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Datasheet for the decision of 12 May 2010

Case Number: T 1349/07 - 3.3.06

Application Number: 99962197.2

Publication Number: 1144580

IPC: C11D 3/00

Language of the proceedings: EN

Title of invention:
Transparent/translucent liquid enzyme compositions in clear bottles comprising antioxidants

Patentees:
Unilever N.V., et al

Opponents:
The Procter & Gamble Company
Henkel AG & Co. KGaA

Headword:
Transparent composition in a clear bottle/UNILEVER

Relevant legal provisions:
-

Relevant legal provisions (EPC 1973):
EPC Art. 56

Keyword:
"Inventive step (Main request): yes - non-obvious modification"

Decisions cited:
T 0641/00

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1349/07 - 3.3.06

D E C I S I O N
of the Technical Board of Appeal 3.3.06
of 12 May 2010

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Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted 6 June 2007 concerning maintenance of the European patent No. 1144580 in amended form.**

Composition of the Board:

Chairman: P.-P. Bracke
Members: P. Ammendola
U. Tronser

Summary of Facts and Submissions

I. This appeal is from the interlocutory decision of the Opposition Division concerning the maintenance in amended form of European patent No. 1 144 580, granted on European patent application 99 962 197.2 (internationally published as WO 00/36062) filed on 30 November 1999 and claiming priority from the national patent application US 213044 filed on 16 December 1998.

II. Two Opponents had sought revocation of the granted patent for lack of novelty and of inventive step.

During the opposition proceedings the Opponents had made reference, *inter alia*, to the documents:

(1) WO 98/17750,

(2) WO 99/530088 (published on 21 October 1999)

and

(4) US 4,238,345,

as well as to the decision of the Boards of Appeal T 641/00 (OJ EPO 2003, page 352).

At the oral proceedings before the Opposition Division the Patent Proprietor had filed two sets of amended claims as first and second auxiliary requests, as well as a description adapted to this second auxiliary request.

III. The two claims of the first auxiliary request read respectively:

"*1. A transparent or translucent heavy duty liquid composition in a clear bottle comprising:*

(a) 10 to 85% by wt. of a surfactant selected from the group consisting of anionic, nonionic, cationic, amphoteric, zwitterionic surfactants and mixtures thereof;
(b) 0.001 to 5% by wt. of an enzyme selected from the group consisting of proteases, lipases, cellulases, oxidases, amylases and mixtures thereof; and
(c) 0.001 to 3% by wt. of an antioxidant selected from ascorbic acid, BHA, BHT and mixtures thereof;

wherein the composition has 50% light transmittance or greater using a 1 cm cuvette at wavelength of 410-800 nanometers; and wherein the bottle has a light transmittance of greater than 25% at wavelength of 410-800 nm."

and

"*2. A method of preventing enzyme degradation of an enzyme in a transparent or translucent heavy duty liquid composition in a clear bottle comprising:*

(a) 10 to 85% by wt. of a surfactant selected from the group consisting of anionic, nonionic, cationic, amphoteric, zwitterionic surfactants and mixtures thereof;

(b) 0.001 to 5% by wt. of an enzyme selected from the group consisting of proteases, lipases, cellulases, oxidases, amylases and mixtures thereof; and

wherein the composition has 50% light transmittance or greater using a 1 cm cuvette at wavelength of 410-800 nanometers; and wherein the bottle has a light transmittance of greater than 25% at wavelength of 410-800 nm, which method comprises adding an antioxidant selected from ascorbic acid, BHA, BHT and mixtures thereof to said composition in an amount of 0.001 to 3% by weight of the composition."

IV. The Opposition Division found, *inter alia*, that problems, such as enzyme stability, associated with aesthetically pleasing clear bottles were technical problems and that such clear bottles were an essential feature of the claims of the opposed patent. Accordingly, the aspects of the claim referring to transparency, translucency and clearness were not merely aesthetic properties which may be ignored but formed part of the technical problem to be solved. The Opposition Division refuted the interpretation made by the Opponent II of T 641/00 by citing from the Headnote of this decision the sentence: "*Although the technical problem to be solved should not be formulated to contain pointers to the solution or partially anticipate it, merely because some feature appears in the claim does not automatically exclude it from appearing in the formulation of the problem. In particular where the claim refers to an aim to be achieved in a non-technical field, this aim may*

legitimately appear in the formulation of the problem as part of the framework of the technical problem that is to be solved, in particular as a constraint that has to be met".

Nevertheless, the first auxiliary request was found not to comply with the requirements of Article 56 EPC (1973), because the **t**ransparent or **t**ranslucent **h**eavy **d**uty **l**iquid composition (hereinafter TTHDL composition) in a clear bottle defined in claim 1 of this request was obvious starting from Example VIII of document (1) for the skilled person who was aware of the common general knowledge as to the suitable levels of enzymes to be incorporated into detersive compositions. Indeed, no effect could be seen associated with the selection of the specific antioxidants defined such claim 1 and, thus, the objective technical problem was seen to be the provision of further clear detersive compositions in clear bottles.

V. All Parties lodged an appeal against this decision. The Appellants I were the Patent Proprietors (hereinafter indicated as **Proprietors**), Appellant II was the Opponent II (hereinafter indicated as **Opponent II**) and Appellant III was the Opponent I (hereinafter indicated as **Opponent I**).

In the grounds of appeal all parties raised objections only in view of Article 56 EPC (1973). The Proprietors also reported therein comparative experimental data (hereinafter indicated as the new data).

The Proprietors then filed with a letter dated 19 March 2010 five sets of amended claims, respectively labelled as main request and first to fourth auxiliary request.

This **main request** was identical to the first auxiliary request refused by the Opposition Division in the decision under appeal (see above section III).

On 12 May 2010 oral proceedings took place before the Board in the presence of all parties.

VI. The Proprietors submitted in writing and orally that the subject-matter of the claims of the main request was not obvious in view of the prior art for substantially the following reasons.

The technical problem addressed in the patent in suit was that of preventing the enzyme degradation produced by harmful UV radiation in TTHDL compositions bottled in clear bottles. Even though there were also esthetical reasons for using transparent bottles, the stabilization of the enzyme contained therein under the harsh conditions occurring when these packaged compositions were stored over prolonged time in the sunlight, was a technical problem. Thus, the Opposition Division had correctly found that the decision T 641/00 would not justify to disregard any part of the technical problem that was indicated in the patent-in-suit and reflected in the features of the claims.

This problem was not that considered in document (4), which addressed the stability of enzymes upon storage in the harsh environment of detergent compositions but not the UV-damage occurring when enzyme-containing

detersive composition are stored over prolonged time in the sun light in transparent bottles. Moreover, this document did not suggest that it was possible to obtain the compositions of document (4) containing ascorbic acid (hereinafter AA) in transparent or translucent form and, in particular, that these compositions could retain enzyme stability even when packed in transparent bottles. Moreover, in the Proprietors' opinion, document (4), in particular example 4 therein, would actually suggest the skilled person to rather use as antioxidants, instead of AA, the preferred water-soluble metal salts of an oxidizable oxygenated-sulphur anion, thereby leading away from the invention. Hence, it was only with hindsight from the present invention that the skilled person could have started from the examples in document (4) containing AA and, thus, could have arrived from this prior art to the subject-matter of claim 1 of the main request.

Document (1) also did not focus on the UV-damage of enzymes. It taught, however, how to minimize the effects of UV radiation on the ingredients of the enzyme-free compositions of Example VIII bottled in transparent bottles. Hence, the Proprietors considered this prior art more appropriate than document (4) as starting point for the assessment of inventive step.

Starting from document (1), the technical problem solved was that of rendering available TTHDL compositions that possessed improved enzyme stability against harmful UV-radiation and, thus, could be packed in clear bottles. Indeed, the new data proved that the selected "real" antioxidants AA, BHA and BHT were more effective than the antioxidant of the "chelators" class

present in the compositions of Example VIII of document (1). Since, in the available prior art the "real" antioxidant in general, or in particular AA, BHA or BHT were neither specifically disclosed to be suitable for protecting enzymes from harmful UV radiation, nor suggested to be more effective than the "chelators" in stabilizing the surfactant compositions containing enzymes against harmful light, the claimed subject-matter provided a non-obvious solution to the posed problem. Even though the claimed subject-matter possibly allowed for the presence of materials in (or on) the bottle capable of absorbing part of the UV radiation, still the presence in the liquid composition of the special antioxidants according to the invention would appreciably contribute to the stability of the enzyme ingredients against UV-damage since, as also indicated in paragraph [0094] of the patent-in-suit, a very low transmission of UV light was sufficient to deactivate the enzymes.

At the oral proceedings the Proprietors also referred to document (2) as a possible starting point for the purpose of assessing inventive step.

VII. The written and oral submissions of Opponents I and II relevant for the subject-matter of the claims of the main request may be summarised as follows.

The new data provided by the Proprietors were not credible because it was not possible to determine their reliability due to the absence of details, e.g. on how many repetitions of the experiments had been carried out and, thus, on the variance of the results reported.

Moreover, the wording of the claims of the main request was so broad to embrace even compositions packed in bottles that were transparent to visible light, but contained UV-absorbers, thereby rendering irrelevant any UV-protection advantage allegedly deriving from the presence of AA, BHA or BHT in the liquid compositions of the invention. Hence, these data could not reverse the reasons of the Opposition Division as to the lack of inventive step of the claims of this request.

According to the principles given in T 641/00, the features of the invention that were only relevant for esthetical reasons, such as in the present case the transparent or translucent nature of the composition or the transparency to the visible light of the bottles in which the composition was bottled, would not contribute to the technical character of the invention and, thus, would not be part of the technical problem to be solved.

Accordingly, the sole relevant technical problem mentioned in the patent in suit was the provision of enzyme-containing concentrate detersive compositions stabilized upon storage against loss of enzymatic activity. The same problem was already solved in document (4) which, thus, represented the closest prior art. Accordingly, the claimed TTHDL composition in a clear bottle would simply solve the technical problem of providing an attractively packaged alternative to the prior art. Since, as also acknowledged in the patent-in-suit, the possibility of using transparent bottles was already known in the field, the claimed subject-matter was obvious in view of the prior art.

Document (4) would stress the effectiveness of AA in stabilizing enzymes in liquid compositions containing surfactants, e.g. in example 3, and, thus, would not lead away to the invention.

VIII. The Proprietors (and Appellants I) requested that the decision under appeal be set aside and the European patent be maintained in amended form on the basis of the main request submitted with the letter dated 19 March 2010 or of one of the auxiliary requests 1 to 4 also submitted with the letter dated 19 March 2010.

The Opponent I (and Appellant III) as well as the Opponent II (and Appellant II) requested that the decision under appeal be set aside and that the European patent be revoked.

Reasons for the decision

Proprietors' main request (identical to the Proprietors' first auxiliary request refused by the Opposition Division)

1. Inventive step (Article 56 EPC (1973)): claim 1

1.1 This claim defines a TTHDL composition (that is bottled) in a clear bottle comprising a surfactant "*(a)*", an enzyme "*(b)*" and an antioxidant"*(c)*" in the amounts and of the sorts respectively indicated therein (see above section III of the Facts and Submissions). In particular, the antioxidant "*(c)*" must be "*ascorbic acid, BHA, BHT or mixtures thereof*". Moreover, the TTHDL composition must display at least 50% transmittance of visible light and the clear bottle

must display at least 25% transmittance of visible light.

1.2 According to the established jurisprudence of the Boards of appeal of the EPO, the appropriate starting point for the inventive step assessment is to be identified within the same technical field of the claimed subject-matter by taking into account the specific technical problem mentioned in the patent.

1.2.1 The Board concurs with the Proprietors that the technical problem mentioned in the patent-in-suit (see paragraphs [0001], [0009] and [0010]) is understood by the skilled reader as that of **rendering available enzyme-containing TTHDL compositions bottled in clear bottles that possess improved enzyme protection against UV-damage** (e.g. during storage in the sunlight). This has not been disputed.

1.2.2 The Opponents have argued however that the aspects of the invention referring to transparency, translucency and clearness were merely aesthetic properties, not contributing to the solution of any technical problem and, thus, the purely esthetical features of present claim 1 were not to be considered as part of the technical problem solved for the purpose of assessing inventive step, as established in T 641/00.

1.2.3 The Board notes preliminarily that, as also indicated by the Opposition Division in the decision under appeal, the cited T 641/00 explicitly acknowledges (e.g. at point 7 of the Reasons, also reflected in the Headnote) that **even a non-technical aim** may legitimately appear "*as part of the framework of the technical problem that*

is to be solved, in particular as a constraint that has to be met".

However, in the present case, it is apparent to the Board that the visible-light transparencies of the composition and of the bottle defined in claim 1 under consideration (also in the quantitative terms of their visible-light transmittances) are not just esthetical *desiderata* contributing to the framework of the technical problem to be solved, but also **technically relevant** constraints of such technical problem. Indeed, the visible-light transmittance requirements contribute to the definition **of the nature of the possible ingredients of the composition and of the materials and production methods to be possibly used for making the bottle**, thereby also necessarily contributing in determining the level of harmful UV radiation actually reaching the enzyme(s) e.g. during storage in the sun-light of the bottled composition and against which the enzyme(s) must be protected. Hence, they also contribute in specifying technical aspects of the technical aim to be achieved.

1.2.4 Therefore, the Board has no reason for disregarding any part of the technical problem mentioned in the patent-in-suit as identified above at point 1.2.1, for the purpose of assessing inventive step.

1.3 The Parties have referred either to document (1) or to document (4) as the starting point for the purpose of assessing inventive step.

The relevant disclosures provided by these citations may be summarized as follows:

i) document (4), considered by the Opponents as disclosing the most relevant prior art, addresses in general the protection against oxidation of the proteolytic enzymes normally present in liquid detersive compositions (see in document (4), *inter alia*, column 1, lines 5 to 31, column 2, lines 18 to 21, and column 3, lines 8 to 13); the same document discloses e.g. in example 3 a liquid detergent composition containing both enzyme and AA, as particularly stable upon storage in respect of the enzyme activity; in example 4, however, a similar composition also containing AA does not provide good results;

and

ii) document (1), considered by the Opposition division and by the Proprietors as disclosing the most relevant prior art, focuses on the stability at low temperature of clear softening compositions contained in clear bottles and comprising surfactants and possibly also optionally comprising, *inter alia*, enzymes (see in document (1), page 1, lines 9 to 16, in combination with page 102, lines 15 to 20); the same document also mentions in Example VIII, that is based on compositions that contain no enzyme, the use of UV-absorbers in order to minimize the effects of harmful UV-light on the ingredients present in the clear softening compositions that are contained in clear bottles (see in document (1), page 107, lines 5 to 15, in particular the portion reading "*… the above compositions are introduced into … clear bottles … having an ultraviolet light absorber in the bottle to minimize the effects of*

ultraviolet light on the materials inside, especially the highly unsaturated actives (the absorbers can also be on the surface)").

1.3.1 The Board finds the technical problem addressed in document (4) very remote from that addressed in the patent-in-suit. It is indisputable and undisputed that the enzyme stability considered in this document (and tested in the examples therein) is not (exclusively or also) that specifically due to the transmission of UV-light. For instance, nothing in this citation suggests that in the tests described therein, the tested compositions were transparent and had been stored under the special conditions required for achieving some substantial amount of irradiation by harmful UV-light.

Nor have the Opponents alleged (not to mention provided some evidence) that the mechanism of enzyme degradation produced by UV-radiation is known to be similar to that causing the sensitivity of enzymes to oxygen that document (4) teaches to minimize by the addition of antioxidants.

Hence, the prior art disclosed in this document does not represent a reasonable starting point for the assessment of inventive step.

It cannot even be said that the skilled person would have identified within the disclosure of document (4) the AA used in example 3 as the most effective stabilizer against enzyme degradation (although only in respect to oxygen-induced damage). Indeed, there are other AA containing examples e.g. example 4, in which

this antioxidant results less effective than the other tested enzyme stabilizers.

Hence, the skilled person searching for a solution to the posed technical problem would find in document (4) not even a single element directly or indirectly related to the UV-damage of enzymes and, thus, would have no reason to start from any of the compositions disclosed in this citation, not to mention to start from the examples therein containing AA, as proposed by the Opponents.

1.3.2 On the contrary, the teaching in Example VIII of document (1) (cited above) refers to the need of protecting the ingredients of the surfactant compositions, and particularly the highly unsaturated actives contained therein, against the negative effects of UV light when such liquid compositions are clear and bottled in clear bottles. Even though the compositions of Example VIII contain no enzyme, it must be considered that such teaching could at least in principle be applicable also to the other compositions disclosed in this citation, inclusive of those that, as indicated at page 102, lines 15 to 20, of document (1), optionally contain an enzyme. Hence, the Board concurs with the findings of the Opposition Division and with the Proprietors that this prior art represents a reasonable starting point for the purpose of assessing inventive step.

1.4 It is undisputed that the subject-matter of claim 1 under consideration differs from the compositions of Example VIII of document (1) only for the presence of enzymes and for the nature of the antioxidant. Indeed,

in the compositions of Example VIII the antioxidant is DTPA.

1.4.1 In the opinion of the Board, the new data filed by the Proprietors credibly demonstrate that the antioxidants according to the invention (i.e. AA, BHA or BHT) outperform DTPA in stabilizing an enzyme against harmful UV radiation.

The Opponents have disputed the relevance of these data because these latter have been provided by the Proprietors without a detailed description of the experiments, e.g. without indicating the number of repetitions made for each experiment. Therefore, in the opinion of the Opponents, it was not possible to appreciate if the reported differences in residual activity of the enzyme were indicative of substantial differences in the effectiveness of the used antioxidants, or just resulted from the variability of result unavoidably associated to the used experimental conditions.

The Board notes that the Opponents' criticism to the new data is not supported by any experimental counter-evidence, and considers insufficient for depriving of relevance these new data to just mention a theoretical possibility that the differences in the results reported by the Proprietors could be due to the variance of the experimental results.

The Opponents have also disputed the relevance over the whole claimed range of any superior enzyme stability possibly proved by the new data, by stressing that the claimed subject-matter encompasses also TTHDL

compositions bottled in clear bottles that may be similar to those of Example VIII of document (1), i.e. already containing UV absorbers, thereby rendering irrelevant the superior protection against UV-damage possibly provided by the antioxidants according to claim 1.

However, the Board notes that the Proprietors' statement corresponding to the content of paragraph [0094] of the patent-in-suit (reading "*Enzyme deactivation as a result of UV-damage may occur* ***at very low transmission*** *of UV-B radiation*" emphasis added by the Board) has not been disputed by the Opponents. Moreover, no evidence has been provided that the conventional bottles having a UV-absorber incorporated in the material forming their walls or coated thereon prevent completely the passage of UV radiation. On the contrary, the above-cited portion of description of Example VIII of document (1) attributes to the presence of UV-absorbers in (or on) the bottle the ability to "*minimize*" (and not to eliminate) the effects of UV light. Hence, the Board considers it credible that in substantially all reasonable embodiments of the claimed subject-matter the AA, BHA or BHT antioxidants contribute appreciably to the enzyme stabilization against UV-damage.

Therefore, the Board concludes that the subject-matter of claim 1 of the main request credibly solved vis-à-vis the prior art the posed technical problem, i.e. that of **rendering available enzyme-containing TTHDL compositions bottled in clear bottles that possess improved enzyme protection against UV-damage.**

1.4.2 The Board notes that the Opponents have focused on the argument that the person skilled in the art would know -as evident, for instance, from document (4) - that antioxidants, and in particular AA, stabilize the enzymes present in detergent compositions. However, as already indicated above, they have however provided no evidence of e.g. knowledge in the prior art possibly linking the oxidation reaction to the enzyme degradation caused by UV light, or of other facts implying that antioxidants in general, or specifically AA, BHA or BHT, could reasonably be predicted to prevent specifically the enzyme degradation caused by UV-light. Accordingly, the disclosure of document (4) is found by the skilled person totally irrelevant in the present case.

Hence, the sole explicit disclosure relative to the protection against UV-damage contained in the prior art cited by the Opponents and in the decision under appeal is that contained in the above-cited passage of the description of Example VIII of document (1), referring in general to the need of protecting the ingredients (in particular the "*highly unsaturated actives*") of the enzyme-free clear liquid surfactant compositions disclosed therein and suggesting to this scope the addition of UV-absorbers to the bottle materials. Accordingly, such teaching would at most have motivated the skilled person to add an enzyme in the compositions of Example VIII of document (1), in the expectation that the presence of the UV-absorber in (or on) the clear bottles would have also reduced the transmission of harmful UV-radiation in the interior of the bottle and, thus, protected the enzyme from UV-damage.

Hence, the skilled person starting from document (1) would not find in the available prior art any reason for replacing the (DTPA) antioxidant contained in the compositions of Example VIII, by any of AA, BHA or BHT in order to achieve improved protection against UV-damage of the optional enzyme ingredient possibly present therein.

1.4.3 Already for this reason, the available prior art does not render the claimed subject-matter obvious for the skilled person aiming at solving the posed technical problem.

1.5 At the oral proceedings before the Board, the Proprietors have argued on the issue of inventive step in respect of the claims of the main request also on the basis of the intermediate document (2). The Board has decided to disregard this argument since:

a. the entitlement to priority of the present request has not been discussed before the Opposition Division during the discussion of the identically worded then pending first auxiliary request;

b. during the appeal proceedings the Opponents have presented neither an explicit objection as to the entitlement to priority of the presently claimed subject-matter nor another argument that could be considered as unambiguously implying an objection as to this entitlement to priority;

c. Opponent II has even disputed the admissibility at the oral proceedings before the Board of this new argument brought by the Proprietors;

and

d. the Proprietors have not formally stated to no longer claim priority.

Therefore, document (2) cannot form part of the state of the art for the purpose of assessing inventive step in this case.

1.6 The Board concludes therefore that the Opponents have not succeeded in demonstrating that the subject-matter of claim 1 of the main request does not involve an inventive step.

2. Inventive step (Article 56 EPC (1973)): claim 2

This claim defines a method for preventing enzyme degradation in a TTHDL composition comprising surfactant and enzymes and bottled in a clear bottle, by means of the addition therein of AA, BHA, BHT or mixtures thereof (see above section III of the Facts and Submissions). It is apparent that this method leads to the preparation of the subject-matter of claim 1. Hence, the Board finds that the same reasons indicated above for refuting the Opponents' objections to the presence of an inventive step for claim 1 apply identically also to the subject-matter of claim 2. Accordingly, also claim 2 is found based on an inventive step vis-à-vis the available prior art.

3. The Board concludes that the main request of the Proprietors complies with the requirements of Article 56 EPC (1973).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the Opposition Division with the order to maintain the patent on the basis of claims 1 and 2 of the main request filed with the letter of 19 March 2010 and the description to be adapted.

The Registrar: The Chairman:

G. Rauh P.-P. Bracke