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München, den 5.6.1987

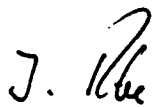
Geschäftsstelle

Verteiler : Bezieher von Kopien der Entscheidungen der  
Beschwerdekammern

Betrifft : Entscheidung T 80/85

Das Stichwort zur vorgenannten Entscheidung ist wegen einer falschen Interpunktion unverständlich.

Sie werden daher gebeten, das ursprüngliche Vorblatt gegen das beiliegende auszutauschen.



J. Rückerl

Geschäftsstelle

Veröffentlichung im Amtsblatt	Ja/Nein
Publication in the Official Journal	Yes/No
Publication au Journal Officiel	Oui/Non



Aktenzeichen / Case Number / N° du recours : T 80/85

Anmeldenummer / Filing No / N° de la demande : 79 200 443.4

Veröffentlichungs-Nr. / Publication No / N° de la publication : 0 008 475

Bezeichnung der Erfindung: A process for preparing peroxide-based bleach media  
Title of invention: and concentrated bleach compositions for use in  
Titre de l'invention: carrying out that process.

Klassifikation / Classification / Classement : C11 D3/ 395

**ENTSCHEIDUNG / DECISION**  
vom / of / du 12 March 1987

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /  
Titulaire du brevet :

SHELL Internationale Research  
Maatschappij B.V.

Einsprechender / Opponent / Opposant :

Henkel KG

Stichwort / Headword / Référence : Peroxide-based bleach media/SHELL

EPÜ / EPC / CBE Articles 100(a), (b), (c); 56; 83; 123(2), (3); 114(1), (2)

Kennwort / Keyword / Mot clé : "Disclosure, insufficient - disclaimer"

Leitsatz / Headnote / Sommaire

Europäisches  
Patentamt

Beschwerdekammern

Case Number : T 80 /85

European Patent  
Office

Boards of Appeal

Office européen  
des brevets

Chambres de recours



**D E C I S I O N**  
of the Technical Board of Appeal 3.3.2  
of 12 March 1987

**Appellant :**  
(Opponent)

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**Representative :**

**Respondent :**  
(Proprietor of the patent)

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**Decision under appeal :**

Decision of Opposition Division of the European  
Patent Office dated 15 January 1985 rejecting  
the opposition filed against European patent  
No. 8 475. pursuant to Article 102(2) EPC.

**Composition of the Board :**

**Chairman :** P. Lançon

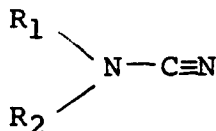
**Member :** S. Schödel

**Member :** C. Payraudeau

## Summary of Facts and Submissions

I. European patent 8475 was granted on 16 December 1981 with 21 claims in response to European patent application No. 79 200 443.4 filed on 10 August 1979 claiming priority of an earlier application of 21 August 1978. Independent Claims 1 and 11 read respectively:

1. A process for preparing a peroxide-based bleach medium which comprises incorporating in an aqueous medium a peroxide-based bleach and an activator therefor, characterized in that said medium is maintained alkaline, if necessary by the incorporation of a buffering agent, and said activator comprises a cyanoamine of equivalent weight (molecular weight/number of NCN groups) 44 to 600 which has the formula:

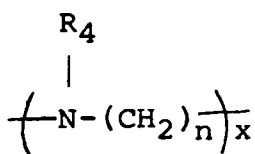


wherein either:

- (1)  $R_1$  and  $R_2$  taken together with the amino nitrogen atom to which they are attached form a ring containing 4 to 6 carbon atoms, one or more of which carbon atoms may carry a substituent  $C_1-C_5$  alkyl,  $C_1-C_5$  alkoxy,  $C_1-C_5$  alkanoyl, phenyl, amino, amine salt, cyano or cyanoamine group or a chlorine or bromine atom or a nitrogen-containing heterocyclic group of 4 to 6 carbon atoms in which the nitrogen atom carries as substituent a cyano group, or
- (2)  $R_1$  and  $R_2$  taken together with the amino nitrogen atom to which they are attached form part of a heterocyclic ring of 5 to 7 atoms containing, in addition to the indicated nitrogen atom, one or two additional hetero atoms selected from O, S and N- $R_3$ , where  $R_3$  is hydrogen, or a  $C_1-C_5$  alkyl,

C<sub>2</sub>-C<sub>5</sub> alkenyl, C<sub>2</sub>-C<sub>5</sub> alkynyl, phenyl, C<sub>7</sub>-C<sub>9</sub> aralkyl, C<sub>5</sub>-C<sub>7</sub> cycloalkyl, C<sub>1</sub>-C<sub>5</sub> alkanoyl or cyano group, or another heterocyclic ring of 5 to 7 atoms containing one to three nitrogen atoms carrying as substituent a cyano group, and where one or more of the carbon atoms of the first-mentioned heterocyclic ring or the substituent heterocyclic ring can carry a substituent C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>1</sub>-C<sub>5</sub> alkanoyl, amino, amine salt or cyano group or a chlorine or bromine atom, or

(3) R<sub>1</sub> and R<sub>2</sub> are the same or different and independently represent hydrogen, C<sub>1</sub>-C<sub>20</sub> alkyl (straight chain, branched chain or cycloalkyl), C<sub>2</sub>-C<sub>20</sub> alkenyl, C<sub>2</sub>-C<sub>20</sub> alkynyl, C<sub>1</sub>-C<sub>20</sub> alkanoyl, C<sub>1</sub>-C<sub>20</sub> ethoxylate or propoxylate, phenyl, C<sub>7</sub>-C<sub>20</sub> aralkyl, alkenyl-cyanoamino or a polyalkenylamino of the type



wherein n is 1 or 2 and x is 1-10 and R<sub>4</sub> is H or cyano, a Group Ia metal (a Group Ia metal is a metal from Group Ia of the Periodic Table of the Elements shown on the inside cover of "Handbook of Chemistry and Physics", 59th edition), or any of the foregoing radicals containing a substitutable carbon atom which carries a substituent C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>1</sub>-C<sub>5</sub> alkoxy, C<sub>1</sub>-C<sub>5</sub> alkanoyl, amino or an amine salt, cyano, cyanoamino or hydroxyl group, or a chlorine or bromine atom, provided that when either of R<sub>1</sub> or R<sub>2</sub> is hydrogen or a Group Ia metal, the other of R<sub>1</sub> or R<sub>2</sub> is not hydrogen or a Group Ia metal, and further provided that when either R<sub>1</sub> or R<sub>2</sub> is phenyl, the other of R<sub>1</sub> or R<sub>2</sub> is not hydrogen or a Group Ia metal.

11. A concentrated bleach composition which can be incorporated in an aqueous medium when forming a peroxide-based bleach medium by the process claimed in Claim 1, which comprises from 1 to 35% by weight of the total composition, calculated as hydrogen peroxide, of a peroxide-based bleach and a cyanoamine of the formula specified in Claim 1.

II. By letter received on 14 September 1982 the appellant filed an opposition citing *inter alia*

(1) GB-A-907 356

and submitted comparative tests (I). He requested the revocation of the patent on the grounds of lack of inventive step (Article 100(a) EPC) and of insufficient disclosure (Article 100(b)).

III. By an interlocutory decision dated 15 January 1985 the Opposition Division maintained the patent in amended form. The amendment to original Claim 1 was the following proviso added at the end of item 3:

"and further provided that when either of  $R_1$  and  $R_2$  is  $C_1$ - $C_{20}$  alkanoyl the other of  $R_1$  or  $R_2$  is not  $C_1$ - $C_{20}$  alkanoyl".

IV. The decision to maintain the patent was based on a finding that the thus amended Claim 1 as well as Claim 11 clearly met the requirements of Articles 123, (2) and (3), 56 and 83 EPC.

The added proviso amounts to a limitation of the claim excluding one of the two possibilities originally set out. The N-containing compounds disclosed in (1) for use as bleach activators have at least 2 acyl groups attached to the same N-atom. The cyanoamines of the patent-in-suit on the contrary contain at most one N-acylated group.

V. On 11 March 1985, an appeal against this decision was filed by the appellant together with the payment of the fee, and a Statement of Grounds was submitted on 15 May 1985. The appeal also referred to the following new documents:

(2) DE-A-708 428

(3) GB-B-428 091

(4) A. van der Werth, "Moderne Seifenpräparate",  
Berlin 1934, pages 24-25

(5) DE-A-2 047 289

(6) Kirk-Othmer, "Encyclopedia of Chemical Technology",  
3rd edition, Vol. 13, page 28 (1981);

results of new comparative tests (II) were also provided.

An oral hearing was appointed for 12 March 1987.

VI. The appellant argued in the written proceedings and at the oral hearing substantially as follows:

(a) that the claims embraced formulations in which the activators were fully ineffectual. Since the skilled person was unable to distinguish between useful and useless variations, the disclosure was insufficient in the sense of Articles 83 and 100(b) EPC;

(b) that it was expected that all water-insoluble compounds would be ineffectual. The maximum equivalent weight for the activator was 600, which implied the possibility of

long, e.g. C<sub>20</sub> chains for the substituents. No reaction with peroxides could be envisaged in view of the diminished solubility. The same applied to the situation where the substituent would react and therefore consume the available peroxide.

In addition to insufficient disclosure, therefore, absence of industrial applicability was also involved (Article 57 and 100(a) EPC);

- (c) that the newly submitted test results (II) showed that the whole group of alkanoylcycanoamines had failed to provide the promised effect. This was demonstrated in four representative cases with wine, coffee and tea stains as well as with two standard dyes, whilst dicyanopiperazine covered by Claim 1, item (1) was consistently active in such circumstances.

VII. The respondent submitted essentially the following arguments:

- (a) The allegation that there were many other inactive compounds embraced within the scope of the main claim could not be sustained. That solubility should be a necessary criterion for success was unacceptable. In any event, extremely low concentrations could initiate the activation reaction successfully. Even if there was a possibility of interaction with the bleach, the adjustment of the relative amounts could take care of such losses.
- (b) Since the new experiments did not relate to compounds originally submitted by the appellant to show insufficiency, the data should not be considered by the Board. It was inappropriate to introduce new aspects which had not been discussed by the Opposition Division.



- (c) The testing had not been carried out under proper conditions. In view of the difficulties it was easy to obtain misleading results. The use of the enzyme containing detergent composition (Mustang<sup>®</sup>) could have led to these results.
- (d) If, however, the Board were to consider the amended version of the main claim to lack proper support in the description, he proposed to amend claim 1 by deleting all alkanoyl substituted variants of item 3. He submitted to the Board a corresponding first auxiliary set of claims together with a corresponding description. This amendment removed the newly submitted test compounds from the scope of the main claim and thus disposed of all the arguments of the appellant relating thereto.
- (e) In the event that the Board was not prepared to admit the patentability of the thus amended claim 1, he proposed a further limitation according to which claim 1 would be restricted to the combination of features contained in the original claims 4 and 5. He submitted a corresponding second auxiliary set of claims together with a correspondingly amended description.

VIII. The appellant requests that the decision under appeal be set aside and the patent be revoked. As first auxiliary request he submits that the decision be set aside and the patent be maintained on the basis of the second auxiliary set of claims presented by the respondent at the oral proceedings. As second auxiliary request, he submits that the patent be maintained on the basis of the first auxiliary set of claims submitted by the respondent at the same time.

The respondent requests that the appeal be dismissed and the patent maintained in the amended form accepted by the Opposition Division. As auxiliary requests, he requests the appellants second and first auxiliary requests, in that order.

#### Reasons for the Decision

1. The appeal complies with Article 106 to 108 and Rule 64 EPC and is therefore admissible.
2. The new documents (2) to (6) filed by the appellant with the Statement of Grounds relate essentially to new grounds for opposition, i.e. lack of novelty (Article 54 EPC) and industrial application (Article 57 EPC) and have been relied upon by the appellant to support an argument that they disclose separately various features of the invention. Document (6) is not comprised in the state of the art and need not, therefore, be considered further.  
No valid reason has been given by the appellant showing why documents (2) to (5) could not have been filed in good time i.e. during the period for filing of the opposition, and the Board consequently finds that these documents have not been filed in due time (Article 114(2) EPC). The Board has furthermore found them to be irrelevant and has consequently dismissed them from further consideration (Article 114(1) EPC).
  - 2.1 The newly presented experimental results (II), on the other hand, relate to the grounds already pursued, i.e. insufficiency of disclosure and lack of inventive step, and were presented in response to the reasoning of the impugned decision. Comparative tests (II) will therefore be further considered in the proceedings under Article 114(1) EPC.

- 2.2 The Board also considers that no element of principally new character has been introduced by these test results, which stand unchallenged since May 1985, which would necessitate remitting of the matter to the Opposition Division to avoid by-passing one level of jurisdiction (T 273/84, "Silico-aluminate", OJ 1986, 346).
3. Concerning the formal admissibility of Claim 1 of the main request it is observed that a comparison of Claim 1 under consideration with the original Claim 1 shows that the former has been amended by the addition of the proviso: "... and further provided that where either  $R_1$  and  $R_2$  is  $C_1-C_{20}$  alkanoyl, the other of  $R_1$  and  $R_2$  is not  $C_1-C_{20}$  alkanoyl"; this means in direct terms that the cyanamides  $(C_1-C_{20} \text{ alkanoyl})_2 N-C\equiv N$  are excluded from the scope of the claim.

In accordance with the findings of another Board in an earlier decision an **originally disclosed** and clearly definable subject-matter may at the applicant's request be excluded from a wider claim by means of a disclaimer without contravening the provisions of Article 123(2) EPC if the subject-matter remaining in the claim cannot technically be defined directly (positively) more clearly and concisely (T 04/80, "Polyether-polyols", OJ 1982, 149).

Claim 1 as approved by the Opposition Division does not satisfy these requirements. There is no explicit disclosure for the specific group of compounds to be disclaimed in the original application. The reference passage in Claim 1 under section 3 which reads: "... $R_1$  and  $R_2$  are the same or different and independently represent "hydrogen...  $C_1-C_{20}$  alkanoyl...." is of general character only and cannot support any preference for the substituent as set out.

Moreover the above-mentioned limitation does not correspond to the literal content of the state of the art; if it did so correspond it would formally be allowable (cf. T 43/82, item 9(b) dated 16 April 1984; unpublished).

By the addition of the said proviso Claim 1 of the patent-in-suit therefore has been amended in such a way as to introduce subject-matter which was not disclosed in the original application. Contrary to the respondent's and the Opposition Division's point of view the said amended Claim 1 contravenes Article 123(2) EPC and is therefore not allowable. The same applies to the dependent claims.

- 3.1 Although there is no need further to examine these claims the following is observed: Claim 1 requires an activator to be present in the resulting bleach medium and the instruction in the claim as well as in the specification suggests that, *inter alia*, mono-alkanoylcycanoamines could be employed. However, the use of such agents would not lead to any activation as has been shown by the so far unrefuted evidence (II) from the appellant and the invention could not, therefore, in these particular instances be carried out to satisfy Article 83 EPC.

Moreover, a notional comparison of the ineffective monoalkanoyl substituted compounds covered in the claim with the closest state of the art i.e. the N,N-diacetyl cyanamide (DAC) disclosed in (1) shows that no unexpected improvement can be recognised and the compounds in question relate therefore to non-inventive formulations (Article 56 EPC).

The respondent's criticism of the experimental data is not substantiated; e.g. there is no evidence that proves that results are falsified by applying an enzyme containing detergent composition.

Consequently it would not be justified to remit the case to the Opposition Division for the re-examination of those claims on the basis of the new examples.

3.2 The respondent's main request is therefore not acceptable.

4. As to the set of claims of the first auxiliary request of the respondent there is no formal objection under Article 123(2) and (3) EPC. Process Claim 1 completely excises the area of  $R_1$  and  $R_2$  alkanoyl-substituted activators without any limitations as to the numbers of alkanoyl groups (1 or 2) or as to the length of the carbon chains. This is not an arbitrary but a global restriction having the consequence of removing unexamplified and unqualified matter directly affected by the prior art and the test results (II). Claims 2 to 21 correspond to the original claims in the same numerical order.

5. The subject-matter of Claim 1 of the first auxiliary request relates to a preparation of a bleach medium comprising a peroxide-based bleach as well as an activator therefor. Such combinations were known from the closest state of the art, which described, *inter alia*, the combination of an oxygen releasing bleach and an activator therefor containing one or more nitrogen atoms having at least two acyl groups attached to the same nitrogen atom; DAC is specifically mentioned in this respect in document (1).

With regard to such prior art the technical problem underlying the present invention was to provide an improved composition of the same kind with similar or increased activation effect.

6. The solution of the problem consists in the incorporation of a cyanoamine in such composition; as is outlined in more detail in Claim 1 of the first auxiliary request these cyanoamines follow the formula  $R_1 R_2 N-C\equiv N$  wherein
- (1)  $R_1$  and  $R_2$  taken together with the amino nitrogen atom form a heterocyclic ring or
  - (2)  $R_1$  and  $R_2$  taken together with the amino nitrogen atom form a heterocyclic ring containing additional heteroatoms or
  - (3)  $R_1$  and  $R_2$  are the same or different and represent *inter alia* various hydrocarbyl groups.

According to a large number of examples a high level of bleaching can be achieved in the peroxide-based bleach systems with the compounds falling into these classes. There is no reason to believe that any of the hydrocarbyl-substituted cyanoamines under (3) are ineffective, let alone the ones with a ring system in the substitution (1) and (2) when testing is carried out under proper conditions. The appellant's own new evidence (II), as against his original evidence, admits and demonstrates that dicyanopiperazine is highly effective against red wine, coffee and tea stains and the particular dyes considered by the respondent. As regards the other tests made by the appellant, they concern compositions which are no longer covered by claim 1 of the first auxiliary request of the respondent. They are consequently irrelevant to this claim.

The appellant's allegation that other, perhaps less soluble or oxidisable compounds, were inactive is speculative; there is no evidence that low concentration of dissolved species cannot successfully initiate activation and that oxidising of part of the molecule adversely effects the functioning of the cyanoamino group.

The invention is therefore sufficiently disclosed to be carried out by the skilled person (Article 83 EPC).

7. The cited prior art (1) does not describe a process for preparing an aqueous peroxide-based bleach medium, which comprises incorporating the specific cyanoamine activators therefor as specified in Claim 1 under discussion. The subject-matter of process Claim 1 of the first auxiliary request as well as that of composition Claim 11, which refers to the peroxide-based bleach and activator system of Claim 1, is therefore novel in the sense of Article 54 EPC.
8. As regards the question of obviousness (Article 56 EPC) the first submitted test results (I) are irrelevant. The comparisons were not conducted with the closest state of the art, but with structurally remote activators such as TAED (tetraacetyl ethylenediamine) and TAGU (tetraacetylglycoluril). The proper comparison should have been made with the closest art showing the same kind of effect (T 181/82, "Spiro-compounds", OJ 1984, 401) and this is represented by (1) referring to activated bleach compositions containing DAC.

Since the dialkylcyano amine activators covered by Claim 1 are nearest to DAC, comparison with TAED or TAGU is irrelevant to the question of to what extent such an embodiment of the claimed subject-matter may have unexpectedly solved the problem underlying the invention.

The answer is that no evidence has been submitted which would suggest that the skilled person could have predicted the activating properties of such compounds (cf. Examples 20, 21, 31 and 32) let alone those ring substituted cyanoamines as defined under items (1) and (2) of Claim 1. Structurally, they are all substantially different from the closest prior art compound, i.e. DAC and their performance was therefore already unexpected in the qualitative respect.

The subject-matter of amended Claim 1 of the first auxiliary request and accordingly that of Claims 2-21 dependent on and referring to Claim 1 respectively involves an inventive step.

9. As matters stand the set of claims of the second auxiliary request need not be considered further.

#### Order

For these reasons it is decided that:

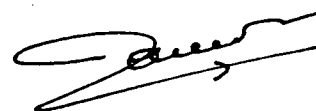
1. The decision of the Opposition Division is set aside.
2. The case is remitted to the first instance with the order to maintain the European patent on the basis of the amended documents submitted at the oral proceedings by the respondent as in his first auxiliary request.

The Registrar:



Rückerl

The Chairman:



Lançon

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