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D E C I S I O N
of 14 September 2005

Case Number: T 0880/03 - 3.2.05

Application Number: 94105699.6

Publication Number: 0620116

IPC: B41J 2/01

Language of the proceedings: EN

Title of invention:
Ink-jet textile printing ink, ink-jet printing process and instrument making use of the same, and processed article obtained

Patentee:
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Opponents:
Ciba Specialty Chemicals Holding Inc.
Kimberly-Clark Worldwide, Inc.

Headword:
-

Relevant legal provisions:
EPC Art. 54, 123(2), 83

Keyword:
"Sufficiency of disclosure (yes)"
"Novelty (main request, second and third auxiliary request; no)"
"Allowability of amendments (first auxiliary request; no)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0880/03 - 3.2.05

D E C I S I O N
of the Technical Board of Appeal 3.2.05
of 14 September 2005

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Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted 3 July 2003 concerning maintenance of European patent No. 0620116 in amended form.**

Composition of the Board:

Chairman: W. Moser
Members: P. E. Michel
W. R. Zellhuber

Summary of Facts and Submissions

I. Appellants I and II (opponents 01 and 02) lodged appeals against the interlocutory decision of the Opposition Division maintaining European patent No. 0 620 116 in amended form.

In the decision under appeal, it was held that the grounds of opposition submitted by the appellant did not prejudice the maintenance of the patent as amended.

II. Oral Proceedings were held before the Board of Appeal on 14 September 2005.

III. Appellants I and II requested that the decision under appeal be set aside and that the European patent No. 0 620 116 be revoked in its entirety.

The respondent (patentee) requested as a main request that the appeal be dismissed. As an auxiliary measure, the respondent requested that the decision under appeal be set aside and that the patent be maintained on the basis of the following documents:
(a) claims 1 to 15 presented as first auxiliary request during oral proceedings; or
(b) claims 1 to 15 presented as second auxiliary request during oral proceedings, which were filed as first auxiliary request on 17 August 2005; or
(c) claims 1 to 15 presented as third auxiliary request during oral proceedings.

IV. Claim 1 of the main request of the respondent (as maintained by the Opposition Division) reads as follows:

"1. An ink-jet textile printing ink comprising at least a reactive dye and a hydrolyzate thereof in a total amount of from 2 to 30wt%, and water, wherein the content of the hydrolyzate is within a range of from 1 to 50wt% based on the weight of the reactive dye in the ink."

Claim 1 of the first auxiliary request of the respondent differs from claim 1 of the main request in that the words "wherein the content of the hydrolyzate is within" are replaced by "wherein the hydrolyzate is added within".

Claim 1 of the second auxiliary request of the respondent reads as follows:

"1. An ink-jet textile printing ink comprising at least a reactive dye selected from the group consisting of C.I. Reactive Yellow 2, 15, 37, 42, 76 and 95, C.I. Reactive Red 21, 22, 24, 31, 33, 45, 58, 111, 112, 114, 180, 218 and 226, C.I. Reactive Blue 15, 19, 21, 38, 49, 72, 77, 176, 203 and 220, CI. Reactive Orange 5, 12, 13 and 35, C.I. Reactive Brown 7, 11, 33 and 46, C.I. Reactive Green 8 and 19, C.I. Reactive Violet 2, 6 and 22, C.I. Reactive Black 5, 8, 31 and 39 and a hydrolyzate thereof in a total amount of from 2 to 30wt%, and water, wherein the content of the hydrolyzate is within a range of from 1 to 50wt% based on the weight of the reactive dye in the ink."

Claim 3 of the third auxiliary request of the respondent reads as follows:

"3. An ink-jet printing process comprising applying an ink to a cloth in accordance with an ink—jet system, subjecting the cloth to a reactively fixing treatment and then washing the cloth thus treated to remove an unreacted dye wherein the ink comprises at least a reactive dye and a hydrolyzate thereof in a total amount of from 2 to 30wt%, and water, wherein the hydrolyzate is added to be contained within a range of from 1 to 50% by weight based on the weight of the reactive dye in the ink and the cloth comprises cellulose fibers and/or polyamide fibers."

V. The following documents are referred to in the present decision:

C1: EP-A-0 534 428

C10: "Identifizierung organischer Verbindungen LXVIII. Chromatographie und Elektrophorese von Vinylsulfon-(Sulfoester)-Reaktivfarbstoffen", Cee and Gasparic, Collection Czechoslov. Chem. Commun., Vol. 33 (1968), pages 1091 to 1099

C18: Colour Index International, Third Edition (Fourth Revision), Volume 9, 1992, pages 5435 and 5436

VI. In written and oral proceedings, appellants I and II argued essentially as follows:

The person skilled in the art is not enabled to carry out the invention in the light of the disclosure of the patent in suit. It is not possible to distinguish between hydrolyzate which would be present in any case in an aqueous solution of a reactive dye and hydrolyzate which is added to the solution. The person skilled in the art is thus not in a position to know

whether or not hydrolyzate is to be added and in what quantity.

Claim 1 of the main request lacks novelty in view of the disclosure of document C1. The only point at issue is whether or not the hydrolyzate of the dye is present within a range of from 1 to 50wt% based on the weight of the reactive dye in the ink. However, all reactive dyes contain hydrolyzate in such an amount, and the hydrolyzate is not normally removed. Document C10 indicates that the hydrolyzate is present in an amount of between 15 and 35wt%.

The subject-matter of claim 1 of the first auxiliary request extends beyond the content of the application as filed. In particular, there is no disclosure in the application as filed of the feature of claim 1 according to which "the hydrolyzate is added within a range of from 1 to 50wt% based on the weight of the reactive dye in the ink."

Claim 1 of the second auxiliary request lacks novelty in view of the disclosure of document C1. Reactive Red 184 is merely representative of reactive dyes in general. The analysis of document C10 applies to the remaining specified dyes, including Black B, as mentioned at page 1095 of document C10, and used in document C1, where it is referred to as C.I. Reactive Black 5 (c.f. page 5, line 13).

The subject-matter of claim 3 of the third auxiliary request lacks novelty in view of the disclosure of document C1. Hydrolyzate which is added to the ink cannot be distinguished from hydrolyzate which is

already present. The printing process is the same as that of the prior art.

VII. In written and oral proceedings, the respondent argued essentially as follows in respect of the issues which must be decided:

Claim 1 of the main request is directed to a product *per se*. The description including the Examples of the patent in suit provides sufficient information regarding the preparation of the product. The person skilled in the art is thus enabled to carry out the invention in the light of the disclosure of the patent in suit.

The prior art does not disclose a textile printing ink which contains a reactive dye in combination with a hydrolyzate.

The person skilled in the art would have taken steps to remove reaction products of the dye prior to preparation of the ink. Since it was known that hydrolyzates do not contribute to dyeing of textile fibres, they would be removed as impurities in order to obtain a good image density.

Whilst document C1 does not contain an explicit disclosure of hydrolyzate removal, it was accepted in the art that this would be necessary. In addition, the presence of glycol and a pH of 8.1 as used in Example 1 in document C1 would prevent the formation of hydrolyzates.

The subject-matter of claim 1 of the main request is thus novel.

The subject-matter of claim 1 of the first auxiliary request is disclosed in the application as filed, in particular at page 4, lines 30 and 31. The reference to "the limited range" should be understood as referring to the range specified in claim 1, that is, "in an amount of 1 to 50% by weight based on the weight of the reactive dye".

The subject-matter of claim 1 of the second auxiliary request is novel. All dyes are different as far as their tendency to hydrolyse is concerned. Since Reactive Red 184 is no longer claimed, there is no evidence that the remaining dyes specified in the claim contain a hydrolyzate in the specified amount.

The subject-matter of claim 3 of the third auxiliary request is novel. The reference in the claim to the hydrolyzate being added should be construed as requiring that the hydrolyzate is manufactured separately and then added. The ink is distinguished over that of the prior art by the manufacturing step of adding the hydrolyzate.

Reasons for the Decision

1. *Main Request*

1.1 Disclosure of the invention

It is suggested by appellant I that, in view of paragraph [0028] of the description of the patent in suit, it is an essential feature of the invention that a hydrolyzate or other reaction product is prepared, purified and then added to the ink. However, taking the disclosure of the patent in suit as a whole, the person skilled in the art would understand that it was merely necessary to ensure that the hydrolyzate or other reaction product was present in the ink. As described at paragraphs [0032] to [0034] of the patent in suit, a hydrolyzate can be formed by reacting the dye with an alkali metal and a reaction product of polyhydric alcohol can be formed by reacting the dye with a polyhydric alcohol.

The person skilled in the art would also be able to obtain the reaction product in the specified quantity of from 1 to 50wt% based on the weight of the reactive dye in the ink. In this connection, reference may be made to the Examples of the patent in suit.

The person skilled in the art is thus enabled to carry out the invention in the light of the disclosure of the patent in suit.

1.2 Novelty

Document C1 discloses an ink-jet textile printing ink (see page 2, line 5), comprising a reactive dye in an amount of from 2 to 30wt% and water (see Examples).

In document C10 at page 1096, lines 5 to 9, it is disclosed that an analysis of twelve commercially available reactive dyes revealed that the dyes were present in three forms, the hydrolyzate form being present in amounts between 15 and 35%.

The Board is accordingly of the opinion that at least the reactive dyes mentioned in document C10 contain hydrolyzate within a range of from 1 to 50wt% based on the weight of the reactive dye in the ink. It is noted that, as an example, document C10 analyses the dye known under the commercial name of Remazol Black B (page 1095). As indicated in document C18 at page 5435, this dye is also known under the generic name of C.I. Reactive Black 5. This dye is included among the dyes listed in document C1 at page 5, line 13 as being examples of suitable dyes and is used in particular in the ink-jet textile printing ink of Example 15 of document C1.

It was suggested on behalf of the respondent that hydrolyzates would be removed from the ink as a matter of course. There is, however, no evidence that this is the case. In particular, document C1 provides a disclosure of the preparation of the ink, in particular in the Examples, including stirring the aqueous mixture for 2 hours, followed by filtration. The Board is of the opinion that, if a hydrolyzate removal step were

considered necessary, it would have been mentioned either in document C1, for example in the Examples, or in a general text book.

Whilst it is disclosed in document C1 at page 5, lines 22 and 23, that impurities may be removed if necessary, the term "impurities" is understood as referring to, for example, undissolved matter, and is not intended to refer to hydrolyzates, and it is noted that a similar purification step is proposed in the patent in suit at paragraph [0035].

Thus, whilst it is accepted that hydrolyzates are unreactive and have no colouring properties, nevertheless it is not conventional practice in general to attempt to remove the hydrolyzates from the ink.

Whilst glycols are present in the Examples of document C1, they are also present in the Examples of the patent in suit. Similarly, whilst Example 1 of document C1 specifies a pH of 8.1, achieved by the use of sodium hydroxide, it is noted that, according to Preparation Example 1 of the patent in suit, sodium hydroxide is also added.

The subject-matter of claim 1 of the main request is thus not novel in view of the disclosure of document C1, referring in particular to the ink of Example 15, which contains the reactive dye C.I Reactive Black 5.

2. *First auxiliary request*

2.1 Amendments

Claim 1 as amended according to the first auxiliary request specifies that "the hydrolyzate is added within a range of from 1 to 50wt% based on the weight of the reactive dye in the ink."

The only reference in the application as filed to the hydrolyzate being added occurs in the sentence at page 4, lines 30 and 31, according to which "it is important to add the hydrolyzate or reaction product within the limited range".

It cannot, however, be accepted that this should be construed to mean adding the hydrolyzate within a range of from 1 to 50wt% based on the weight of the reactive dye in the ink. If this were the case, since the reactive dye initially contains hydrolyzate, the sentence would be inconsistent with the remainder of the disclosure, including claim 1, which refers to the ink containing hydrolyzate "within a range of from 1 to 50wt% based on the weight of the reactive dye in the ink." The specified amount of hydrolyzate in the ink thus includes hydrolyzate present initially in the dye as well as that which is subsequently formed in aqueous solution and/or added.

Accordingly, the feature that "the hydrolyzate is added within a range of from 1 to 50wt% based on the weight of the reactive dye in the ink" was not contained in the application as filed.

The amendment to claim 1 of the first auxiliary request thus extends beyond the content of the application as filed, contrary to the requirements of Article 123(2) EPC.

3. *Second auxiliary request*

3.1 Novelty

Claim 1 has been restricted to a list of specified dyes which exclude C.I. Reactive Red 184. The remaining specified dyes include, however, C.I. Reactive Black 5. It is considered, as discussed under point 1.2 above, that this dye contains hydrolyzate within a range of from 1 to 50wt% based on the weight of the reactive dye in the ink.

The subject-matter of claim 1 of the second auxiliary request is thus not novel in view of the disclosure of document C1.

Whilst the respondent offered, during oral proceedings, to amend claim 1 of the second auxiliary request by the deletion of dyes mentioned in document C10 from the list of dyes specified in the claim, the Board was of the opinion that the appellants were not in a position to deal appropriately with such an amendment at the oral proceedings. Accordingly the offered amendment was not taken into consideration for reasons of procedural fairness.

4. *Third auxiliary request*

4.1 Novelty

Document C1 discloses an ink-jet printing process comprising applying an ink to a cloth comprising cellulose fibers in accordance with an ink—jet system (see page 2, lines 5 to 9). The cloth is subjected to a reactive fixing treatment and then washed to remove unreacted dye (see page 6, lines 5 to 10). The ink comprises a reactive dye in a total amount of from 5 to 30wt% (see page 5, lines 28 to 30), and water.

As discussed above under point 1.2, the Board is of the opinion that the reactive dye as used in the ink-jet textile printing inks of document C1 contain hydrolyzate within a range of from 1 to 50wt% based on the weight of the reactive dye in the ink. However, it is not possible to distinguish between hydrolyzate which was initially present in the dye and any hydrolyzate added to the ink. Thus, the reference in claim 3 to hydrolyzate being "added to be contained within a range of from 1 to 50% by weight based on the weight of the reactive dye in the ink" cannot serve to distinguish the subject-matter of the claim from the disclosure of document C1.

It was argued on behalf of the respondent that the claim is distinguished over the prior art by the step of manufacturing the ink by adding the hydrolyzate. It is, however, noted that the claimed process does not include the manufacture of the ink and is merely concerned with the use of the prepared ink in an ink-

jet printing process comprising applying the ink to a cloth.

The subject-matter of claim 3 of the third auxiliary request is thus not novel in view of the disclosure of document C1.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

S. Sanchez Chiquero W. Moser