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**Datasheet for the decision  
of 8 August 2023**

**Case Number:** T 0460/21 - 3.3.10

**Application Number:** 11807932.6

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**IPC:** A61K8/22, A61K8/23, A61Q5/08,  
A61K8/365

**Language of the proceedings:** EN

**Title of invention:**

BLEACHING COMPOSITION COMPRISING GLUCONIC ACID AND/OR ITS  
SALTS

**Patent Proprietor:**

Kao Germany GmbH

**Opponent:**

Henkel AG & Co. KGaA

**Headword:**

**Relevant legal provisions:**

EPC Art. 54, 56

**Keyword:**

Main request, auxiliary requests 1-3 - Novelty - (no)  
Auxiliary request 4 - Inventive step - (yes)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
**Chambres de recours**

Boards of Appeal of the  
European Patent Office  
Richard-Reitzner-Allee 8  
85540 Haar  
GERMANY  
Tel. +49 (0)89 2399-0  
Fax +49 (0)89 2399-4465

Case Number: T 0460/21 - 3.3.10

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.10**  
**of 8 August 2023**

**Appellant:** Kao Germany GmbH  
(Patent Proprietor) Pfungstädter Strasse 92-100  
64297 Darmstadt (DE)

**Respondent:** Henkel AG & Co. KGaA  
(Opponent) Henkelstrasse 67  
40589 Düsseldorf (DE)

**Correspondence address:** Henkel AG & Co. KGaA  
CLI / Patente  
40191 Düsseldorf (DE)

**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 15 February  
2021 revoking European patent No. 2658510  
pursuant to Article 101(3)(b) EPC.**

**Composition of the Board:**

**Chairman** P. Gryczka  
**Members:** A. Zellner  
F. Blumer

## Summary of Facts and Submissions

- I. The appeal of the patent proprietor (appellant) lies from the decision of the opposition division to revoke the European patent No. EP 2 658 510 under Article 101(3)(b) EPC.
- II. Notice of opposition has been filed under Article 100(a) EPC on the ground of lack of novelty (Article 54 EPC) and lack of inventive step (Article 56 EPC).
- III. Reference is made to the following documents:
- D1: FR 2 852 834 - A1
  - D4: MINTEL GNPD 1418505 "Phosphate-Free Automatic Dishwashing Tablets", "Attitude" by Company "Bio Spectra", published 31 October 2010
  - D12: submission of the appellant, 4 November 2016
  - D13: submission of the appellant, 18 January 2018
  - D17: "Geschirrspültabs machen den Abfluss frei" Main Post, 30 April 2015
  - D18: Internetseite "Waschbär", Öko-Abflussperlen, <https://www.waschbaer.de/shop/oeko-abflussperlen-150g-24991?G=5084>, aufgerufen am 21.04.2021
  - D20: Additional Experimental Data concerning EP 2 658 510, submission of the appellant, 10 June 2021
- IV. In its decision, the opposition division came to the conclusion that the composition according to claim 1 of the main request (granted patent) as well as of the auxiliary requests 1 to 3 was not novel in view of the disclosure of document D4 (Article 54 PC).

The opposition division further concluded that none of D1, D4, D5, D6 (D7), or D10 (D11) anticipated the subject-matter of claim 1 of auxiliary request 4, and that the claimed composition was thus novel. Also, the subject-matter of independent claims 14 and 15 of auxiliary request 4 was considered to be novel, in particular in view of the disclosure of documents D1, D6 (D7) and D10 (D11).

The provision of a composition according to claim 1 of auxiliary request 4 was not considered to be based on an inventive step in view of the disclosure of document D1 as closest prior art (Article 56 EPC).

The opposition division furthermore alerted the appellant that the auxiliary requests may additionally not meet the requirements of Article 84 EPC.

- V. The opponent withdrew its opposition on 23 February 2021.
- VI. With the statement setting out the grounds of appeal, the appellant submitted that the opposition division's conclusion concerning novelty of the subject-matter of the main request as well as auxiliary requests 1 to 3 was erroneous. They also submitted that the opposition division's finding on lack of inventive step of the subject-matter of auxiliary request 4 was erroneous.
- VII. In a communication under Article 15(1) RPBA the board informed the appellant of its preliminary opinion on the factual and legal issues of the case.
- VIII. The following claims are relevant for the present decision:

Claim 1 of the **main request** (patent as granted) reads as follows:

*"A beaching and/or highlighting composition for keratin fibres, especially for human hair based on at least one compound with bleaching and/or highlighting effect at a concentration of at least 5% by weight, calculated to total composition, characterised in that it comprises gluconic acid and/or its salts as a chelating agent, wherein no additional water is introduced into the composition other than bound water which may be as high as 1% by weight, calculated to the total of the composition."*

Claim 1 of **auxiliary request 1** corresponds to claim 1 of the main request, wherein the bleaching and/or highlighting composition is for *"human hair"* rather than for *"keratin fibres"*.

Claim 1 of **auxiliary request 2** is identical to claim 1 of the main request.

Claim 1 of **auxiliary request 3** is identical to claim 1 of auxiliary request 1.

In claim 1 of **auxiliary requests 1a to 3a** the term *"based"*, which appears twice in claim 1 of auxiliary requests 1 to 3, has been deleted.

Claim 1 of **auxiliary request 4** differs from claim 1 of the main request by the additional feature:

*"... whereby compositions consisting of sodium citrate (15-30%), sodium silicate (15-30%), sodium percarbonate (15-30%), sodium carbonate (5-15%), sodium gluconate (5-15%) and non ionic vegetal surfactants (<5%) are*

*excluded from the scope."*

Auxiliary request 4 contains two further independent claims. These read as follows:

*"14. A kit for bleaching and/or highlighting human hair comprising*

*a- a composition according to claims 1 to 13,*

*b- an aqueous composition comprising at least one oxidizing agent*

*c- optionally, a third composition, preferably an aqueous composition, comprising at least one hair conditioning agent and or a direct dye."*

*"15. Process for bleaching hair wherein a composition according to claim 1 to 13 is mixed homogeneously with an aqueous composition comprising at least one oxidizing agent and optionally a third composition comprising at least one hair conditioning agent and/or a direct dye and applied onto hair and after processing 1 to 45 min rinsed off from hair."*

IX. The appellant's arguments, as far as they are relevant for this decision, can be summarised as follows:

Claim 1 of the main request and auxiliary request 2 is novel in view of the disclosure of document D4. The document discloses a dishwashing tablet, not a bleaching and/or highlighting composition for keratin fibres. This applies even more to the composition according to claim 1 of auxiliary requests 1 and 3, directed to bleaching and/or highlighting composition for human hair.

Claim 1 of auxiliary request 4 is based on an inventive step. Document D4 can be considered to represent the

closest prior art. The claimed subject-matter differs therefrom in the use of gluconic acid. This leads to a higher bleaching effect as shown by improved L-values, as shown in documents D12 and D13. Although document D4 mentions gluconic acid, it does not disclose the use thereof in order to improve bleaching activity. Furthermore, although gluconic acid is a weaker acid than mucic acid, and a composition containing the weaker acid may well have a higher pH value than a composition containing the stronger acid, an increase of L-value cannot be linked to the different pKa of the two acids. This is shown in document D20.

X. The appellant (patent proprietor) requests that the decision under appeal be set aside and that the patent be maintained as granted (main request) or on the basis of any of auxiliary requests 1 to 4 and 1a to 4a, all auxiliary requests as filed with the statement setting out the grounds of appeal. Auxiliary requests 1 to 4 are identical to the corresponding requests referred to in the impugned decision.

XI. Oral proceedings before the board were held on 8 August 2023 in the form of a videoconference. The decision was announced at the end of the proceedings.

## **Reasons for the Decision**

1. The appeal is admissible.

*I. Main request (patent as granted)*

*Novelty (Article 100(a) and 54 EPC)*

2. The opposition division considered the bleaching and/or highlighting composition for keratin fibers according



to claim 1 of the main request not to be novel in view of the disclosure of document D4.

3. The appellant contested this conclusion. They argued that document D4 did not disclose a bleaching and/or highlighting composition for keratin fibers, but a dishwashing tablet which was far (removed) from the claimed invention. The document did not disclose that the dishwashing tablet could be used for bleaching and/or highlighting keratin fibers. Since the claimed composition had to be adapted for this purpose, which was specified in claim 1 of the main request, novelty had to be acknowledged.

The appellant also referred to documents D17 and D18. According to the appellant, they disclosed that dishwashing tablets, in particular those containing sodium carbonate peroxide, could be used for de-blocking kitchen drainpipes blocked with hair. Sodium carbonate peroxide thus destroyed keratin fibers. Compositions comprising this compound - like the composition disclosed in document D4 - were thus not suitable for bleaching and/or highlighting keratin fibers. Since claim 1 of the main request, however, related to compositions for bleaching and/or highlighting keratin fibers, novelty also had to be acknowledged for this additional reason.

4. The appellant's arguments are not convincing.
  - 4.1 Claim 1 of the main request relates to a bleaching and/or highlighting composition for keratin fibers, *i.e.* to a composition that is suitable for bleaching and/or highlighting keratin fibers. The claimed composition is based on at least one compound with bleaching and/or highlighting effect at a concentration of at least 5%

by weight. The claimed composition further comprises gluconic acid and/or its salts as a chelating agent. Furthermore, no additional water is introduced into the composition other than bound water.

- 4.2 Document D4 discloses a composition comprising sodium gluconate (5-15%) and sodium carbonate peroxide at a concentration of at least 5% (sodium percarbonate, 15-30%). There is no indication that additional water is added to the composition.

Sodium carbonate peroxide is a peroxide, and thus - according to lines 41 to 42 of paragraph [0003] of the contested patent - a suitable compound with bleaching and/or highlighting effect.

The composition disclosed in document D4 is thus suitable for bleaching and/or highlighting keratin fibres.

- 4.3 The composition according to claim 1 of the main request is thus not novel (Article 54 EPC)

- 4.4 In their written submissions, the appellant argued that sodium carbonate peroxide destroyed hair and was thus not suitable as a component of a cosmetic composition for bleaching and/or highlighting keratin fibers. The argument is not valid, for the following reasons:

Neither of documents D17 and D18 discloses the destruction of hair by sodium carbonate peroxide.

Document D17 relates to dissolving fat and other organic debris (paragraph 3 on page 2). It also refers to food residues (paragraph 1 on page 1), which are organic debris. The destruction of hair is not

disclosed.

Document D18 lists sodium carbonate peroxide as one of the ingredients of a pipe cleaning composition, without any reference to hair at all.

Thus, neither D17 nor D18 disclose that a composition as disclosed in document D4 is not suitable for the intended use of the claimed composition, *i.e.* for bleaching and/or highlighting keratin fibers, because of the presence of sodium carbonate peroxide. The appellant did not provide any other reasons why this should be the case. The fact that the composition according to document D4 is intended for use as dishwashing tablet does not deny its suitability for a different use. The composition as such remains the same. The fact that the composition according to document D4 contains sodium carbonate peroxide at a high concentration is also not relevant, since the skilled person would dilute the composition before use (see also claim 14 of the main request, which is identical in this respect with claim 14 of auxiliary request 4).

5. Since the composition according to claim 1 of the main request is not novel in view of the disclosure of document D4, the respective conclusion by the opposition division is correct. The main request is not allowable (Article 54 EPC).

## *II. Auxiliary requests 1 to 3*

### *Novelty (Article 54 EPC)*

6. Claim 1 of auxiliary requests 1 and 3 is limited to a bleaching and/or highlighting composition for human

hair, rather than for keratin fibers in general.

The board agrees with the appellant that the term human hair is more limited than the term keratin fibers. The board also agrees that human hair does not necessarily have the same properties as any other keratin fiber.

There is, however, no evidence on file showing that the composition disclosed in document D4 is not suitable for bleaching and/or highlighting human hair.

Claim 1 of auxiliary request 1 is thus not novel in view of the disclosure of document D4 for the same reasons as claim 1 of the main request.

7. Claim 1 of auxiliary request 2 is identical to claim 1 of the main request. The conclusion under point 5. above thus also applies to auxiliary request 2.
8. Since the compositions according to claim 1 of the auxiliary requests 1 to 3 are not novel in view of the composition disclosed in document D4, these requests are not allowable (Article 54 EPC).

### *III. Auxiliary requests 1a to 3a*

9. Claim 1 of auxiliary requests 1a to 3a correspond to claim 1 of auxiliary requests 1 to 3, respectively, wherein the term "*based*", which appeared twice, has been deleted.
10. This amendment does not change the conclusion on lack of novelty of the compositions according to claim 1 of auxiliary requests 1 to 3. Auxiliary requests 1a to 3a are thus not allowable for the same reasons as auxiliary requests 1 to 3, respectively (Article 54

EPC).

*IV. Auxiliary request 4*

11. Claim 1 of auxiliary request 4 differs from claim 1 of the main request by the exclusion of the compositions disclosed in D4. In its decision, the opposition division came to the conclusion that the amendments were allowable and that the claimed subject matter was novel.
12. *Clarity (Article 84 EPC)*
13. The opposition division considered claim 1 of auxiliary request 4 to lack clarity (see point 6.3 of the reasons of the impugned decision). The objection concerned the relative amounts of the components, which are indicated in brackets.
14. In the present case, the use of brackets does not render the claimed subject-matter unclear. The ranges given in each of the brackets after each of the compounds of the disclaimed compositions can only relate to the relative amount of the respective compounds in weight %. The disclaimer is also a verbatim copy of the disclosure of document D4.
15. Claim 1 of auxiliary request thus meets the requirements of Article 84 EPC.

*Inventive step (Article 56 EPC)*

16. The opposition division argued that the provision of a composition according to claim 1 of auxiliary request 4 was not based on an inventive step in view of document D1 as closest prior art (Article 56 EPC).

According to the opposition division, the claimed composition differed from a composition disclosed in tables II and III of document D1, in particular composition D thereof, in that gluconic acid and/or its salts were used as a chelating agent instead of mucic acid. The opposition division furthermore acknowledged that this difference led to a higher bleach intensity (higher L values), as shown in documents D12 and D13. The objective technical problem was seen in the provision of improved bleaching compositions for bleaching and/or highlighting hair.

The opposition division concluded that the skilled person would have changed mucic acid as disclosed in example D of document D1 for gluconic acid and/or its salts in order to obtain compositions with improved bleaching properties. They argued that the skilled person was aware of the difference in acid strength (pKa) of the two acids, and of the resulting difference in pH of the composition comprising them to be applied to hair. The skilled person would thus expect the observed difference in highlighting power. Furthermore, document D1 already suggested mucic acid as an alternative to gluconic acid.

17. The appellant disagreed with the final conclusion of the opposition division. In particular, they argued with reference to documents D12 and D13 that the difference in bleaching efficiency of the two acids was not the result of their difference in pKa, since the additional persulfate ingredients had a greater influence on the pH of the bleaching composition. The skilled person would thus not expect to obtain an increase in bleaching activity when replacing mucic

acid by gluconic acid.

18. The board comes to the following conclusion:

*Closest prior art*

18.1 The appellant as well as the opposition division considered document D1 as closest prior art. The board sees no reason to deviate.

*Technical problem*

18.2 Document D1 discloses in example 2 (composition D of Table II) a hair decolorising composition, comprising potassium persulfate. This compound is, according to the definition of the patent in suit, a compound with bleaching and/or highlighting effect (see paragraph [0003], lines 42 to 43). The composition further comprises mucic acid.

The composition according to claim 1 of auxiliary request 4 differs from composition D of document D1 in that it contains gluconic acid and/or its salts as a chelating agent.

The board agrees with the opinion of the appellant and the opposition division that the comparative tests reported in documents D12 and D13 show that the use of gluconic acid instead of mucic acid leads to higher L values measured for hair which has been treated with the respective compositions.

The use of gluconic acid thus improves the bleaching effect.

The objective technical problem can thus, in accordance

with the opposition division's decision, be formulated as to provide a composition for bleaching and/or highlighting keratin fibres with improved bleaching effect.

*Solution provided*

- 18.3 The board is satisfied that the provision of a composition according to claim 1, comprising gluconic acid and/or its salts as chelating agent, solves the technical problem.

*Inventiveness of the claimed solution*

- 18.4 Document D1 does not suggest that gluconic acid leads to an increase in bleaching intensity. The document mentions both acids as particularly preferred compounds of general formula (I), without giving preference to gluconic acid (see the lines 28 to 30 of page 8). The effect caused by the differing feature is not derivable from document D1. The effect is also not derivable from any other of the cited documents. There is, thus, no incentive for the skilled person to replace mucic acid by gluconic acid and/or its salts in composition D of Table II of document D4 in order to solve the objective technical problem.

The provision of a composition according to claim 1 of auxiliary request 4 is therefore based on an inventive step (Article 56 EPC).

- 18.5 In their decision, the opposition division argued that the skilled person was aware of the difference in pKa of mucic and gluconic acid, and would thus expect the observed technical effect.



18.6 The appellant contradicted this view and referred to experimental data submitted with the statement setting out the grounds of appeal (document D20). According to the appellant, these data demonstrated that the improvement in bleaching was due to the presence of gluconic acid as such, and not because of an expected change in pH of the final composition.

18.7 The board follows the appellant's argumentation.

Document D20 discloses four hair bleaching compositions A to D, which differ in the amounts of mucic acid and gluconic acid. Compositions B, C and D contain gluconic acid and are according to claim 1 of auxiliary request 1, composition A does not contain gluconic acid and is thus is not according to claim 1.

The presence of gluconic acid leads to an increase in L-value, and thus to improved bleaching (compositions B, C and D vs. composition A).

Composition B contains one weight % of gluconic acid. The addition of one additional weight % of gluconic acid (composition D) leads - as expected - to a decrease in pH (9,82 and 9,76 for composition D vs. 9,86 and 9,81 for composition B). At the same time the L-value increases (66,9 and 67,2 for composition D vs. 65,2 and 65,9 for composition B).

The addition of one weight % of mucic acid to composition B also leads to a decrease in pH (see the composition C: 9,71 and 9,68 vs. 9,86 and 9,81 for composition B. The addition of mucic acid leads to a decrease in L-value (64,8 and 65,1 for composition C vs. 65,2 and 65,9 for composition B).

These data show that addition of the stronger acid (mucic acid) leads to a bigger decrease in pH than addition of the weaker acid (gluconic acid) - see compositions C and D vs. composition B. This finding is in line with the decision of the opposition division.

The data also show that a decrease in pH ("use of alkalinity") does not necessarily lead to a decrease in L-value, as argued by the opposition division, since the L-value may also increase with decreasing pH (composition D vs. composition B).

The data do thus not support the conclusion drawn by the opposition division. The change in L-value due to the addition of gluconic acid cannot be attributed to the difference on pKa of mucic and gluconic acid and the resulting change in pH. The results disclosed in documents D12 and D13 are thus not predictable.

19. Independent claims 14 and 15 of auxiliary request 4 relate to a kit comprising the composition according to claim 1, and to a process for bleaching hair using a composition according to claim 1, respectively. Since the provision of the compositions as such is based on an inventive step, this also applies to the kit and the process.
20. The subject-matter of auxiliary request 4 meets the requirements of Article 56 EPC.

*Summary*

21. Auxiliary request 4 thus fulfills the requirements of the EPC. The request is thus allowable.

## 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 with claims 1 to 15, filed as auxiliary request 4 with the statement setting out the grounds of appeal, and a description to be adapted thereto.

The Registrar:

The Chairman:



C. Rodríguez Rodríguez

P. Gryczka

Decision electronically authenticated