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D E C I S I O N
of 23 November 2004

Case Number: T 0627/03 - 3.2.5

Application Number: 98200496.2

Publication Number: 0864420

IPC: B41C 1/10

Language of the proceedings: EN

Title of invention:

Heat-sensitive imaging element for making positive working
printing plates

Patentee:

AGFA-GEVAERT N.V.

Opponent:

KODAK POLYCHROME GRAPHICS LLC

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56, 84, 123(2)

Keyword:

"New requests (admitted)"

"Added subject-matter, main request (no)"

"Clarity and support, main request (approved)"

"Novelty and inventive step, main request (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 0627/03 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 23 November 2004

Appellant: KODAK POLYCHROME GRAPHICS LLC
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Representative: VOSSIUS & PARTNER
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Respondent: AGFA-GEVAERT N.V.
(Proprietor of the patent) Septestraat 27
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Representative: -

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 13 March 2003
rejecting the opposition filed against European
patent No. 0864420 pursuant to Article 102(2)
EPC.

Composition of the Board:

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

Summary of Facts and Submissions

- I. The appellant (opponent) lodged an appeal against the decision of the Opposition Division rejecting the opposition against the European patent No. 0 864 420.
- II. The Opposition Division held that the grounds for opposition submitted by the appellant under Article 100(a) EPC (lack of novelty, Article 54 EPC, and lack of inventive step, Article 56 EPC), Article 100(b) EPC, and Article 100(c) EPC did not prejudice the maintenance of the patent in suit as granted.
- III. Oral proceedings were held before the Board of Appeal on 23 November 2004.
- IV. The appellant requested that the main request and the auxiliary requests 1 to 7 filed by the respondent (patent proprietor) on 13 October 2004 be disregarded, and that the decision under appeal be set aside and that the European patent No. 0 864 420 be revoked. As an auxiliary measure, the appellant requested that the date for oral proceedings be postponed.

(The said main request and auxiliary requests 1 to 7, had been filed by telefax on 13 October 2004, whilst the confirmation in written form was filed on 15 October 2004. The latter date is indicated in the minutes of the oral proceedings as the filing date of these requests.)

The respondent requested that the decision under appeal be set aside and that the patent be maintained on the basis of the following documents:

(i) claims 1 to 8 presented as main request during oral proceedings; or

(ii) claims 1 to 9, respectively filed as first, second, third, fourth, fifth, sixth and seventh auxiliary requests on 13 October 2004.

V. Claim 1 according to the main request reads as follows:

"1. A heat-sensitive imaging element for making a lithographic printing plate comprising on a lithographic base having a hydrophilic surface a hydrophobic layer which is soluble in an aqueous alkaline solution having a pH between 7.5 and 14, which is a visible light- or UV-desensitized layer and comprises a polymer that is soluble in said aqueous alkaline solution and a top layer that is sensitive to IR-radiation, which, upon image-wise IR-laser exposure, has a decreased or increased capacity for being penetrated and/or solubilised by said aqueous alkaline solution."

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

D1: GB-A 1 245 924

D2: EP-A 0 803 771

D3: EP-A 0 720 057

D8a: WO-A 97/39894

P1: US 60/040408, priority document of the patent in suit

VII. In the written procedure and during oral proceedings, the appellant argued essentially as follows:

Filing of new requests

The submission of the respondent filed with the EPO on 13 October 2004, comprising a main request and auxiliary requests 1 to 7, had been received in the office of the appellant's representative on 21 October 2004. These requests had not been submitted as soon as possible, but at the last moment without giving any reasons for that late filing. Furthermore, the claims contained new subject-matter which had not been claimed before. Accordingly, the whole work, eg. additional searches and tests, would have had to be done again, and there had not been enough time for doing that. Finally, none of the requests of the respondent, at a first glance, appeared formally allowable, because the claims of each of these requests contained subject-matter which went beyond the disclosure of the application as filed.

Therefore, the main request and auxiliary requests 1 to 7 of the respondent should be disregarded.

Added subject-matter (Article 123(2) EPC)

The application as filed did not disclose the feature of claim 1 of the main request that the hydrophobic layer **and** the polymer were soluble in an aqueous alkaline solution. Furthermore, according to claim 1 of the main request, the hydrophobic layer was soluble in an aqueous alkaline solution rather than in aqueous alkaline developing solution as disclosed in the application as filed. Moreover, the features cited on page 4, lines 20 to 25 of the application as filed (insolubility or partial solubility in water, hydrophobic layer not comprising photosensitive ingredients) further characterized the imaging element according to the patent in suit and were thus essential features. They had had to be fully introduced into the independent claim.

Claim 1 of the main request thus gave rise to an extension beyond the disclosure of the application as filed. Therefore, the requirements of Article 123(2) EPC were not met.

Clarity and support (Article 84 EPC)

Furthermore, the feature "soluble in an aqueous alkaline solution" of claim 1 of the main request was not clear. Solubility of a layer or compound in a solution depended of a number of parameters and conditions (temperature, time, layer thickness, composition of the solution etc.), and neither of them were specified in claim 1 of the main request.

Claim 1 of the main request was not supported by the description of the patent in suit as amended according to the main request. In the first sentence of paragraph [0045] on page 5, lines 40 and 41 of the patent in suit, the pH-value of the aqueous alkaline solution was not indicated, contrary to the respective specification of the aqueous alkaline solution in claim 1 of the main request.

An imaging element according to claim 1 of the main request, wherein "... the IR-radiation sensitive top layer can be partially solubilised in the aqueous alkali soluble layer upon exposure", as indicated on page 4, lines 46 and 47 of the description of the patent in suit, did not work.

Consequently, claim 1 of the main request was neither clear nor supported by the description, thus contravening the requirements of Article 84 EPC.

Priority

According to priority document P1, page 6, lines 24 to 26, the aqueous alkaline soluble layer was preferably a visible light- or UV-desensitized layer that is thermally hardenable and ink-accepting. These features were thus not disclosed independently of each other. Claim 1 of the main request solely comprising the feature "visible light- or UV-desensitized layer" could thus not benefit from the priority date of 11 March 1997.

Novelty

The subject-matter of claim 1 of the main request was disclosed in each of the documents D1, D2, D3, and D8a.

In example 15 on page 9, document D1 disclosed an imaging element comprising a hydrophobic resin layer, type novolac, and a heat-sensitive top layer. As could be inferred from the patent in suit as granted (cf. example 4 on pages 7 and 8 of the description, claims 7 and 11), novolacs were visible light- or UV-desensitized polymers soluble in an aqueous alkaline solution. Furthermore, the top layer comprised gelatin and carbon black, cf. document D1, page 9, lines 66 to 68, and page 6, lines 110 to 116, and was thus identical to that according to the patent in suit, cf. page 4, line 11 of the patent in suit as granted.

Document D2 also disclosed an imaging element comprising a thermosensitive layer containing nitrocellulose (cf. page 3, line 49), which was also preferred as a top layer binder resin according to the patent in suit (cf. page 4, lines 13 and 14 of the patent in suit as granted). Since the same chemical compounds were used, the top layer according to document D2, upon image-wise exposure, would show a decreased or increased capacity for being penetrated and/or solubilized by an aqueous alkaline solution. Furthermore, the imaging element according to document D2 comprised an intermediate layer, cf. page 4, lines 9 to 20. Suitable binders for use in that layer were polyvinyl phenols, which were also preferred compounds for the hydrophobic binder of the imaging element according to the patent in suit as granted (cf. page 4,

lines 35 and 36). According to page 8, lines 5 and 6 of document D2, the photosensitive layer might be UV-sensitive **or** sensitive to the short wavelength part of the visible spectrum, and thus visible light- or UV-desensitized.

The imaging element according to document D3 also comprised a top layer as disclosed in document D2 and the patent in suit. Moreover, the imaging element according to document D3 (cf. page 32, lines 41 to 43, 46 and 47, and example 8) comprised a hydrophobic interlayer, which was soluble in an aqueous alkaline solution and UV-desensitized (transparent to light of a wavelength below 500 nm, cf. page 32, lines 41 and 42 in connection with page 4, lines 28 to 29). Due to the open wording of claim 1 of the main request ("... comprising..."), the presence of additional layers, for example a photosensitive layer on the lithographic base, was not excluded from the scope of the claim.

Document D8a disclosed an imaging element comprising a visible light and UV-desensitized hydrophobic layer and an infrared radiation absorbing compound, cf. page 5, lines 8 to 17. The latter might be provided as an additional layer thus disclosing a two-layer construction as claimed in claim 1 of the main request.

The subject-matter of claim 1 of the main request was thus not novel.

Inventive step

Document D3 represented the closest prior art. The object was to provide printing plates which were not

sensitive to UV-light or to short-wave visible light. The patent in suit, cf. paragraph [0010], referred to the disadvantages of photosensitive plates and made mention that the trend towards heat-sensitive printing plates had been clearly seen on the market.

A person skilled in the art would thus avoid any photosensitive layer and would omit that layer in the imaging element as disclosed in document D3. He would thus arrive at an imaging element as claimed in claim 1 of the main request. Moreover, document D1 suggested providing such printing plates having a heat-sensitive layer.

VIII. In the written procedure and during oral proceedings, the respondent argued essentially as follows:

Filing of new requests

The requests filed on 13 October 2004 had been submitted in due time and had been substantiated. Consequently, the case law concerning late filed requests should not apply. There was no reason for disregarding these requests.

Added subject-matter (Article 123(2) EPC)

As regards the requirements of Article 123(2) EPC, the subject-matter of claim 1 of the main request was disclosed in the application as filed. It was clear for a person skilled in the art that, for a layer being soluble to aqueous alkaline solution, the binder used in the layer had to be soluble. The binders referred to in the application as filed were polymers, which were

soluble in an aqueous alkaline solution having a pH-value between 7.5 and 14.

Claim 1 of the application as filed referred to an aqueous alkaline solution without explicitly indicating that that solution was a developing solution. However, the latter was self-evident; adding the word "developing" in the term "soluble in an aqueous alkaline solution having a pH between 7.5 and 14" would not change the subject-matter of the claim.

The passage on page 4, lines 20 to 22 of the application as filed concerned further features of the binder. There was no reason for introducing these features or any other features pertaining to embodiments of the invention into claim 1 of the main request.

Clarity and support (Article 84 EPC)

The feature that a substance was soluble in a specific solution was commonly used, and, for a person skilled in the art, had a clear meaning. Moreover, claim 1 of the main request defined the technical field and made clear that the subject-matter for which protection was sought was a product adapted to be used in a specific application (imaging element for making a lithographic printing plate). The subject-matter of claim 1 of the main request was thus clear.

Claim 1 of the main request was also supported by the description. Also a partial solubility in an aqueous alkaline solution allowed the top layer to function as a developing barrier layer. The respective passage on

page 4, lines 26 to 27 of the patent in suit was not in contradiction to the subject-matter of claim 1 of the main request. As regards the objection raised by the appellant in connection with the passage in paragraph [0045], page 5, lines 40 and 41 of the patent in suit, the second sentence in that paragraph clearly indicated that the pH-value of the aqueous alkaline solution was within the range claimed in claim 1 of the main request.

Claim 1 according to the main request thus met the requirements of Article 84 EPC.

Priority

The feature of a layer being a visible light- or UV-desensitized layer had nothing to do with the layer being thermally hardenable. Whilst example 1 of priority document P1 concerned an imaging element, wherein the hydrophobic layer was visible light- and UV-desensitized (homopolymer of polyvinylphenol), but not thermally hardenable, example 3 concerned an imaging element, wherein the hydrophobic layer was thermally hardenable, but, containing the UV-sensitive compound Triazine S, not UV-desensitized. Consequently, it was directly and unambiguously derivable from the disclosure of priority document P1 that the two features in question, i.e. visible light- or UV-desensitized, on the one hand, and thermally hardenable, on the other, were not linked to each other.

The subject-matter of claim 1 of the main request thus did not go beyond the disclosure of priority document P1.

Novelty

The important feature of the developer-resistance of the top layer was implicitly present in claim 1 of the main request. If the change of solubility of the top layer would not start from or result in a top layer that showed at least some solubility difference with the soluble hydrophobic layer, then the complete coating would dissolve in the developer regardless of exposure, and no image would be obtained.

Document D1 concerned an imaging element wherein the hydrophobic layer, upon exposure, became soluble in an aqueous alkaline solution. Document D1 referred to a specific way for producing such a hydrophobic layer of the type novolac, cf. example 15 in combination with example 9. A covering layer was applied thereto. As regards its solubility or penetrability, it did not show any switching effect due to IR-laser exposure. It was highly soluble in an alkaline developer, and, during processing, the covering layer was completely removed. It thus did not function as a developer-resistant layer.

Documents D2 and D3 disclosed imaging elements having a photosensitive lower layer and an ablative top layer. The latter, upon exposure, formed an optical mask for the subsequent UV flood exposure of the underlying lower layer. The lower layer comprised o-quinone diazide, which, as generally known, inhibited the layer

from being soluble in an aqueous alkaline solution. Moreover, documents D2 and D3 related to imaging elements comprising diazo compounds which were sensitive to UV and visible light.

The intermediate layer referred to in Document D2 was a hydrophilic layer, cf. page 4, lines 13 to 16. Document D3 suggested providing a hydrophobic interlayer between the photosensitive layer and the top layer. However, that interlayer in combination with a top layer as disclosed in document D3, which is soluble in an aqueous alkaline developing solution and removed during processing (cf. page 21, line 57 to page 22, line 6, page 33, lines 47 to 48, and claim 1) did not give rise to a working imaging element.

Document D8a made mention of a two-layer structure, however, it did not disclose a construction as claimed in claim 1 of the main request, i.e., on a hydrophilic base, a soluble hydrophobic layer and thereon a top layer.

Consequently, none of the cited documents disclosed an imaging element as claimed in claim 1 of the main request.

Inventive step

The subject-matter of claim 1 of the main request was not rendered obvious by the cited prior art.

Admittedly, the fact that a photosensitive lithographic plate required handling under safe-light conditions had already been known. Document D3 solved that problem by

providing an ablatable light shielding layer, cf. page 34, lines 17 to 20. But there was no suggestion, either in document D3 or in document D1, that by taking off the photosensitive layer in an imaging element as disclosed in document D3, a workable imaging element could be produced.

Documents D2 and D8a had been published after the priority date of the patent in suit and, therefore, had not to be considered when assessing inventive step.

Reasons for the Decision

1. *Procedural matters*

Claim 1 of the main request is identical to claim 1 of the main request which was filed on 13 October 2004 together with auxiliary requests 1 to 7. These requests had been submitted more than one month before the date of the oral proceedings, thus before the date set by the Board for filing any further submissions.

These requests were substantiated with regard to the main issues (priority, novelty and inventive step) and were filed in response to objections and remarks contained in the provisional opinion of the Board of 13 July 2004 annexed to the summons to attend oral proceedings.

In the Board's judgement, the independent claims of these requests, at a first glance, did not seem to introduce new objections under the EPC.

The subject-matter of the independent claims of these requests does not diverge considerably from the subject-matter of the claims of the patent in suit as granted. The appellant has not identified any features in the claims which had not been claimed before and which would have required additional searches and/or tests.

Consequently, in the Board's judgment, filing of these requests on 13 October 2004 accompanied by arguments with regard to essential issues such as priority, novelty and inventive step is in line with the general rules of respect and fairness and does not represent an abuse of process. Therefore, these requests had been admitted into the appeal proceedings.

Since there was one month left for the appellant for preparing the oral proceedings, and since the appellant has not identified any new features in the claims which would have required additional searches and/or tests which could not have been carried out within this period, the auxiliary request of the appellant that the date for oral proceedings be postponed was rejected for lack of substantiation.

Main request

2. *Added subject-matter (Article 123 EPC)*

- 2.1 The subject-matter of claim 1 is disclosed in the published version of the application as filed in claims 1 and 2 in connection with the description, in particular the passage on page 4, lines 16 to 20 and the examples 1, 2, 5, and 6 on pages 5, 6, 8, and 9.

2.1.1 Whilst the wording of claim 1 of the application as filed leaves open whether, in the feature of claim 1 "... element ... comprising ... a hydrophobic layer comprising a polymer, soluble in an aqueous alkaline solution and a top layer ...", the term "soluble" is related to the hydrophobic layer, or to the polymer comprised in that layer, or to both, claim 1 of the main request defines the hydrophobic layer and the polymer as being soluble in an aqueous alkaline solution.

On page 4, lines 16 to 18 of the application as filed (published version), there is an explicit disclosure of the hydrophobic layer being soluble in an aqueous alkaline developing solution.

Examples 1, 2, 5 and 6 in the application as filed describe positive working thermal plates based on an alkali-soluble binder. The alkali-soluble binders used for the hydrophobic layer in these embodiments are polymers, namely a homopolymer of polyvinylphenol and a cresol novolac, respectively (cf. page 6, lines 8 and 9, and page 8, lines 35 and 36, respectively, of the published version of the application as filed), which, accordingly, are soluble in an aqueous alkaline solution. The hydrophobic layers which are soluble in an aqueous alkaline solution, cf. page 6, lines 37 and 38, and 49 and 50, and page 9, lines 3 to 5 and 16 to 18 of the application as filed (published version), thus comprise a polymer which is soluble in an aqueous alkaline solution.

This is also in line with the common general knowledge of a person skilled in the art, namely that, in

general, in order for a layer to be soluble in a solution, the binder used in that layer must be soluble in that solution.

On page 4, lines 18 to 20 of the application as filed (published version), hydrophobic binders used in a hydrophobic layer which is soluble in an aqueous alkaline solution, are listed, and suitable polymers including those of examples 1, 2, 5, and 6 are mentioned.

In the Board's judgement, supported by the disclosure of examples 1, 2, 5 and 6 and taking into account common general knowledge, a person skilled in the art would understand from the passage on page 4, lines 16 to 20 of the application as filed (published version), that the hydrophobic binders used in the hydrophobic layer, which is soluble in an aqueous alkaline solution, are polymers which are soluble in an aqueous alkaline solution. An imaging element wherein the hydrophobic layer and the polymer comprised in that layer are soluble in an aqueous alkaline solution is thus directly and unambiguously derivable from the disclosure of the application as filed.

2.1.2 Furthermore, claim 1 of the application as filed refers to an "aqueous alkaline solution", rather than to an "aqueous alkaline developing solution". The Board observes that both terms are used as equivalents in the application as filed (published version), cf. page 3, lines 54 to 56, page 4, lines 16 to 18, and page 5, lines 20 to 27.

2.1.3 Finally, claim 2 of the application as filed discloses the feature of the hydrophobic layer being a visible light- or UV-desensitised layer independently of the feature that the layer is thermally hardenable.

2.1.4 The subject-matter of claim 1 of the main request is thus disclosed in the application as filed.

There is no indication that the features cited on page 4, lines 20 to 25 of the published version of the application as filed (insolubility or partial solubility in water, hydrophobic layer not comprising photosensitive ingredients such as diazo compounds, etc) were essential features of the invention. The fact that, in the application as filed, these features are only cited in the description and the dependent claims (cf. claim 7 of the application as filed) shows that these features concern particular embodiments of the hydrophobic layer.

2.2 Dependent claims 2 to 7 of the main request correspond to claims 3 to 6, 8 and 9, respectively, of the application as filed, wherein the additional feature of claim 7 (top layer comprising a silicone resin) is disclosed on page 3, line 53 of the application as filed (published version). The features of claim 8 of the main request are disclosed in claim 10 of the application as filed.

The description of the patent in suit was amended to bring it in line with the subject-matter of claim 1 of the main request.

In the Board's judgement, the amendments had been made in accordance with the requirements of Article 123(2) EPC.

2.3 Furthermore, the scope of protection conferred by independent claim 1 is more limited than that of the corresponding independent claim 1 of the patent in suit as granted.

2.4 The patent in suit as amended thus meets the requirements of Article 123(2) and (3) EPC.

3. *Clarity and support by the description (Article 84 EPC)*

The property of a layer, a compound, or a polymer being soluble in a specific solution is a feature which is commonly used. In the present case, the solution is defined as an aqueous alkaline solution having a pH between 7.5 and 14. Furthermore, claim 1 of the main request indicates the technical field and defines the purpose for which the element is adapted to be used (heat-sensitive imaging element for making a lithographic printing plate). These indications thus put the meaning of the claim, in particular, the solubility feature, in a specific context, namely that the hydrophobic layer has to be soluble in that solution to an extent that an imaging element can be obtained. In the Board's judgement, for a person skilled in the art, the subject-matter of claim 1 is clear.

As regards the question of whether or not the claims of the main request are supported by the description, the Board agrees to the statements of the respondent as

summarized above with respect to that issue, cf. point VIII under the heading "*Clarity and support (Article 84 EPC)*".

The claims of the main request thus meet the requirements of Article 84 EPC.

4. *Priority*

According to page 6, lines 24 to 26 of priority document P1, the "aqueous alkali soluble layer is preferably a visible light- or UV-desensitized layer that is thermally hardenable and ink-accepting". Example 1 of the priority document, cf. pages 8 and 9, discloses an imaging element comprising a hydrophobic layer of a homopolymer of polyvinylphenol, cf. page 9, first full paragraph. In the absence of any further ingredients, in particular photosensitive compounds, that layer is a visible light- and UV-desensitized, but not a thermally hardenable layer. Example 3 of the priority document, cf. pages 10 and 11, describes an imaging element, wherein the hydrophobic layer is thermally hardenable, cf. page 10, penultimate paragraph, but, as containing the UV-sensitive compound Triazine S, cf. same paragraph, not UV-desensitized. These facts were not in dispute.

Accordingly, it is directly and unambiguously derivable from the disclosure of priority document P1 that visible light- or UV-desensitized, on the one hand, and thermally hardenable, on the other, are features which are applied independently from each other.

The subject-matter of claim 1 of the main request, which includes one of these features, thus benefits from the priority of 11 March 1997. Documents D2 and D8a were published on 29 October 1997 and 30 October 1997, respectively, and thus after the priority date of the patent in suit. On the other hand, due to the priorities claimed in respect of the applications disclosed in these documents, documents D2 and D8a represent state of the art pursuant to Article 54(3) EPC. Thus, they are not to be considered when assessing inventive step (cf. Article 56 EPC).

5. *Novelty*

5.1 According to established case law, cf. Case Law of the Board of Appeals of the European Patent Office, fourth edition 2001, II.B.4.1, a person skilled in the art should try, with synthetical propensity, i.e. building up rather than tearing down, to arrive at an interpretation of the claim which is technically sensible and takes into account the whole disclosure of the patent (Article 69 EPC). The patent must be construed by a mind willing to understand, not a mind desirous of misunderstanding.

5.2 Claim 1 of the main request concerns an element having a specific layer structure, namely, on a lithographic base having a hydrophilic surface, a hydrophobic layer and a top layer, and which functions as a heat-sensitive imaging element for making a lithographic printing plate. Accordingly, when defining the subject-matter of claim 1 of the main request, it has to be taken into consideration that the element and its compounds have to be adapted for use for that purpose.

In order to make a lithographic printing plate having a hydrophobic layer on a hydrophilic surface, the element must be adapted in such a way that, in accordance with the image to be printed, the element, after developing, contains hydrophobic and hydrophilic surface areas.

According to claim 1 of the main request, the element comprises a hydrophobic layer which is soluble in an aqueous alkaline solution having a pH between 7.5 and 14. That layer is thus adapted to be dissolved by that solution thereby exposing the hydrophilic surface underneath.

The hydrophobic layer is provided, according to claim 1 of the main request, in combination with a top layer which is sensitive to IR-radiation, and, upon image-wise IR-laser exposure, has a decreased or increased capacity for being penetrated and/or solubilised by said aqueous alkaline solution. The top layer is thus adapted to allow the aqueous alkaline solution to come into contact with the hydrophobic layer, either in the IR-laser exposed or in the non-exposed parts of the element. In other words, the top layer is adapted to function upon image-wise IR-laser exposure as a developer-resisting mask for the hydrophobic layer, as described in detail on page 4, lines 15 to 29 and page 5, lines 40 to 47 of the patent in suit as granted.

- 5.3 In the Board's judgement, an element comprising, on a hydrophilic surface, a hydrophobic layer and a top layer, as defined in claim 1 of the main request, thereby giving rise to an imaging function, is not

disclosed in any of the documents belonging to the cited prior art.

- 5.3.1 Document D1, cf. example 15 on page 9 in connection with examples 1 and 9 on pages 6 and 8, respectively, discloses an element which can be used as a positive offset printing plate. The element comprises a layer of cresol-formaldehyde resin, type novolac, and a covering layer. After exposure of the heat-sensitive material of the element to a flash light (cf. example 1), the complete covering layer is removed with running water. Subsequently, the element is rinsed in an aqueous alkaline solution, whereby the exposed areas of the cresol-formaldehyde resin layer dissolve.

Accordingly, document D1 teaches an element, wherein, upon exposure of the element to flashlight, the resin layer becomes soluble in an aqueous alkaline solution. Document D1 is silent about a covering layer which, upon image-wise IR-laser exposure, has a decreased or increased capacity for being penetrated and/or solubilised by that aqueous alkaline solution.

Admittedly, according to example 15 of document D1, the resin layer is a novolac type resin layer, and the covering layer comprises gelatin, which, in the patent in suit as granted, cf. page 4, lines 11 and 36, respectively, are suggested as binders for the hydrophobic layer and the top layer, respectively.

However, in the Board's judgement, the fact that, in the patent in suit, these materials are cited as suitable binders for the respective layers, does not allow the conclusion that the element as claimed in

claim 1 of the main request is not novel. In the patent in suit as granted, these materials (novolac type resin, gelatin) are listed in two respective lists of suitable materials for the respective layers, cf. page 4, lines 11 to 14, and lines 34 to 37, respectively. Furthermore, the patent in suit as granted discloses a number of different embodiments allowing different materials to be used in different constellations, cf. page 4, lines 15 to 29 of the patent in suit as granted. The patent in suit as granted, however, does not suggest an imaging element comprising these materials, i.e. novolac type resin and gelatin, in combination in the respective layers.

Furthermore, it is not directly and unambiguously derivable from the disclosure of document D1 that, contrary to its own teaching, the resin, type novolac, according to example 15, before exposure, is soluble in an aqueous alkaline solution, or that the covering layer, either in the exposed or in the non-exposed parts, is adapted to prevent the resin layer from being dissolved in that aqueous alkaline solution.

5.3.2 Document D2 concerns an imaging element comprising a photosensitive layer and a thermosensitive top layer. That top layer upon IR-laser exposure is ablatable and, after image-wise exposure, functions as an optical mask during the flood exposure of the photosensitive layer with light to which that layer has spectral sensitivity, cf. abstract. Photosensitive layers preferred according to document D2 are UV-sensitive, cf. page 3, lines 53 and 54. Development is carried out by a suitable liquid capable of removing either the exposed or non-exposed areas of the photosensitive layer. The appropriate

composition of a developing liquid, preferably, is such that, during development, the thermosensitive layer and an optional intermediate layer are removed at the same time, cf. page 8, lines 12 to 15. Particular suitable developing liquids for use with the preferred photosensitive coatings are aqueous alkaline solutions, cf. page 8, lines 18 to 25.

Consequently, in the element according to document D2, the visible light- or UV-sensitive hydrophobic layer is adapted for, upon exposure, having a decreased or increased capacity for being solubilised in an aqueous alkaline solution, thereby giving rise to an imaging function.

Document D2 thus does not disclose an element comprising a visible light- or UV-desensitized hydrophobic layer which is soluble in an aqueous alkaline solution, in combination with a top layer which, upon exposure, has a decreased or increased capacity for being solubilised in that aqueous alkaline solution, thereby functioning as a barrier layer and giving rise to an imaging function.

- 5.3.3 Document D3, which discloses an imaging element similar to that of document D2, suggests providing a hydrophobic interlayer between a photosensitive layer and a thermosensitive, light-shielding top layer. The function of that interlayer is to prevent "the high intensity light-absorptive material or photosensitive wavelength-absorptive material from diffusive migration to an adjacent layer during or after manufacturing", cf. page 32, lines 40 to 44.

As with the imaging element of document D2, development is carried out by dissolving out either the exposed or non-exposed areas of the photosensitive layer, wherein the thermosensitive, light-shielding layer is removed at the same time, cf. page 33, lines 39 to 49, and Figure 1(d).

Consequently, also in the element according to document D3, it is the visible light- or UV-sensitive hydrophobic layer, which, upon exposure, has a decreased or increased capacity for being solubilised in an aqueous alkaline solution thereby giving rise to an imaging function.

Document D3 thus does not disclose an element, wherein a visible light- or UV-desensitized hydrophobic layer, which is soluble in an aqueous alkaline solution, in combination with a top layer, which, upon IR-laser exposure, has a decreased or increased capacity for being solubilised in that aqueous alkaline solution, give rise to an imaging function.

- 5.3.4 Document D8a discloses an imaging element comprising an oleophilic, heat-sensitive layer, wherein, upon image-wise heating, the aqueous alkaline solubility of that layer is increased, cf. abstract and claims 1 and 5. An additional layer comprising a radiation absorbing compound can be disposed beneath the oleophilic layer, cf. page 6, lines 1 to 4, and claim 24. According to the passage on page 15, lines 10 to 19, dyes, metals and pigments may be used in the form of vapour deposited layers, wherein preferred components are those that are hydrophilic.

Document D8a thus does not disclose an imaging element having a layer structure as defined in claim 1 of the main request, namely on a hydrophilic surface, a soluble hydrophobic layer and thereon a top layer sensitive to IR-radiation.

5.3.5 The other documents cited in the course of the appeal procedure also do not disclose such an imaging element according to claim 1 of the main request. As regards these documents, novelty was in fact not in dispute.

5.4 To sum up, an element comprising a hydrophobic layer soluble in an aqueous alkaline solution and a top layer which has a decreased or increased capacity for being penetrated and/or solubilised by said solution, thereby giving rise to an imaging function, is not disclosed in any of the documents belonging to the prior art. Actually, document D1 concerns an element where a hydrophobic layer is used which is not soluble in said solution, and in documents D2 and D3 a photo-sensitive layer gives rise to the formation of an image.

The subject-matter of claim 1 of the main request is thus novel within the meaning of Article 54 EPC.

6. *Inventive step*

The patent in suit concerns a heat-sensitive imaging element for making a lithographic printing plate, thus avoiding the disadvantages of the commonly known photosensitive imaging elements, cf. paragraphs [0001] and [0010] of the patent in suit as granted. In the Board's judgement, document D1, which concerns a heat-sensitive imaging element, represents the closest prior

art, rather than document D3, which concerns a photosensitive imaging element, cf. claim 10 of document D3.

An object of the patent in suit is to provide a heat-sensitive imaging element for making lithographic printing plates having excellent printing properties, developable in a convenient ecological way, cf. page 3, lines 40 and 41 of the patent in suit as granted.

The gist of the patent in suit is that a hydrophobic layer which is soluble in an aqueous alkaline solution is used in combination with a top layer, which, upon image-wise exposure, locally changes its solubility or penetrability in that solution, thus acting as a barrier layer which prevents penetration of that solution into the underlying hydrophobic layer.

The imaging element according to claim 1 of the main request, which is adapted for being used in such a system, is not suggested in the prior art documents which have to be taken into consideration as regards the issue of inventive step.

The prior art describes systems for making a lithographic printing plate, wherein the image to be printed is formed by locally modifying the solubility of the hydrophobic layer in a developing solution. According to document D1, cf. page 1, lines 47 to 63, a heat-sensitive recording layer is used which, upon locally heating, becomes locally soluble in a developing solution. According to document D3, cf. abstract, a modification of the solubility of a hydrophobic layer is achieved by exposure of a

hydrophobic photosensitive layer to light active to the photosensitive layer using a light-shielding top layer as an optical mask.

In the imaging element according to document D3, the photosensitive layer is an essential layer necessary for forming an image. There is no indication in document D3 that the photosensitive layer can be omitted, or that the interlayer referred to on page 32, lines 40 to 49 may, in combination with the light shielding top layer, give rise to an imaging effect.

Therefore, the subject-matter of claim 1 according to the main request involves an inventive step within the meaning of Article 56 EPC. The subject-matter of claims 2 to 8, which are appendant to claim 1, similarly involve an inventive step.

7. Consequently, the auxiliary requests of the respondent need not be considered.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain the patent on the basis of the following documents presented during oral proceedings:
 - (a) claims 1 to 8 as main request; and

 - (b) description, pages 2 to 8.

The Registrar:

The Chairman:

M. Dainese

W. Moser