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**Datasheet for the decision  
of 20 September 2017**

**Case Number:** T 0172/16 - 3.3.10

**Application Number:** 08160560.2

**Publication Number:** 1982749

**IPC:** A61Q5/10, A61K8/41, A61K8/49

**Language of the proceedings:** EN

**Title of invention:**  
Novel hair colouring compositions for use in oxidative hair dyeing

**Patent Proprietor:**  
The Procter & Gamble Company

**Opponent:**  
L'Oréal

**Headword:**  
Hair colouring compositions/The Procter & Gamble Company

**Relevant legal provisions:**  
EPC Art. 56, 123(2)

**Keyword:**

Main and first auxiliary request : Inventive step - (no)  
Second auxiliary request: amendments - extension beyond the  
content of the application as filed (no) - inventive step  
(yes)

**Decisions cited:**

**Catchword:**



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

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Case Number: T 0172/16 - 3.3.10

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.10**  
**of 20 September 2017**

**Appellant:** L'Oréal  
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**Respondent:** The Procter & Gamble Company  
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**Decision under appeal:** **Decision of the Opposition Division of the European Patent Office posted on 30 November 2015 rejecting the opposition filed against European patent No. 1982749 pursuant to Article 101(2) EPC.**

**Composition of the Board:**

**Chairwoman** J. Mercey  
**Members:** J.-C. Schmid  
C. Schmidt

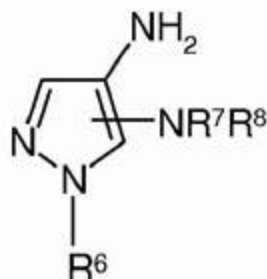
## Summary of Facts and Submissions

I. The Appellant (Opponent) lodged an appeal against the decision of the Opposition Division rejecting the opposition against European patent No. 1 982 749 which was granted on the basis of five claims, claim 1 of which reading as follows:

"1. A hair dyeing composition comprising:

a) at least one coupler selected from the group consisting of N-(4-amino-phenyl)-pyridine-2,6-diamine, N-(5-amino-pyridin-2-yl)pyridine-2,6-diamine, N-(5-aminopyridin-2-yl)benzene-1,3-diamine, N-(4-pyrrolidin-1-yl-phenyl)-pyridine-2,6-diamine, N-(4-amino-phenyl)-N'-methyl-pyridine-2,6-diamine, 2-[4-(6-methylamino-pyridin-2-ylamino)-phenylamino]-ethanol, 2-[6-(4-amino-phenylamino)-pyridin-2-ylamino]-ethanol, N-(4-amino-phenyl)-N-methylpyridine-2,6-diamine, N-(1H-pyrrol-2-yl)-pyridine-2,6-diamine, N-(6-amino-pyridin-2-yl)-pyrimidine-2,4,5,6-tetraamine, N-(5-amino-[1,3,4]thiadiazol-2-yl)-pyridine-2,6-diamine, N3-(4-aminophenyl)pyridine-3,5-diamine, N3-(4-aminophenyl)-N5-(2-hydroxyethyl)pyridine-3,5-diamine, N3-(thiazol-2-yl)pyridine-3,5-diamine, N2-(4-aminophenyl)pyridine-2,4-diamine, N2-(4-aminophenyl)-5-chloropyridine-2,6-diamine, N2-(4-aminophenyl)-5-methoxypyridine-2,6-diamine, N3-(4-aminophenyl)-N3-methylpyridine-3,5-diamine, N3-(5-aminopyridin-2-yl)pyridine-3,5-diamine, N3-(4,5,6-triaminopyrimidin-2-yl)pyridine-3,5-diamine, N2-(4-aminophenyl)-N2-methylpyridine-2,4-diamine, N4-(4-aminophenyl)-N4-methylpyridine-2,4-diamine, N2-(4-aminophenyl)-3-chloropyridine-2,6-diamine, and N2-(4-aminophenyl)-3-methoxypyridine-2,6-diamine;

b) at least one primary intermediate of the formula (5):



(5)

wherein R<sup>6</sup> and R<sup>7</sup> are independently selected from the group consisting of hydrogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>2</sub>-C<sub>4</sub> hydroxyalkyl, benzyl, and phenyl; and wherein R<sup>8</sup> is selected from the group consisting of hydrogen, C<sub>1</sub>-C<sub>4</sub> alkyl, and C<sub>2</sub>-C<sub>4</sub> hydroxyalkyl; or physiologically tolerated, water-soluble salts thereof; and c) a suitable carrier."

II. Notice of opposition had been filed by the Appellant requesting revocation of the patent-in-suit in its entirety on the grounds of lack of inventive step (Article 100(a) EPC) and extension of the subject-matter of the patent-in-suit beyond the content of the application as filed (Article 100(c) EPC). *Inter alia* the following document

(1) WO-A-03/075872

was submitted in the opposition/appeal proceedings.

In the decision under appeal, the Opposition Division found that the subject-matter of the patent-in-suit did

not extend beyond the application as filed, and thus the requirements of Articles 123(2) EPC and 76(1) EPC were fulfilled. With regard to inventive step, document (1) represented the closest prior art to the invention. This document disclosed oxidative dye compositions comprising at least one coupler selected from N-phenyl- or N-pyridyl-m-phenylenediamines together with the primary intermediate 2-(4,5-diamino-pyrazol-1-yl)-ethanol, which was a diaminopyrazole according to formula (5) of the patent-in-suit. The technical problem to be solved was the provision of a dyeing composition having improved colour fastness *vis-à-vis* acid perspiration. The proposed solution was characterized by the presence of couplers selected from variously substituted N-aryl-m-diaminopyrimidines and/or N-aryl-m-diaminopyridines. The comparative tests in the patent-in-suit showed that the colour fastness to acid perspiration was improved by replacing the coupler N-phenyl-benzene-1,3-diamine present in the dyeing composition of document (1) with N-(4-amino-phenyl)-pyridine-2,6-diamine, which was a coupler according to claim 1 of the patent as granted. This comparison was sufficient to enable an extrapolation to any one of the substitution patterns of the pyri(mi)dine couplers covered by claim 1 of the patent as granted. The skilled person had no incentive in document (1) to select the specific couplers of the claimed compositions in order to improve colour fastness *vis-à-vis* perspiration. The subject-matter of the claims of the patent as granted involved therefore an inventive step (Article 56 EPC).

III. With a letter dated 14 July 2016, the Respondent (patent proprietor) filed two auxiliary requests.

In claim 1 of the first auxiliary request, the primary intermediate of the formula (5) has been restricted to 2-(4,5-diamino-pyrazol-1-yl)-ethanol.

In claim 1 of the second auxiliary request, the primary intermediate of formula (5) has been restricted to 2-(4,5-diamino-pyrazol-1-yl)-ethanol and the coupler has been restricted to N-(4-amino-phenyl)-pyridine-2,6-diamine.

IV. According to the Appellant, claim 1 of the main request did not fulfil the requirements of Articles 123(2) and 76(1) EPC, since the listed couplers were originally disclosed only in combination with 2-(4,5-diamino-pyrazol-1-yl)-ethanol. Claim 1 of the second auxiliary request did not fulfil the requirement of Article 123(2) EPC, since the claimed pair N-(4-amino-phenyl)-pyridine-2,6-diamine/ 2-(4,5-diamino-pyrazol-1-yl)-ethanol was singled out from the original disclosure. With regard to inventive step, document (1) could be seen as the closest prior art. This document disclosed hair dyeing compositions comprising 2-(4,5-diamino-pyrazol-1-yl)-ethanol and couplers structurally close to the couplers of the claimed compositions. A difference of the  $\Delta E$  values of lower than two units was not perceptible to the human eye. Hence, any improvement of the resistivity of the colour obtained by the claimed composition D with respect to comparative composition A, as shown in the patent-in-suit, was insignificant, with the consequence that the comparison provided by the Respondent did not show any improvement of the colour resistivity. Furthermore, it was not credible that the improvement, if any, would also apply to dyeing compositions comprising as a coupler N-(5-aminopyridin-2-yl)benzene-1,3-diamine, which was within the ambit of document (1). Thus, the

problem of providing a hair colouring composition having improved colour fastness *vis-à-vis* perspiration was not solved by the claimed composition D, let alone across the whole of the claimed scope. The technical problem therefore should be reformulated into the provision of alternative dyeing compositions.

It was obvious for the skilled man to add an additional amino substituent on the pyridyl moiety of the couplers described in document (1) in order to provide an alternative dyeing composition. The subject-matter of claim 1 of the main, first and second auxiliary requests therefore lacked an inventive step.

- V. According to the Respondent, claim 1 of the patent as granted was based on claim 1 in combination with the disclosure on page 9, lines 2 to 17 of the parent application as filed and on claim 1 in combination with page 8, lines 12 to 27 of the application as filed. Therefore, the requirements of Articles 76(1) and 123(2) EPC were met for claim 1 of the main request. Claim 1 of the first auxiliary request corresponded to the combination of claims 1 and 2 of the application as filed. The Appellant's objections under Article 100(c) EPC were rendered moot by this amendment. Claim 1 of the second auxiliary request corresponded to claim 1 of the first auxiliary request, except that the coupler had been restricted to one of the listed couplers. Claim 1 of the second auxiliary request fulfilled therefore the requirement of Article 123(2) EPC.

Document (1) was the closest prior art since it related to oxidative hair dyeing compositions providing improved colour fastness. The claimed compositions differed from the compositions of document (1) in that they comprised one or more specific couplers. The



presence of these specific couplers in dyeing compositions comprising a primary intermediate of formula (5) led to an improved colour fastness to perspiration. This was illustrated in the patent-in-suit where the colour fastness to perspiration of colorations obtained by four dyeing compositions A, B, C and D were compared. Composition D according to the invention comprised N-(4-amino-phenyl)-pyridine-2,6-diamine as a coupler, whereas compositions A, B and C comprised N-phenyl-benzene-1,3-diamine, N-methyl-benzene-1,3-diamine and benzene-1,3-diamine, respectively, and the same primary intermediate (5). Composition D of the invention led to a blue shade and exhibited a better overall colour fastness than the purple, dark red, and red colorations obtained by compositions A, B and C, respectively. The technical problem to be solved was therefore the provision of a hair dyeing composition having an improved colour fastness by resisting loss of colour due to acid perspiration. The burden of proof lay with the Appellant to prove that the technical problem was not solved across the breadth of the claims. Document (1) taught away from using the couplers of the claimed compositions, since none of the examples described such couplers. Furthermore document (1) did not provide any information regarding possible benefits of using couplers comprising a pyridyl group on the resistivity of colour to acid perspiration. There was therefore no hint or incitation in document (1) which would have pointed to the claimed solution. Consequently, the subject-matter of claim 1 of the main request was not rendered obvious by document (1). For these reasons, the subject-matter of claim 1 of the first and second auxiliary requests also implied an inventive step.

- VI. In a communication dated 12 May 2017 accompanying the summons to oral proceedings on 20 September 2017, the Board indicated *inter alia* that the subject-matter of claim 1 of the main and auxiliary request 1 appeared to lack an inventive step over the disclosure of document (1).
- VII. With a letter dated 11 August 2017, the Respondent announced that it would not attend the oral proceedings.
- VIII. The Appellant requested that the decision under appeal be set aside and that the patent be revoked.

The Respondent requested in writing that the appeal be dismissed and that the patent be maintained as granted (main request), or, alternatively, on the basis of the first or second auxiliary request, both filed with letter dated 14 July 2016.

- IX. At the end of the oral proceedings, held in the absence of the Respondent, the decision of the Board was announced.

### **Reasons for the Decision**

1. The appeal is admissible.

*Main request and auxiliary request 1: Inventive step*

2. *Closest prior art*

The Board considers, in agreement with both parties, that document (1) represents the closest prior art.

This document discloses hair colouring compositions based on the combination of N-aryl-m-phenylenediamines (couplers) with diaminopyrazoles (primary intermediates), in particular with 2-(4,5-diaminopyrazol-1-yl)-ethanol (see page 22, third paragraph; composition (A), Table 2 on page 25).

The coupler N-(5-aminopyridin-2-yl)benzene-1,3-diamine, which is a coupler listed in claim 1 of the patent-in-suit, is included within the ambit of document (1), namely is a coupler according to formula (1) of document (1), wherein R is a moiety of formula (4), R<sup>1</sup>, R<sup>2</sup>, R<sup>4</sup> represent hydrogen and R<sup>3</sup> represents an amino group.

3. *Technical problem*

According to the Respondent, the technical problem underlying the patent-in-suit was to provide a hair dyeing composition having an improved colour fastness by resisting loss of colour due to acid perspiration.

4. *Success*

To show that this problem has been solved by the claimed compositions, the Respondent referred to the results of comparative examples disclosed in Table 3 on page 11 of the patent-in-suit in which the fastness to perspiration of colours obtained with four compositions are compared.

4.1 The comparisons of the colorations obtained with comparative compositions B and C are not relevant, since these compositions do not comprise couplers according to formula (1) of document (1).

Compositions A and D comprise as a primary intermediate 2-(4,5-diamino-pyrazol-1-yl)-ethanol (named N-2-hydroxyethyl)-4,5-diaminopyrazole sulfate in Table 2 of the patent-in-suit). Composition (A) comprises as a coupler N-phenyl-benzene-1,3 diamine, which is a coupler according to formula (1) of document (1), indeed the only coupler for which data on fastness of the resulting coloration to perspiration is given in this document (see Table 3). Composition A, thus, represents a composition according to the closest prior art document (1). Composition (D) comprises as a coupler N-(4-amino-phenyl)-pyridine-2,6-diamine, and thus, is a composition according to the invention.

The resistivity *vis-à-vis* perspiration of the colorations obtained by compositions A and D is compared. Composition A achieved a  $\Delta E$  value of 5.76, whereas composition D obtained 4.08.

- 4.2 The Appellant argued that this difference of  $\Delta E$  was insignificant, since the human eye was not capable of seeing any difference in colour if the  $\Delta E$  was lower than 2 units. It was therefore not shown that the coloration obtained with composition A according to the patent-in-suit was more resistant to perspiration than that obtained with composition D.

The Board cannot follow this argument, since the difference of the  $\Delta E$  values obtained is significant and is obtained by measurements with a spectrophotometer which are accurate and reproducible.

- 4.3 Hence, the Board is satisfied that the comparative test report provided shows that the colour obtained by composition D according to the invention is more

resistant to perspiration than that obtained by composition A of document (1).

- 4.4 However, a purported technical effect can only form the basis for a finding of inventive step if it were credible that it is obtained across the claimed scope. Therefore, it must be examined whether the effect shown with the coupler present in composition D can be extrapolated to the couplers listed in claim 1.

The coupler of composition D of the invention differs *inter alia* from the coupler present in composition A representing document (1) in that the meta-diaminophenyl moiety is replaced with a 2,6-diaminopyridyl moiety.

However, the third coupler N-(5-aminopyridin-2-yl)benzene-1,3-diamine listed in claim 1 of the main and auxiliary request 1 does not comprise a 2,6-diaminopyridyl moiety. On the contrary, it comprises the meta-diaminophenyl moiety of the coupler of document (1). It is therefore not credible from the comparison provided that the colour fastness would also be improved by the presence of this coupler.

- 4.5 The Respondent alleged that the burden of proof lies with the Appellant to prove that the technical problem was not solved across the breadth of the claims.

However, the third coupler listed in claim 1 is within the ambit of formula (1) of document (1) wherein R is a group of formula (4),  $R^1$ ,  $R^2$  and  $R^4$  are hydrogen and  $R^3$  is an amino group. This coupler is taught to be suitable in dyeing compositions like any other couplers of formula (1) of document (1). No evidence or argument has been provided by the Respondent that the selection

of this particular coupler within the ambit of document (1) leads to an improvement of the colour fastness, the comparison provided in the patent-in-suit being not suitable in this respect (see point 4.4 above).

Since, in the present case, the alleged improvement lacks the required experimental support, the burden of proof has not been shifted to the Appellant (opponent) to prove that an improvement alleged by the Respondent (Proprietor of the patent) is not achieved.

5. *Reformulation of the technical problem*

The technical problem has therefore to be reformulated in a less ambitious manner, namely as the provision of alternative dyeing compositions.

6. *Obviousness*

The choice of a specific coupler, namely N-(5-aminopyridin-2-yl)benzene-1,3-diamine, within the general teaching of document (1) is neither critical nor purposive, because no particular effect has been shown to be associated with this choice. Thus, this arbitrary choice lies within the routine activity of the skilled person faced with the problem of providing an alternative hair dyeing composition.

The subject-matter of claim 1 of the main and first auxiliary request therefore lacks an inventive step.

*Second auxiliary request*

7. *Amendments (Articles 76(1) and 123(2) and (3) EPC)*

Claim 1 of the second auxiliary request is based on claim 2 of the application as filed and on claim 5 of the parent application as filed, wherein the coupler is restricted to N-(4-amino-phenyl)-pyridine-2,6-diamine.

Claim 1 of the second auxiliary request is also derived from claim 2 of the patent as granted with the restriction of the coupler to N-(4-amino-phenyl)-pyridine-2,6-diamine. The amendment thus restricts the protection conferred by the patent as granted.

Claims 2 to 4 are identical to claim 3 to 5 of the patent as granted.

Accordingly, the requirements of Articles 76(1) and 123(2) and (3) EPC are satisfied.

According to the Appellant, the amendment resulted in singling out the pair N-(4-amino-phenyl)-pyridine-2,6-diamine/2-(4,5-diamino-pyrazol-1-yl)-ethanol, which was not disclosed in the application as filed.

However, claim 2 of the application as filed and claim 5 of the parent application as filed disclose the combination of particular couplers, including N-(4-amino-phenyl)-pyridine-2,6-diamine, with the primary intermediate 2-(4,5-diamino-pyrazol-1-yl)-ethanol. Therefore the pair N-(4-amino-phenyl)-pyridine-2,6-diamine/2-(4,5-diamino-pyrazol-1-yl)-ethanol is disclosed in the application as filed. The Appellant's argument is therefore rejected.

8. *Inventive step*

The hair dyeing composition of claim 1 of the second auxiliary request has been restricted to those requiring N-(4-amino-phenyl)-pyridine-2,6-diamine as a coupler and 2-(4,5-diamino-pyrazol-1-yl)-ethanol as a primary intermediate.

The Board is therefore satisfied that the problem of improving the color resistivity has been solved across the scope of the claim 1 (see point 4.3 above).

Document (1) does not disclose or suggest a dyeing composition comprising N-(4-amino-phenyl)-pyridine-2,6-diamine as a coupler, let alone that the colour fastness may be improved by the presence of this coupler. Furthermore, the Board is not aware of any documents cited in the opposition/appeal proceedings which render the proposed solution obvious.

Consequently, the Board comes to the conclusion that the subject-matter of claim 1 of the second auxiliary request is not obvious in the light of the prior art.

An inventive step can therefore be acknowledged for the subject matter of claim 1, and by the same token for the subject-matter of dependent claims 2 to 4, of the second auxiliary request.



## 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 the second auxiliary request, filed with letter dated 14 July 2016 and a description to be adapted.

The Registrar:

The Chairwoman:



C. Rodríguez Rodríguez

J. Mercey

Decision electronically authenticated