1997 revoking European patent No. 0 376 104 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: R. Freimuth
Members: J. M. Jonk
S. C. Perryman

Summary of Facts and Submissions

I. The Appellant (Proprietor of the patent) lodged an appeal against the decision of the Opposition Division by which the European patent No. 0 376 104 (European patent application No. 89 123 326.4) was revoked under Article 102(1) EPC.

II. The oppositions filed by Opponents 1 and 2 (now Respondents 1 and 2 respectively) were solely based on the ground that the claimed subject-matter of the patent in suit did not involve an inventive step as indicated in Article 100(a) EPC. They were supported by several documents including:

(1) JP-A-52/005683 (English translation)

(3) DE-A-36 30 065 and

(7) G. A. Nowak, Die kosmetischen Präparate, 2. Auflage (1975), Verlag für chem. Industrie H. Ziolkowsky KG, Augsburg, pages 568 and 571.

III. The Opposition Division held that the subject-matter of the claims submitted during the oral proceedings on 9 April 1997 as main and auxiliary request was novel, but did not involve an inventive step.

Concerning inventive step, it held that, starting from document (3) as the closest state of the art, and in the absence of any improvement, the technical problem underlying the patent in suit was the provision of alternative aerosol compositions having similar properties. Furthermore, it considered that in the light of the cited prior art it would have been obvious

to the skilled person to solve this problem by replacing the dichlorotetrafluoroethane as used in document (3) by the hydrocarbons as claimed in the patent in suit.

IV. Oral proceedings before the Board were held on 27 November 2001. Respondent 1, who had been duly summoned, did not attend the oral proceedings. He informed the Board by a letter dated 14 November 2001 that he fully concurred with the submissions made by Respondent 2.

V. Due to objections to the claims on file raised by the Respondent 2 under Article 123(2) EPC and regarding inventive step during the oral proceedings before the Board, the Appellant defended the patent in suit on the basis of the claims of the main request or of the auxiliary requests I or II, all requests submitted for the designated Contracting States AT, BE, CH, DE, FR, GB, IT, LI, LU, NL and SE during the oral proceedings before the Board. He informed the Board that the patent in suit had expired for the Contracting States ES and GR.

Claim 1 of said main request read as follows:

"1. An aerosol composition not containing chlorofluorocarbons, which forms a foam exhibiting a crackling sound upon defoaming, when subjected to discharge from an aerosol container in the form of a mist or foam,

the aerosol composition being composed of a concentrate and a propellant,

the concentrate being composed of

- an aqueous solution optionally containing an alcohol,

- 0.03 to 5% by weight based on the aerosol composition of a surface active agent, and

- 0.01 to 10% by weight based on the aerosol composition of one or more effective ingredients, and

- optionally pentane, a powder, and/or other components selected from polyhydric alcohols, ketones, ethers, esters of fatty acids, natural animal or plant oils, thickeners, pigments; and

the propellant containing one or more aliphatic hydrocarbons having a boiling point of -5°C to +40°C in an amount sufficient to propel the composition from an aerosol container;

wherein the alcohol concentration of the aqueous solution is at most 60% by weight;

the amount of water in the aqueous solution is 1 to 54% by weight based on the aerosol composition; and

the total amount of pentane contained in the concentrate and the aliphatic hydrocarbon having a boiling point of -5°C to +40°C contained in the propellant is 20 to 80% by weight based on the aerosol composition."

Furthermore, Claim 1 of said auxiliary request I

corresponded to Claim 1 of the main request, except that the concentrate optionally contained a powder in an amount of at most 10% by weight based on the aerosol composition.

Claim 1 of said auxiliary request II corresponded to Claim 1 of the auxiliary request I, except that the concentrate contained the powder as a mandatory component in an amount of 0.03 to 10% by weight based on the aerosol composition.

VI. Regarding inventive step, the Appellant argued that, starting from document (3) as the closest prior art, the technical problem underlying the patent in suit was the provision of aerosol compositions not containing chlorofluorocarbons but having an improved transparency. In support he referred to the test-reports submitted by him on 5 September 1997 and 24 November 1998. Furthermore, he argued that in the light of the cited documents the solution of this technical problem by the provision of the compositions as now claimed would not have been obvious to the skilled person.

VII. Respondent 2 (the Respondent) objected to the admissibility of the present requests submitted during the oral proceedings for being filed late.

Furthermore, he considered that the claimed subject-matter did not meet the requirements of Article 123(2) EPC. In this context, he argued in particular

- that the negatively formulated feature of the claimed compositions "not containing chlorofluorocarbons" represented an unallowable

disclaimer,

- that the presence of pentane represented an essential feature of the claimed invention, and therefore had to be a mandatory component of the claimed compositions, and

- that the expressions "the aerosol compositions being composed of a concentrate and a propellant" and "the concentrate being composed of" were not supported by the application as filed, because it solely disclosed that said aerosol compositions and said concentrate were **mainly** composed of the specified ingredients.

He also held that the expression "exhibiting a crackling sound ..... in form of a mist or foam" in Claim 1 of the present requests lacked clarity as required under Article 84 EPC.

Concerning inventive step, the Respondent disputed that the claimed compositions showed improved transparency noting (i) that the test-reports provided by the Appellant did not concern a proper comparison with the closest prior art, (ii) that the photograph II of the second comparative test of the test-report filed on 5 September 1997 showed that a composition falling under the scope of document (3) was transparent before shaking, and (iii) that the products of the Examples 18 and 22 of the patent in suit falling outside the scope of the present claims, but falling within the scope of document (3), both showed a good transparency. Therefore, the technical problem underlying the patent in suit as defined by the Appellant had already been solved in the prior art, and a redefined technical

problem could only be seen in the provision of an alternative aerosol composition. The solution of this technical problem, or the provision of a composition having an improved transparency as submitted by the Appellant, by the claimed subject-matter lacked inventive step in view of document (3) in combination with documents (1) and (7), since these last two documents showed that hydrocarbons falling under the scope of the claims of the patent in suit were suitable substitutes for dichlorotetrafluoroethane as used in document (3) leading to transparent compositions.

He also argued that the use of chlorofluorocarbons was undesirable since they had a negative influence on the environment. Their replacement as suitable propellants by hydrocarbons was well known in the art. It was therefore obvious to the skilled person to do this replacement regardless of any additional effect such as transparency.

VIII. The Appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of Claims 1 to 3 of the main request, or of auxiliary request I or of auxiliary request II all submitted at the oral proceedings on 27 November 2001.

The Respondents 1 and 2 requested that the appeal be dismissed.

IX. At the end of the oral proceedings the decision of the Board was pronounced.

Reasons for the Decision

1. The appeal is admissible.

2. *Admissibility of the present requests*

2.1 The Respondent objected to the admissibility into the appeal proceedings of the main and auxiliary requests as submitted during the oral proceedings before the Board for being late filed.

2.2 According to Rule 57a EPC, claims of a patent as granted may be amended in opposition (appeal) proceedings, provided that the amendments are intended to meet objections arising from the grounds for opposition specified in Article 100 EPC. In the absence of any time limit for filing the amendments, the question whether or not a proposed amendment is admissible into the proceedings is thus to be decided by the Board in the exercise of its discretion, e.g. taking into due account whether or not the amended claims give rise to fresh issues which the other party, i.e. the Respondent - Opponent, can reasonably be expected to deal with properly without procedural delay.

2.3 In the present case, the amendments of Claim 1 as granted according to the main and auxiliary requests were intended to meet objections arising from Article 123(2) EPC, and to overcome objections regarding inventive step. They were filed in direct response to the objections raised by the Respondent during the oral proceedings without giving rise to any fresh issue. In these circumstances, the Board decides that it is appropriate to admit the main and auxiliary requests into the proceedings.

Main request

3. *Amendments (Article 123(2) and (3) EPC)*

3.1 Present Claim 1 results from combining Claim 1 as granted with specific features having support in the description of the application as follows:

- page 2, lines 10 to 13, and page 3, lines 10 to 14, concerning "not containing chlorofluorocarbons",

- page 2, lines 35 and 36, and the compositions of the examples (see in particular page 12, lines 5 to 7, page 24, lines 2 to 4, and the Tables 1 and 2) concerning "the aerosol composition being composed of a concentrate and a propellant",

- page 6, lines 14 to 19, and page 10, lines 31 to 35, regarding "the concentrate being composed of",

- page 6, lines 14 to 19, page 10, lines 31 to 35, and page 11, lines 13 to 18, with respect to "an aqueous solution optionally containing an alcohol" as a component of the concentrate,

- page 6, lines 14 to 19, and page 8, lines 21 to 25, regarding "0.03 to 5% by weight based on the aerosol composition of a surface active agent" as another component of the concentrate,

- page 6, lines 14 to 19, and page 10, lines 20 to 25, concerning "0.01 to 10% by weight based on the aerosol composition of one or more effective ingredients" as a further component of the

concentrate,

- page 10, line 31 to page 11, line 9, regarding "optionally pentane, a powder, ... , pigments" as optional components of the concentrate,

- page 6, lines 14 to 19, page 6, lines 33 to 37, and page 7, lines 7 to 12, with respect to "wherein the alcohol concentration of the aqueous solution is at most 60% by weight",

- page 11, lines 19 to 21 with respect to "based on the aerosol composition" in relation to the percentage of the amount of water in the aqueous solution, and

- page 5, lines 2 to 8, concerning "the total amount of pentane contained in the concentrate and the aliphatic hydrocarbon having a boiling point of -5°C to +40°C contained in the propellant is 20 to 80% by weight based on the aerosol composition".

3.2 In this context, the Respondent argued that the negatively formulated feature of the claimed compositions "not containing chlorofluorocarbons" represented an unallowable disclaimer.

However, the Board does not agree with this objection, since it clearly follows from the application as filed, that it was one of the objects of the invention to provide an aerosol composition comprising ingredients which would not impair the environment (see page 2, lines 10 to 13), and that this object has been achieved by avoiding the use of a detrimental chlorofluorocarbon (see page 3, lines 6 to 14, and the examples).

Therefore, the claimed aerosol compositions, which do not contain chlorofluorocarbons, actually represent a preferred embodiment of the originally claimed invention. The feature of the claimed compositions "not containing chlorofluorocarbons" is thus specifically disclosed in and, consequently, adequately supported by the application as filed.

3.3 Moreover, the Respondent argued that it followed from the application as filed that the presence of pentane represented an essential feature of the claimed invention. In this context, he referred to page 4, lines 28 to 30, stating:

"The pentane is contained as a main component of a propellant, and can also be contained as an effective ingredient as occasion demands".

Therefore, pentane had to be indicated in Claim 1 as mandatory component.

In the Board's judgment, and in contradiction to the Respondent's submissions in this respect, it can however be clearly derived from the application as filed that pentane is an optional component of both the concentrate and the propellant. This follows in particular from:

- the statement on page 6, lines 8 to 10, reading "As a propellant, 100% by weight of n-butane, that is, n-butane solely can be used without any problem",

- the statements on page 6, lines 14 to 19, and page 10, lines 31 to 35, indicating that the

concentrate is mainly composed of effective ingredients as primary components and components **such as** pentane, an alcohol component, surface active agents, a powder, and purified water to be **optionally employed as occasion demands** as secondary ones, and

- Examples 15 and 16 relating to compositions of the claimed invention, which do not contain pentane at all.

3.4 The Respondent's submission that the expressions "the aerosol compositions being composed of a concentrate and a propellant" and "the concentrate being composed of" in present Claim 1 were not supported by the application as filed cannot be accepted by the Board either.

It is true, that it has been stated in the application as filed that the aerosol compositions and the concentrate are **mainly** composed of the respective ingredients (see page 2, lines 35 and 36, and page 6, lines 14 to 19). However, present Claim 1 is restricted to the preferred embodiments disclosed in all the examples of the application as filed referring to compositions which consist exclusively of a concentrate and a propellant, whereby the concentrate is exclusively composed of the ingredients explicitly mentioned in the specification of the application as filed (see page 6, lines 14 to 19, and page 10, line 31 to page 11, line 9). These preferred embodiments as now claimed are therefore clearly supported by the application as filed as required by Article 123(2).

3.5 Thus, in view of these considerations and the fact that

the amendments only represent restrictions to the scope of Claim 1 as granted, the Board finds that the subject-matter of present Claim 1 meets the requirements of Article 123(2) and (3).

4. *Clarity (Article 84 EPC*)

4.1 The Respondent argued that the expression in Claim 1

"exhibiting a crackling sound upon defoaming, when subjected to discharge from an aerosol container in the form of a mist or foam,"

was unclear thereby contravening the requirement of clarity pursuant to Article 84 EPC.

However, that expression was already comprised in Claim 1 as granted and, thus, does not result from any amendment made during the opposition or opposition-appeal proceedings. Furthermore, the Board observes that Article 84 EPC is not a ground for opposition within the sense of Article 100 EPC. Therefore, any expression already comprised in a claim as granted may not be challenged under Article 84 EPC. Nor does Article 102(3) EPC provide a proper basis in the present case for objecting to clarity since that provision only allows objections to be based upon Article 84 EPC if they arise out of the amendments made in opposition(-appeal) proceedings (see decision T 301/87, OJ EPO 1990, 335, point 3.8 of the reasons).

5. *Inventive step.*

5.1 For deciding whether or not a claimed invention meets this criterion, the Boards of Appeal consistently apply

the problem and solution approach, which involves essentially identifying the closest prior art, determining in the light thereof the technical problem which the claimed invention addresses and successfully solves, and examining whether or not the claimed solution to this problem is obvious for the skilled person in view of the state of the art.

If the technical results of the claimed invention provide some improvement over the closest prior art, the problem can be seen as providing such improvement, provided this improvement necessarily results from the claimed features for all that is claimed. If, however, there is no improvement, but the means of implementation are different, the technical problem can be defined as the provision of an alternative to the closest prior art.

5.2 The Board considers, in agreement with the parties, that the closest prior art with respect to the compositions according to Claim 1 of the patent in suit is the disclosure of document (3).

This document relates to an aerosol composition, which forms a foam giving a crackling sound upon defoaming, comprising:

(A) 2 to 30 parts by weight of a concentrate containing (1) 3 to 60% by weight of an aqueous solution of ethanol and/or isopropanol, (2) 0.01 to 10 parts by weight of a surface active agent and/or 0.1 to 50 parts by eight of a powder, and (3) 0.1 to 50 parts by weight of one or more effective ingredients, per 100 parts by weight of the aqueous solution (1), respectively, and

(B) 70 to 98 parts by weight of a propellant essentially consisting of dichlorotetrafluoroethane and having preferably a boiling point of -5 to 5°C.

(see Claim 1; column 1, line 62 to column 2, line 8; column 3, line 68 to column 4, line 6; and column 4, lines 7 to 10).

Depending on the intended application it is also possible to add to the dichlorotetrafluoroethane a minor amount of dimethylether, dichlorodifluoromethane, N_2, CO_2 or air and/or one or more of numerous other propellants (see column 4, lines 10 to 23 and 35 to 37). In this context, some suitable propellant mixtures have been specified, such as those consisting of 100 to 75 parts by weight of dichlorotetrafluoroethane and 0 to 25 parts by weight of a liquefied petroleum gas (see column 4, lines 23 to 35). The only example of an aerosol composition containing a liquefied petroleum gas (Example 2) concerns a composition containing 80.0% by weight of dichlorotetrafluoroethane and 10.0% by weight of butane.

5.3 Regarding this prior art, the Appellant submitted that the technical problem to be solved was to provide aerosol compositions having an improved transparency.

However, in accordance with the established jurisprudence of the Boards of Appeal, only such improvements can be recognised for defining the technical problem underlying the patent in suit which are actually achieved by substantially all the embodiments encompassed within the scope of the claim. In this context, it follows from comparative Example 5

of the patent in suit, which is called "comparative" though falling within the claimed invention, that by using talc in an amount of 12% by weight in the composition an insufficient transparency has been obtained. Thus, having regard to said comparative example, and the fact that high powder contents reduce transparency, the Board finds that it is not credible that an improved transparency can be realised by substantially all the embodiments encompassed within the broad scope of present Claim 1.

Thus, in view of these considerations and having regard to the fact that the Appellant did not submit any evidence showing that the alleged improvement could be achieved by the claimed compositions within the present broad scope of Claim 1, the technical problem as defined by the Appellant cannot be accepted by the Board and consequently a reformulation of this alleged technical problem becomes necessary to meet a less ambitious objective [see in this context, e.g. decisions T 20/81, OJ EPO 1982, 217, point 3 of the reasons; and T 355/97 (not published in the OJ EPO), point 2.6 of the reasons].

5.4 Therefore, in the Board's judgment, the technical problem underlying the patent in suit in the light of the closest state of the art can only be seen in the provision of further aerosol compositions capable of forming foams exhibiting a crackling sound upon defoaming.

5.5 The patent in suit suggests as the solution to this problem, a composition according to Claim 1 which is essentially characterised in that it is free of a chlorofluorocarbon, and by the incorporation of pentane

in the concentrate and/or an aliphatic hydrocarbon having a boiling point of -5°C to +40°C in the propellant in a total amount of 20 to 80% by weight based on the aerosol composition.

In view of the technical information in the patent in suit, in particular in the examples, the Board is satisfied that the problem as defined above has been solved. This was never challenged by the Respondents.

5.6 The remaining question is thus whether the prior art as a whole has suggested to a person skilled in the art solving the technical problem indicated above in the proposed way.

5.7 As indicated above (see point 5.2), document (3) discloses the use of a propellant essentially consisting of dichlorotetrafluoroethane and optionally a minor amount of a liquefied petroleum gas as one of numerous other suitable propellants. Therefore, it cannot render the claimed subject-matter relating to compositions free of chlorofluorocarbons obvious by itself.

5.8 However, it was already known from document (7) that either a mixture comprising dichlorotetrafluoroethane or propane and butane could be used as propellants in foam exhibiting aqueous aerosol compositions (see page 568, lines 7 to 10). Thus, that document teaches that the hydrocarbons propane and butane having a boiling point within the claimed range of -5°C to 40°C represent an equivalent alternative to the propellant dichlorotetrafluoroethane in aqueous aerosol compositions. Consequently, in the Board's judgment, document (7) gives a clear pointer to the skilled

person that the technical problem defined above would be solved by providing an aerosol composition falling under the scope of Claim 1.

5.9 Thus, in view of documents (3) and (7) the subject-matter of Claim 1 of the main request does not involve an inventive step.

Auxiliary request I

6. *Amendments (Article 123(2) and (3) EPC)*

6.1 Claim 1 of this request only differs from Claim 1 of the main request in that the amount of powder, which is an optional constituent of the concentrate, is restricted to at most 10% by weight based on the aerosol composition. This amendment is supported by page 9, lines 32 to 35, of the application as filed.

6.2 Thus, having regard to the considerations regarding Claim 1 of the main request under points 3.1 to 3.5 above, and in view of the fact that the now indicated upper limit of the amount of powder represents a further restriction of the scope of Claim 1 as granted, Claim 1 of this request also meets the requirements of Article 123(2) and (3).

7. *Inventive step*

7.1 Concerning the subject-matter of Claim 1 of this auxiliary request, and having regard to the Appellant's submissions, in the Board's judgment, the technical problem underlying the patent in suit in the light of the closest state of the art, i.e. document (3), can be seen in the provision of aerosol compositions forming

foams exhibiting a crackling sound upon defoaming and having an improved transparency.

7.2 As in the case of the main request, the patent in suit suggests as the solution to this problem, a composition which is essentially characterised in that it is free of a chlorofluorocarbon, and by the incorporation of pentane in the concentrate and/or an aliphatic hydrocarbon having a boiling point of -5°C to +40°C in the propellant in a total amount of 20 to 80% by weight based on the aerosol composition.

7.3 In view of the examples of the patent in suit and the test-reports submitted by the Appellant on 5 September 1997 and 24 November 1998, showing that the now claimed products and the obtained foams had a good transparency, whereas comparable compositions falling under the scope of document (3) were opaque, the Board is satisfied that the problem as defined above has been credibly solved. Furthermore, having regard to the delimitation of the amount of optional powder in the concentrates of the compositions as now claimed, the Board sees no reason to doubt the achievement of a good transparency.

7.4 In this context, the Respondent disputed that the claimed compositions would show an improved transparency noting that the test-reports provided by the Appellant did not concern a proper comparison with the closest prior art, and that the products of Examples 18 and 22 of the patent in suit and the photograph II of the second comparative test of the test-report filed on 5 September 1997 showed that compositions falling under the scope of document (3) had already a good transparency.

However, according to said test-reports comparative experiments have been carried out between compositions of the patent in suit and compositions according to the prior art document (3), which differ from each other exclusively in that the propellants according to the patent in suit are composed of butane, or butane plus isopentane, whereas the propellants according to said document comprise dichlorotetrafluoroethane (see the first experiment of the test-report of 5 September 1997 and the samples of the test-report of 23 November 1998). The nature of the comparison with the closest prior art document is therefore such that the transparency effect is shown to have its origin in the distinguishing feature of the claimed invention, namely the replacement of the dichlorotetrafluoroethane by one or more hydrocarbons as defined in Claim 1 of the patent in suit in the claimed amounts. This is in conformity with the case law of the Boards of Appeal (see, for instance, decision T 197/86, OJ EPO 1989, 371).

The second comparative test in the test-report of 5 September 1997 makes use of a comparative sample prepared according to Example 2 of document (3), but containing 12.5% by weight of butane and 77,5% by weight of dichlorotetrafluoroethane, i.e. 90% by weight in total. Therefore, this comparative sample not only differs from compositions as claimed in the patent in suit by way of the nature of its propellant, but also with respect to its amount, which according to Claim 1 of the patent in suit cannot exceed 80% by weight. Therefore, according to the case law of the Boards of Appeal as indicated above in the preceding paragraph, this comparative sample is not suitable for showing that the transparency effect finds its origin in the

distinguishing feature of the claimed invention. Moreover, the Board observes that this comparative sample shows a separation in two phases before shaking (see photograph II), and therefore does not correspond to the technical teaching of document (3) in which it is clearly stated that compositions falling under its scope have the form of uniform dispersions (see column 5, lines 7 to 15, and the Table in column 7). Thus, also for this reason, this second comparative test does not truly reflect the closest prior art. The Board also observes that, as follows from the corresponding photographs, the comparative sample has an opaque appearance after shaking, whereas the composition of the claimed invention remains transparent.

Furthermore, the Respondent's submission that the compositions of Examples 18 and 22 of the present patent would fall within the scope of document (3) and would show that such compositions already had a good transparency cannot be accepted by the Board either, since both compositions do not contain a major amount of dichlorotetrafluoroethane as required in accordance with the technical teaching of said document (see point 5.2 above).

Therefore, these submissions as put forward by the Respondent, who carries the burden of proof for the facts he alleges, cannot be accepted by the Board in the absence of convincing evidence.

7.5 The question now is again whether the cited prior art would have suggested to a person skilled in the art solving the above defined technical problem in the proposed way.

7.6 In this context, and in view of the above defined technical problem, the Respondent in defending lack of inventive step only relied on document (3) in combination with document (1) and/or document (7).

7.7 As indicated under point 5.7 above, document (3) cannot render the claimed subject-matter obvious by itself since it discloses the use of a propellant essentially consisting of dichlorotetrafluoroethane and optionally a minor amount of a liquefied petroleum gas as one of numerous other suitable propellants.

7.8 Document (1) relates to self-propelling homogeneous liquid aerosol compositions containing a lower alcohol, water, a lower hydrocarbon having a boiling point of -15°C to +40°C, carbon dioxide and at least one of particular substances, referred to as surface-orienting substances (see page 5, last paragraph to page 6, first paragraph). As one of the advantages of these compositions it has been indicated that they need not be shaken before spraying and can be placed in transparent containers (see page 7, sixth paragraph). In view of this last statement, the Respondent concluded that the compositions of document (1) had to be transparent. However, even if this contention by the Respondent would be accepted by the Board, and although it can be derived from this document that chlorofluorocarbons could be replaced by specific amounts of a lower hydrocarbon and carbon dioxide as propellants if combined with the other particular ingredients of the compositions (see page 2, second paragraph to page 4, second paragraph, and page 4, last paragraph to page 5, first paragraph), this document does not provide an incentive to arrive at the claimed solution of the above defined technical problem, since

it teaches that the lower hydrocarbons could only be applied in low amounts of at most 12.0% by weight, since otherwise a nonhomogeneous phase would result and the foaming state would become extremely poor (see page 8, last but one paragraph). The claimed solution proposed by the claimed invention, however, requires an amount of at least 20% by weight of lower hydrocarbons.

7.9 Document (7), page 571, discloses as one of numerous propellants mixtures of propane and butane, in particular for producing transparent perfume-glass-aerosols (see under "Propan-Butan"). However, this disclosure is very general and lacks any information about the composition of such transparent aerosols. Therefore, it does not amount to any hint to the skilled person that propane/butane propellants could provide an improved transparency with **aqueous** aerosols having compositions as defined in present Claim 1. Moreover, with respect to the nature and amounts of propellants suitable for said undefined transparent perfume-aerosols, it discloses mixtures of a propellant 12/114 with butane, in which the butane content is less than 24% by volume in order to reduce flammability, or a commercial product consisting of a mixture of propellant 12/114 10:90 and 8.5% by weight of butane (see page 571, last paragraph). In view of the fact that "114" is another name for dichlorotetrafluoroethane these specifically disclosed propellants correspond therefore to the prior art as disclosed in document (3) using propellants containing chlorofluorocarbons as main components. Thus, document (7), page 571, rather leads away from the claimed invention of the patent in suit.

Furthermore, the Board observes that the passage in

document (7), page 568, second paragraph, does not show any relationship with the passage on page 571 of the same document discussed above in the preceding paragraph, and that therefore their teaching cannot be read in combination as the Respondent did. The passage on page 568 of document (7) as such is not relevant for achieving the claimed solution of the above defined technical problem, since it does not provide any information about the possibility of using propellants not containing chlorofluorocarbons for producing transparent aqueous aerosol compositions.

7.10 In this context, the Board observes that a skilled person in view of the disclosure of the cited documents **could** have used a lower hydrocarbon as a propellant in the claimed amounts. However, according to the established case law of the Boards of Appeal for determining lack of inventive step, it is necessary to show that considering the teaching of the relevant prior art as a whole, without using hindsight based on the knowledge of the claimed invention, the skilled person **would** have arrived at the **claimed solution of the technical problem to be solved**. However, as indicated above, a skilled person, when trying to solve the present technical problem underlying the patent in suit, would not have any reason to use a lower hydrocarbon as defined in present Claim 1 in the claimed amounts in order to provide an improved transparency.

7.11 Finally, having regard to the Respondent's submission that the replacement of the environmentally undesirable chlorofluorocarbons by the lower hydrocarbons as claimed in the present patent was obvious to the skilled person independently from any additional effect

such as transparency, it is the Board's position that in view of the commercial advantages of aerosol products having an attractive appearance, the improvement of the transparency of aerosol compositions as established in the light of the closest prior art cannot be dismissed as a mere "bonus effect", but must be considered as the essential effect of the claimed invention forming the basis of the objective problem as defined in applying the problem and solution approach. Therefore, this allegation implying the non-use of a proper problem and solution approach cannot be accepted by the Board.

7.12 In conclusion, the Board finds that the subject-matter of present Claim 1 involves an inventive step in the sense of Article 56 EPC.

Claims 2 and 3 relate to particular embodiments of the subject-matter of Claim 1. They are therefore also allowable.

8. Since the subject-matter of the claims of the auxiliary request I is allowable for the reasons set out above, there is no need for the Board to decide on the further auxiliary request II.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the

order to maintain the patent on the basis of the Claims 1 to 3 of auxiliary request I submitted at the oral proceedings on 27 November 2001 and a description yet to be adapted.

The Registrar: The Chairman:

N. Maslin R. Freimuth