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**Datasheet for the decision
of 22 April 2013**

Case Number: T 1559/10 - 3.3.06

Application Number: 04739747.6

Publication Number: 1633844

IPC: C11D 3/40, C11D 3/39

Language of the proceedings: EN

Title of invention:
Blue and red bleaching compositions

Patent Proprietors:
Unilever PLC
Unilever N.V.

Opponent:
The Procter & Gamble Company

Headword:
Bleaching composition with blue and red dye/UNILEVER

Relevant legal provisions:
-

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

Keyword:
"Inventive step - main request (no) - auxiliary request (no)"

Decisions cited:
-

Catchword:
-



Case Number: T 1559/10 - 3.3.06

D E C I S I O N
of the Technical Board of Appeal 3.3.06
of 22 April 2013

Appellants:
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted 13 July 2010
revoking European patent No. 1633844 pursuant
to Article 101(3) (b) EPC.**

Composition of the Board:

Chairman: G. Santavicca
Members: E. Bendl
U. Tronser

Summary of Facts and Submissions

- I. The appeal lies from the decision of the Opposition Division to revoke the European patent no 1 633 844.
- II. The Proprietors/Appellants filed on 20 July 2010 an appeal against this decision and paid the appeal fee on the same day. The grounds of appeal were received on 22 July 2010 and contained two experiments intended to demonstrate an enhanced bleaching effect of the claimed compositions.
- III. The Opponent/Respondent objected to lack of an inventive step of the claimed subject-matter, submitted inter alia with the letter of 09 March 2012 comparative tests and cited among other documents:
- D1: US-A-4 668 418;
D2: US-A-3 927 967;
D12: Holden, Vowler, The Technology of Washing, British Launderers' Research Association, 40-41, 1948;
E2: Experimental data submitted by the Proprietor with letter of 30 April 2010.
- IV. The Appellants requested that the decision under appeal be set aside and that the opposition be rejected or in the alternative that the patent be maintained on the basis of the auxiliary request submitted during the oral proceedings.

The Respondent requested that the appeal be dismissed.

V. Claim 1 of the **main request** reads as follows:

- "1. A bleaching composition comprising:
- a) from 0.0001 to 0.1 wt/wt% of a photo-reactive red dye having a peak in the visible in the range 500 to 550 nm;
 - b) from 0.0001 wt/wt% to 0.1 wt/wt% of a blue dye lambda max 580-640 nm;
 - c) from 0 to 40 wt/wt% other bleaching species; and,
 - d) the balance carriers and adjunct ingredients to 100 wt/wt % of the total bleaching composition."

The wording of Claim 1 of the **auxiliary request** differs from the wording of Claim 1 of the main request in the additional features ", wherein the photo-reactive red dye is a xanthene dye, and wherein the blue dye is selected from the group consisting of: acid blue dyes and direct blue dyes" which are appended to the end of Claim 1 of the main request.

The main arguments of the **Appellants** were as follows:

Inventive step

- Unexpectedly the bleaching treatment of a textile with the claimed composition leads to enhanced whiteness.

- Experiments filed with the grounds of appeal show that, by adding a blue dye to the red photo-reactive dye, stain removal is unexpectedly improved.

- The photo-reactive dye preferably bleaches the stain rather than the blue dye. This is surprising, as there is no pointer in the literature.
- In addition the blue dye is effective at masking the red colour of the reactive dye on the cloth.
- By changing the lightness "L", or the value of parameters a and b (which refer to the red/green and yellow/blue colour) of the reference for determining ΔE , the Respondent hides the effect achieved. The Respondent's counter-experiments are therefore not relevant.
- Given that the unexpected results obtained were not obvious over the cited documents, the claimed subject-matter involves an inventive step.

The main arguments of the **Respondent** were as follows:

Inventive step

- The Appellants' experiments are limited to greenish blue dyes.
- The data do not relate to photobleaching but to shading, as a comparison of ΔE values does not demonstrate photobleaching.
- The alleged effect does not exist when using a different reference (another cloth) for comparing the ΔE values prior to and after stain removal. Hence, the measurements relied on an arbitrary selection of L.

- E2 shows that a combination of two dyes leads to inferior results than the use of only one dye.
- The argument with regard to improved masking of the red colour has not been brought forward in the appeal proceedings and was mentioned for the first time in the oral proceedings.
- When combining bleaching compositions comprising a red photo-reactive dye (D1,D2) with the disclosure of D12 the claimed subject-matter is rendered obvious.
- Therefore, the claimed subject-matter does not involve an inventive step.

Reasons for the Decision

1. Main request

Inventive step

According to the problem and solution approach, which is used by the Boards of Appeal of the European Patent Office in order to decide on the question of inventive step, it has to be determined which technical problem the object of a patent solves vis-à-vis the closest prior art document. It also has to be determined whether or not the solution proposed to solve this problem is obvious in the light of the available prior art disclosures.

Closest prior art

- 1.1 The patent-in-suit aims at providing photo-bleaching compositions for obtaining "a bleached textile with enhanced whiteness" (paragraph [0006]).

The Respondent cited several anticipations with regard to inventive step, out of which only D1 and D2 refer to photo-bleaching by using a photo-reactive red dye. As only D1 gives additional information about the absorption wavelength of the photo-reactive red-dye, which is described to range between 400 to 600 nm, this document is considered to be the closest prior art.

D1 aims at obtaining an "improved detergent composition adopted for bleaching by photoactivation, and which is both simple to use and effective with regard to stains" (D1, column 1, lines 54-56). The problem posed in the patent-in-suit, i.e. the enhancement of whiteness of a stained cloth has not been referred to in D1.

Problem solved

- 1.2 The bleaching compositions according to Claim 1 of the patent-in-suit have been proposed as the solution to the problem of providing photobleaching compositions for obtaining bleached textile with enhanced whiteness (paragraph [0006]).

These compositions differ from the ones described in D1 in the presence of 0.0001 to 0.1 wt/wt% of a blue dye λ_{\max} 580-640 nm.

- 1.3 Given the broad definition of the suitable dyes, the question arises whether the posed problem is solved over the whole breadth of Claim 1 of the patent-in-suit.

- 1.3.1 The patent-in-suit contains examples in order to demonstrate an effect of the proposed combination of dyes. However, Examples 1-4 cannot be taken into account in this respect, as their compositions only contain red dyes.
- 1.3.2 Example 5 relates to combinations of blue and red dyes and shows inter alia that washing liquid containing a combination of 0.09 ppm Food Red 14 (FR14) and 0.117 ppm Acid Blue 29 (AB29) leads to a) a superior Ganz whiteness of 158 compared to a washing liquid containing only 0.09 ppm FR14 (Ganz whiteness of 146), but b) an **inferior** result than a washing liquid containing only 0.117 ppm AB29 dye, which has a Ganz whiteness of 163. Consequently no synergy has been shown.

The ΔE values of Example 6 cannot be used for further comparison, as different concentrations of red dye were used. However, it is apparent that also the relative concentrations of red and blue dyes play a role.

- 1.3.3 Annex 1 of the grounds of appeal contains two examples intended to show an improvement in ΔE value when comparing combinations of blue and red dyes with FR14 alone. In the experiments L was 88, a and b were 0. However, since the contributions of the single blue dyes are not given, it is not apparent whether there is any synergy.

Furthermore, it was shown in the Respondent's counter-experiments submitted with the letter of 09 March 2012, that upon repeating the Appellants' experiments a

change in L, a, b (e.g. L=100, a=b=0 or L=95.8, a=-0.4, b=3.6) leads to inferior ΔE results of the dye combinations compared to only one dye (FR14). Hence there is no indication that any of the dyes enhances the photo-bleaching effect of FR14.

In the oral proceedings too the Appellants conceded that the synergistic effect can only be achieved for specific lightness values L lying between 86 and 92.

As the effect is dependent on the reference used for comparison and has only been shown for very specific conditions which are encompassed but not reflected by the wording of Claim 1, said effect cannot be taken into account over the whole breadth of Claim 1.

- 1.3.4 The Appellants additionally referred to the experiments shown in E2.

The table on page 3/24 of E2 refers to the percentage of removal of blue dye by light and FR14 (1st column) as well as of tea stain by washing and light in combination with FR14 (2nd column) on cotton.

Since the combination of FR14 and Direct Blue 71 (DB71) leads to inferior results than DB71 alone (1st column) and the combination of FR14 and AB29 produces an inferior result than FR14 alone (2nd column), the first table of E2 does not demonstrate an unexpected effect.

The Appellants argued that the wavelength of 420 nm used for the measurement of the removal of stain does not represent the impression to the human eye for which the combination of dyes would be perceived as

improvement of the whitening. However, no proof was submitted in this respect.

- 1.3.5 The table on page 4/24 of E2 addresses the removal of Red component and refers to the a (green or red) and the b (blue or yellow) values of AB29, DB71, FR14 and the combination of FR14 with each of these blue dyes. According to the Appellants the experiments show that the blue dye is highly effective at synergistically masking the red colour of the reactive red dye on the cloth.
- 1.3.6 Although the data were already submitted in the opposition phase, this argumentation was not repeated during the entire appeal proceedings and only mentioned again in the course of the oral proceedings, which amendment to Appellant's case took the Respondent by surprise.
- 1.3.7 But even if the Appellants' arguments were considered as being presented in time, they could not be taken into account for the following reasons:
- 1.3.8 The present invention relates to "photo-bleaching of products" (paragraph [0001]), in particular to "photo-bleaching a textile" (paragraph [0012]), i.e. that bleaching is done by exposure of the textile to light (paragraph [0013]). The aim of the patent-in-suit to obtain a "**bleached** textile with enhanced whiteness" (paragraph [0006], emphasis added) has to be read in this context.

According to the Appellants, the effect described on page 4/24 of E2 relates to the **masking of the red**

colour which only appears after washing **prior to exposure to light**, i.e. when taking the cloth out of the washing machine. This is in line with the description of the experiment wherein the cotton is dried in the **dark**.

However, such a masking effect **prior** to exposure to light has not been originally disclosed and it cannot be taken into account.

1.3.9 Therefore no unexpected or surprising effect has been shown for the claimed composition and the problem of the patent-in-suit has to be re-defined as the provision of a photo-bleaching composition alternative to the one of D1.

1.4 The question which remains to be clarified is whether the claimed subject-matter is obvious to a person skilled in the art when starting from D1.

1.4.1 The closest state of the art, D1, does not teach to add a blue dye to the composition to enhance whiteness. Therefore, the claimed subject-matter is not derivable from D1 when taken alone.

1.4.2 However, it was generally known from e.g. D12, that the addition of blue to a fabric which may have become slightly yellow in washing renders it more pleasing to the eye. Also, a combination of a blue and a red dye should be used in washing compositions to improve the appearance of a stained cloth. Considering the teaching of D1 together with the general knowledge of D12, the use of a combination of the claimed two dyes is considered to be obvious.

1.4.3 The fact that the amount and kind of dyes have not been characterized in D12 is of no relevance, as no effects have been proven in this respect for the compositions of the patent-in-suit.

1.5 Thus, the subject-matter of Claim 1 of the main request does not involve an inventive step.

2. Auxiliary request

2.1 In Claim 1 of the auxiliary request, the red and the blue dye have been defined more precisely compared to Claim 1 of the main request.

2.2 However, D1 teaches that the use of xanthene dyes such as phloxine and Rose Bengale (column 3), acid and direct blue dyes are commonly known. Also for this more narrow definition no effect has been demonstrated by the Appellants. Consequently the same reasoning as for Claim 1 of the main request and the consequences thereof apply.

2.3 Claim 1 of the auxiliary request does therefore not involve an inventive step either.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar

The Chairman

D. Magliano

G. Santavicca