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Datasheet for the decision of 10 June 2010

Case Number: T 1392/08 - 3.3.09

Application Number: 01402155.4

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Title of invention:
Deodorant composition and its application

Applicant:
Takasago International Corporation

Opponent:
-

Headword:
-

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

Relevant legal provisions (EPC 1973):
-

Keyword:
"Main request - sufficiency - no"
"Auxiliary request 1 - sufficiency - yes"
"Incomplete search - remittal"

Decisions cited:
-

Catchword:
-

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Case Number: T 1392/08 - 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 10 June 2010

Appellant: Takasago International Corporation
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 27 February 2008 refusing European patent application No. 01402155.4 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: J. Jardón Álvarez
Members: M. O. Müller
M-B. Tardo-Dino

Summary of Facts and Submissions

I. This appeal lies from the decision of the examining division dated 27 February 2008 refusing European patent application No. 01 402 155.4, published as EP 1 195 099 A2. The application has the title "Deodorant composition and its application".

II. The decision under appeal was based on four sets of claims for a main and three auxiliary requests, all of them filed with letter dated 27 April 2007.

The following documents were mentioned in the appealed decision:

D1: EP 0 979 612 A1;

D2: US 6 074 631 A; and

D3: US 5 804 170 A.

[Although on page 1 of the decision, document D3 is cited as being the US patent number 5 880 076, it is clear from the acknowledgment of D3 on page 7 of the appealed decision that the reference to this document is incorrect. The disclosure of D3 as acknowledged on page 7 of the decision corresponds to the document mentioned above, i.e. to US 5 804 170, a document acknowledged on page 2, lines 13 - 14 of the application as originally filed. The appellant also agreed during the oral proceedings to the correction of the number of document D3].

Concerning auxiliary request 2, which essentially corresponds to the main request of the appeal proceedings, the examining division maintained that this request did not meet the requirements of Articles 84, 83 and 56 EPC. The examining division essentially objected that Claim 1 attempted to define the subject-matter in terms of the result to be achieved (cf. "said at least one flavour and fragrance compound producing a synergistic deodorizing effect") which resulted in a lack of clarity (Article 84 EPC). Moreover, the application lacked sufficiency of disclosure (Article 83 EPC) as no embodiment in the description irrefutably demonstrated synergy. Finally, in the absence of a surprising technical effect, the claimed subject-matter was considered obvious having regard to the disclosures of D1 and D3.

III. On 15 April 2008 the applicant (appellant) filed a notice of appeal and paid the appeal fee on the same day. The statement setting out the grounds of appeal was filed on 27 June 2008. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of a newly filed main request or, alternatively, on the basis of two auxiliary requests.

IV. On 10 March 2010 the board dispatched the summons to attend oral proceedings. In the annexed communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal, the board expressed its preliminary opinion on the case.

V. By letter dated 7 May 2010, the appellant filed a new main request and five auxiliary requests. It also filed

supplementary experiments (E1) and their English translation (E1') in order to show the synergistic effect in a clearer manner. By letter dated 4 June 2010 the appellant corrected Claim 1 of the main request and the auxiliary requests 1 to 3.

VI. During the oral proceedings held on 10 June 2010 the appellant filed a new main request and a new auxiliary request 1, withdrew its previous auxiliary request 3 and maintained its previous main and auxiliary requests 1, 2, 4 and 5 renumbered as auxiliary requests 2 to 6.

Claim 1 of the main request corresponds essentially to Claim 1 of auxiliary request 2 before the examining division. It reads as follows:

"1. A deodorant composition comprising at least one phenolic compound and at least one enzyme capable of oxidizing the at least one phenolic compound into a compound having a quinone structure, characterized in that

said deodorant composition further comprises at least one of flavor and fragrance that comprises at least one compound selected from the group consisting of one or several volatile compounds having a molecular weight lower than 500 Dalton; an essential oil; and plant, vegetable or fruit extracts, said deodorant composition comprising said at least one of flavor and fragrance in an amount producing a synergistic deodorizing effect when mixed with said phenolic compound(s) and enzyme(s);

wherein said at least one of flavor and fragrance is citrus-type fragrance, mint-type fragrance, wood-type fragrance, fruit-and floral-type fragrance,

greenery- and floral-type fragrance, peppermint-type flavour, mint-type flavour, lemon-type flavour or perilla-type flavor."

Claim 1 of the first auxiliary request as filed during the oral proceedings reads as follows:

"1. A deodorant composition comprising at least one phenolic compound and at least one enzyme capable of oxidizing the at least one phenolic compound into a compound having a quinone structure, characterized in that

said deodorant composition further comprises at least one of flavor and fragrance that comprises at least one compound selected from the group consisting of one or several volatile compounds having a molecular weight lower than 500 Dalton; an essential oil; and plant, vegetable or fruit extracts, said deodorant composition comprising said at least one of flavor and fragrance in an amount sufficient to remove the last remaining trace of odours which cannot be inactivated by said at least one phenolic compound and at least one enzyme;

wherein said at least one of flavor and fragrance is citrus-type fragrance, mint-type fragrance, musk- and wood-type fragrance, fruit-and floral-type fragrance, greenery- and floral-type fragrance, peppermint-type flavour, mint-type flavour, lemon-type flavour or perilla-type flavor."

VII. The relevant arguments presented by the appellant in its written submission and at the oral proceedings may be summarized as follows:

- The appellant noted that the subject-matter of the claims was limited to the specific flavour and fragrances used in the examples for which a deodorizing effect had been experimentally shown.

- The appellant conceded that the results on Table 18 of the application concerning the malodour index did not demonstrate a synergistic effect but argued that the other values in the table indicated this effect, at least indirectly. In any case, the synergistic effect was demonstrated in a clearer manner in the new experiments filed with letter dated 7 May 2010.

- Concerning inventive step, the appellant saw the disclosure of D3, relating to compositions of a phenolic compound and an enzyme producing quinone structure, as representing the closest prior art. The technical problem to be solved with respect to D3 was to remove the last trace of odour which could not be inactivated by the compositions of D3. The solution to this problem according to the claims was, in its opinion, not derivable from the cited prior art, essentially because none of the documents suggested the use of a specific flavour or fragrance to eliminate said odours.

- The appellant did not object to a possible remittal to the department of first instance for further prosecution in view of the incomplete search report.

VIII. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of Claims 1 to 14 of the main request or, alternatively, of Claims 1 to 14 of the auxiliary request 1, both

filed during the oral proceedings, or alternatively on the basis of auxiliary requests 2 to 6 filed with letter dated 7 May 2010 as main request and auxiliary requests 1, 2, 4 and 5 respectively.

Reasons for the Decision

1. The appeal is admissible.

MAIN REQUEST

2. *Sufficiency of disclosure (Article 83 EPC)*

2.1 Claim 1 of the main request is directed to a deodorant composition comprising at least one phenolic compound and at least one enzyme capable of oxidizing the phenolic compound and further at least one of flavour and fragrance. The amount of flavour and fragrance is defined using a functional feature, namely that the composition comprises "the at least one of flavour and fragrance in an amount producing a synergistic deodorizing effect when mixed with said phenolic compound(s) and enzyme(s)".

2.2 Thus Claim 1 requires the use of an amount of flavour or fragrance to obtain a deodorant composition "producing a synergistic deodorizing effect", that is to say an additional effect that goes beyond the sum of the effect of each component taken in isolation.

2.3 Article 83 EPC requires that the European patent application disclose the invention in a manner sufficiently clear and complete for it to be carried

out by a person skilled in the art. The requirements of Article 83 EPC are met if at least one way is clearly indicated in the patent specification enabling the skilled person to carry out the invention, and if the disclosure allows the invention to be performed in the whole area claimed without undue burden, if necessary applying common general knowledge.

In the present case the requirements of Article 83 EPC will be fulfilled if the skilled person knows, without exceeding his normal skills and knowledge, what he has to do in order to obtain compositions showing a synergistic deodorizing effect.

2.4 The application as originally filed indicates the amounts of the single components, phenolic compound, enzyme and flavour and fragrance to be used in the composition (see page 7, lines 16 - 19; page 8, line 27 - page 9, line 3; page 13, lines 12 - 16), but is silent about the amount to be used in order to achieve a synergistic deodorizing effect. Moreover, none of the examples in the application demonstrates that a synergistic deodorizing effect is achieved.

The experimental results reported in the application (see Tables 18 - 35) demonstrate that the urine smell can be suppressed using the claimed deodorizing compositions but they do not show that a synergistic effect is obtained. The results on Table 18 indicate that the malodour smelling index is reduced from 5.0 to 0, but this result can also be explained by an additive effect of the components as conceded the appellant during the oral proceedings. Concerning the other results in Table 18, it is again noted that very

good results are obtained for the freshness index, cleanliness index and pleasant feeling index when using all the components of the deodorant compositions, but the data given in the table do not allow the conclusion that these results are achieved by the presence of a "synergistic effect".

The same considerations apply for the experimental results described on Tables 19 - 35 of the application as filed.

2.5 It follows that the examples in the application do not allow the skilled person to prepare compositions wherein the flavour and fragrance is present "in an amount producing a synergistic effect". Moreover, the absence of any other instructions as to the factors which affect the occurrence of a synergistically increased deodorizing effect obliges the skilled person to rely exclusively on trial and error experiments to establish which amounts may be used in the claimed compositions.

2.6 According to EPO practice (see the "Case Law of the Boards of Appeal of the EPO", 5th edition 2005, Chapter II.A.4, page 177), when trial and error experiments are required the disclosure in the patent should provide adequate information leading necessarily and directly towards success through the evaluation of the initial failures and, therefore, only a few attempts should be required to transform failure into success.

2.7 In the present case, the person skilled in the art attempting to arrive at suitable compositions can only start by arbitrarily selecting random amounts of

phenolic compound, enzyme and flavour or fragrance and then verify if the chosen amounts provide the intended effect.

However, in the case of initial failure the skilled person is left without any guidance as to how to modify the compositions to obtain one with the desired synergistic deodorizing effect. The extent of trial and error experiments for the preparation of deodorizing compositions according to Claim 1 amounts to an undue burden.

2.8 This conclusion is not affected by the further experimental evidence filed by the appellant during the appeal proceedings (tracing experiments E1' filed with letter dated 7 May 2010). In these experiments the amount of phenolic compound and enzyme used was reduced by 7.5 times when compared with the amount used in the embodiment of Table 18 (and in all other examples). Independently of the question whether or not a synergistic effect is shown when using such small amounts, the board notes that there is no information in the application as filed pointing to the fact that in order to obtain compositions showing a synergistic deodorizing effect the compositions of the examples should be modified by drastically reducing the amount of phenolic compound and enzyme used.

2.9 For these reasons the requirements of Article 83 EPC, sufficiency of disclosure, are not met.

AUXILIARY REQUEST 1

3. *Sufficiency of disclosure (Article 83 EPC)*

3.1 Claim 1 of auxiliary request 1 is also directed to a deodorant composition wherein the amount of the components is defined using a functional feature. The functional feature now requires that the flavour and fragrance is present "in an amount sufficient to remove the last remaining trace of odours which cannot be inactivated by said at least one phenolic compound and at least one enzyme".

3.2 The amended claims no longer require the production of a synergistic affect and overcome the objections of the board in relation to the main request. The requirements of Article 83 EPC will now be fulfilled if the skilled person knows, without exceeding his normal skills and knowledge, what he has to do in order to remove the last remaining trace of odours which cannot be inactivated by the phenolic compound and the enzyme.

3.3 The examples of embodiments 1 to 10 in the application (Tables 18 to 35) clearly allow the skilled person to put the invention into practice. The compositions of embodiments E1 to E10 show that the last trace of odours not eliminated by the phenolic compound and the enzyme is removed by the addition of certain amounts of a flavour or fragrance. Thus, for instance, the results of Table 18 indicate that the weak urine odour that remains using only a phenolic compound and an enzyme can be removed by the addition of 10 µl of citrus-type fragrance (cf. comparative example CE2 compared with example E1). On the basis of the examples and

comparative examples of the present application, the skilled person thus obtains sufficient guidance with regard to the amount of flavour or fragrance to be applied in order to eliminate the last trace of odours.

3.4 The board is also satisfied that the invention can be performed in the whole area claimed. The subject-matter of Claim 1 is limited to the nine specific flavours or fragrances for which experimental evidence was provided in the application as filed. In these examples several phenolic compounds and enzymes were also used. There is no reason to doubt that when using other phenolic compounds or enzymes similar results would be obtained.

3.5 The board concludes that sufficient information and guidance is at the skilled reader's disposal, enabling him to successfully carry out the invention. Hence the requirements of Article 83 EPC are met.

4. *Clarity (Article 84 EPC)*

4.1 The claims of auxiliary request 1 do not contain the feature concerning the synergistic effect. They therefore overcome the only clarity objection raised by the examining division.

4.2 The board is also satisfied that the claims of the auxiliary request fulfil the requirement of clarity of Article 84 EPC.

5. *Amendments (Article 123(2) EPC)*

5.1 Claim 1 of the auxiliary request 1 is a combination of Claims 1 and 3 as originally filed. It further includes the following features:

- the enzyme used is an enzyme capable of oxidizing the phenolic compound "into a compound having a quinone structure" (support page 1, lines 10 - 11);
- the flavour and fragrance have been limited to the nine specific flavours and fragrances used in the working examples 1 to 10 (see also the paragraph bridging pages 12 and 13 and Table 16); and
- the amount of flavour and fragrance used has been specified as on page 13, lines 13 - 14.

5.2 Amended Claims 2 and 3 find their support on page 13, lines 15 and 16. Claims 4 and 5 are based on originally filed Claims 4 and 5 and Claims 6 to 14 correspond to originally filed Claims 7 to 15 renumbered.

5.3 The amended claims therefore comply with the requirements of Article 123(2) EPC.

6. *Novelty (Article 54 EPC)*

6.1 None of the documents cited in the appealed decision discloses deodorant compositions comprising at least one phenolic compound and at least one enzyme capable of oxidizing the phenolic compound and further comprising a flavour or fragrance as specified in Claim 1.

6.2 Documents D1 and D3 disclose deodorant compositions comprising a phenolic compound and an enzyme capable of oxidizing the phenolic compounds (see D3, Claim 1 and D1, paragraphs [0013] and [0019]). However, no flavour or fragrance as defined in Claim 1 is used in the compositions according to these documents.

Document D2 discloses malodour reducing compositions comprising a combination of one or more oxidoreductases and a mediator (see Claim 1). There is no disclosure in D2 of compositions according to Claim 1.

6.3 Novelty of the claimed subject-matter over the disclosure of documents D1 to D3 is therefore acknowledged.

7. *Inventive step (Article 56 EPC)*

7.1 Closest prior art

7.1.1 The board agrees with the finding in the appealed decision that document D3 represents the closest prior art. D3 discloses deodorant compositions comprising a phenolic compound and an enzyme capable of oxidizing the phenolic compound (Claim 1). The compositions show a high deodorizing rate, as can be seen in the working examples (see Tables 1 - 3).

7.2 Problem to be solved and its solution

7.2.1 According to the introduction of the present application, the compositions of D3 are not capable of completely eliminating or masking malodours (see page 2, lines 11 - 22). The specification includes several

comparative examples using these known compositions (CE2, CE6, CE-9, etc.), indicating that the compositions including a phenolic compound and an enzyme, although having a strong deodorizing effect, do not completely eliminate the malodour.

7.2.2 The problem to be solved by the application can thus be seen as to provide deodorant compositions having improved deodorizing effect which eliminate the remaining malodour.

7.2.3 This problem is credibly solved by the addition of a flavour or fragrance as defined in Claim 1. By mixing such flavours or fragrances with the known compositions, an improved deodorizing effect is achieved and the effects of bad odour are completely eliminated.

7.2.4 The board is satisfied that the above-defined technical problem is plausibly solved by this measure. The several examples and comparative examples in the patent specification indicate that by the use of a phenolic compound and an enzyme capable of oxidizing the phenolic compound in combination with a flavour or fragrance the remaining malodour is completely eliminated (see for instance Table 18: the addition of a citrus-type fragrance according to sample E1 to the mixture of phenolic compound and enzyme of the comparative sample CE2 eliminates the weak urine odour and improves the freshness index, cleanliness index and pleasant feeling index).

7.3 Obviousness

7.3.1 It remains to be decided whether it would have been obvious for the skilled person to solve this technical problem by this measure.

7.3.2 There is no hint to this solution in the available prior art. In document D3 there is no mention of any flavour or fragrance. In documents D1 and D2 flavouring agents are mentioned but not to eliminate the last remaining trace of odours. Thus in D1, which also discloses a similar composition including a phenolic compound and an enzyme, flavours are mentioned as facilitating intake (see [0024]) when the compositions are administered to animals for reducing the odour of animal excreta, and in D2 they are merely mentioned as typical components of toothpastes and mouthwashes (see column 11, lines 27 - 33).

7.3.3 This solution is also not obvious in view of the intrinsic deodorizing activities of the flavours and fragrances.

The comparative examples in the specification clearly indicate that the addition of only a flavour or fragrance does not provide any meaningful deodorizing effect (see Table 18, comparative examples CE3 and CE4 using a citrus-type fragrance; see also the further comparative examples using different flavours or fragrances). A strong malodour is still present after disappearance of the initial fragrance odour.

7.3.4 Hence the board considers that, in the light of the available prior art, it would not have been obvious to a skilled person to add a flavour or fragrance to the

deodorizing compositions of D3 in order to improve the deodorizing effect and to remove the remaining malodour.

7.4 The subject-matter of Claim 1 of auxiliary request 1 involves an inventive step within the meaning of Article 56 EPC, at least over the known documents. Claims 2 to 14 are directly or indirectly dependent on Claim 1 and also involve an inventive step for the same reason.

8. In conclusion, the claims of auxiliary request 1 fulfil the requirements of sufficiency of disclosure, are clear, supported by the application as filed and novel and inventive over documents D1 to D3.

9. *Incomplete research / Remittal*

9.1 The board notes that only an incomplete search has been carried out by the search department. The reason given for the incomplete search was that the claims as originally filed related to an extremely large number of possible compositions encompassing too many options for a meaningful search to be carried out.

The board also notes that the claims now in the proceedings are limited over the claims of the application as originally filed. The flavour and fragrance have been limited to the nine specific flavours and fragrances used in the working examples and the enzyme capable of oxidizing the phenolic compound has been limited to those enzymes capable of oxidizing the phenolic compound into a compound having a quinone structure. This limitation also limits the

nature of the phenolic compounds now covered by the claims.

9.2 However, the claims have not been limited to the preferred embodiments for which a search was carried out (see the incomplete European search report). Under these circumstances, it may be necessary to carry out an additional search as provided for in the Guidelines for Examination (see B-II 4.2).

9.3 Bearing in mind that the documents on file were very close to the claimed subject-matter and that novelty and inventive step have already been dealt with by the examining division in its decision, the board decided for reasons of procedural efficiency to examine the claims also in relation to novelty and inventive step having regard to documents D1 to D3 cited in the decision.

9.4 In view of the possibility that further prior art documents may be found during the additional search, the board decided to remit the case to the department of first instance for examination of novelty and inventive step in the light of any possible new document.

9.5 Moreover, the description has not been brought into line with the claims.

9.6 The case is therefore remitted to the examining division for dealing with these issues.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance for further prosecution on the basis of Claims 1 - 14 of auxiliary request 1 filed during oral proceedings.

The Registrar: The Chairman:

G. Röhn J. Jardón Álvarez