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**Datasheet for the decision
of 15 December 2014**

Case Number: T 2393/10 - 3.3.06

Application Number: 04016020.2

Publication Number: 1464487

IPC: B41C1/10, B41M5/36

Language of the proceedings: EN

Title of invention:

Positive photosensitive composition and positive
photosensitive lithographic printing plate

Applicant:

AGFA GRAPHICS NV
Eastman Kodak Company

Headword:

Photosensitive lithographic printing plate/AGFA

Relevant legal provisions:

EPC Art. 123(2), 76(1), 84

Keyword:

Admissibility of amended claims filed with the statement of grounds of appeal - (yes)
Amendments - added subject-matter (no - claim 1)
Claims - clarity after amendment (yes - claim 1)
Remittal to the department of first instance - (yes)

Decisions cited:

T 0032/82

Catchword:



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Case Number: T 2393/10 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 15 December 2014

Appellant:
(Applicant)

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Representative:

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Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted on 2 June 2010
refusing European patent application No.
04016020.2 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: B. Czech

Members: E. Bendl

S. Fernández de Córdoba

Summary of Facts and Submissions

- I. The appeal lies from the decision of the examining division to refuse European patent application no. 04 016 020.2.
- II. The refused application is a divisional application, hereinafter referred to as "the application", of the European patent application 97 113 521.5, hereinafter referred to as "the parent application".
- III. Claim 1 according to the sole request then pending before the examining division reads as follows (emphasis added by the board):

"1. Method of making a positive photosensitive lithographic printing plate material which is capable of being operated under white light containing ultraviolet light, said method comprising the steps of

- graining an aluminium support by brush polishing or by electrolytic etching in a hydrochloric acid or nitric acid solution,*
- anodising the grained aluminium support in a sulfuric acid solvent,*
- coating a solution of a positive photosensitive composition in a solvent on the grained and anodised aluminium support, and*
- drying,*

wherein said composition shows, upon scanning exposure to light in the wavelength range from 650 to 1300 nm, a difference in solubility in an alkali developer between an exposed portion and a non-exposed portion and wherein said composition comprises as components inducing the difference in solubility (a) a light absorbing dye having an absorption band covering a part or whole of the wavelength region of from 650 to 1300

nm as a photo-thermal conversion material and (b) a high molecular compound of which the solubility in an alkali developer is changeable mainly by a change other than a chemical change."

- IV. In its decision the examining division concluded that said claim 1 was objectionable under Article 84 EPC due to the unclear feature "*change other than a chemical change*", ambiguities in wording due to the possibility of a "*photoacid generator*" being present in the photosensitive composition and because of the purely functional definition of the polymer.

In an *obiter dictum* the examining division remarked *inter alia* that the requirements of Article 76(1) EPC were not met since the definition of the dye to be used was more restricted in the parent application than in claim 1 of the application in suit. In this connection, the examining division also opined that "it seems impossible to overcome the objection under Article 84 EPC without violating Article 123(2) EPC".

- V. With its statement setting out the grounds of appeal the appellant filed two sets of amended claims as main request and auxiliary request, and an amended description page 10. The appellant rebutted the arguments of the examining division, arguing *inter alia* that the requirements of Articles 84 and 76(1) EPC were met. Additionally it submitted several documents supposed to establish the meaning to be given to the expressions "hydrogen bonds" and "*chemical change*", including document

D10: "Printing Materials: Science and Technology", B. Thomson, Pira International, 1998, pages 78 to 93.

Claim 1 according to said newly filed main request reads as follows (amendments made to the previously pending claim 1 made apparent by the board):

"1. Method of making a positive photosensitive lithographic printing plate material ~~which is capable of being operated under white light~~, said method comprising the steps of

- graining an aluminium support ...,
- anodising the grained aluminium support ...,
- coating a solution of a positive photosensitive composition in a solvent on the **surface of the grained and anodised aluminium** support, and
- drying,

wherein said composition shows, upon scanning exposure to light in the wavelength range from 650 to 1300 nm, **by a change other than a chemical change, an increase a difference** in solubility in an alkali developer **at the** ~~between an exposed portion and a non-exposed portion~~ so that an image can be formed by an alkali developer, and wherein said composition comprises as **essential** components inducing **said increase** ~~the difference~~ in solubility

- (a) a light absorbing dye having an absorption band covering a part or whole of the wavelength region of from 650 to 1300 nm as a photo-thermal conversion material and
- (b) **an alkali-soluble resin which is selected from a novolak resin, a resol resin, a polyvinyl phenol resin and a copolymer of an acrylic acid derivative** ~~a high molecular compound of which the solubility in an alkali developer is changeable mainly by a change other than a chemical change.~~"

Claims 2 to 10 according to said main request are dependent on claim 1.

- VI. With its letter of 22 February 2013, the appellant filed three sets of claims as main request (unchanged, wording of claim 1 quoted under V *supra*), first auxiliary request (comprising a further amended claim 1) and second auxiliary request (renumbered previous first auxiliary request).
- VII. The arguments of the appellant of relevance here, i.e. regarding compliance of claim 1 according to the main request at issue with requirements of Article 84, 76(1) and 123(2) EPC, can be summarised as follows:
- The expression "*chemical change*" was to be understood as a synonym of "chemical reaction".
 - The breaking/forming of hydrogen bonds was not a chemical change.
 - The change in solubility of the printing plate material referred to in claim 1 of the main request was essentially caused by components (a) and (b) and not by a photo-acid generator possibly present.
 - In claim 1 as amended according to the main request at issue the resin (b) used for the coating was no longer only defined by functional features.
 - UV-insensitivity of the dye was not an essential feature according to the application as filed and hence did not need to be incorporated into claim 1.

- Claim 1 as amended found basis in the application as filed as well as in the parent application as filed.

VIII. The appellant requested that the decision under appeal be set aside and a patent be granted on the basis of the claims according to the main request or, alternatively, on the basis of the claims according to one of the first or second auxiliary request, all requests filed with letter of 22 February 2013.

IX. On 9 December 2014 the rapporteur contacted the appellant by telephone and outlined the preliminary opinion of the board that claim 1 of the main request at issue was considered to meet the requirements of Articles 76(1), 84 and 123(2) EPC and that therefore the board intended to remit the case to the examining division for continuation of the examination procedure.

The appellant welcomed the board's preliminary finding and the intention to remit the case. In its letter of confirmation of 10 December 2014, the appellant also expressly withdrew its request for oral proceedings.

Reasons for the Decision

Admissibility of the new main request

1. The expression "*changeable mainly by a change other than a chemical change*" was only objected to in the third communication issued by the examining division, said objection reading as follows: "A change other than a chemical change may be for example a physical change, e.g. a change in the state of aggregation or a phase change. Note that a photochemical change by irradiation

with light is considered a chemical change since new chemical compounds that induce solubility are formed. Moreover, as it stands now claim 1 defines the high molecular compound by its functionality and not by its chemical formula(s). Therefore, the applicant is kindly requested to amend claim 1 in such a way to clearly define said high molecular compound" (page 1, last paragraph of the communication).

- 1.2 Although thereafter the appellant repeatedly took position in writing regarding *inter alia* the issue of clarity (letters dated 27 July 2009, 6 January 2010 and 31 March 2010), the examining division issued no further communication comprising a more detailed argumentation prior to handing down the decision under appeal.
- 1.3 The set of claims according to the main request at issue could in theory already have been filed before the examining division. However, the board accepts that the fully detailed reasoning of the examining division, was only available to the appellant upon receipt of the reasoned decision. Therefore, the statement of grounds of appeal was the first possibility for the appellant to adequately react to the detailed reasoning set out in the impugned decision. Moreover, amended claim 1 according to the main request at issue is no longer objectionable (see *infra*) on the grounds invoked by the examining division.
- 1.4 Therefore, the board decided to admit the main request into the procedure (Articles 114(2) EPC and 12(4) RPBA).

Clarity - Claim 1 according to the main request

2. The examining division refused the application on the ground that claim 1 then on file (see III, *supra*) lacked clarity (Article 84 EPC) and gave three distinct reasons:

- i) It was not clear what a "*change other than a chemical change*" was. The forming/breaking of hydrogen bonds was a chemical change.
- ii) The features of the then pending claim 1 reading "*changeable mainly by a change other than a chemical change*" did not provide any clear distinction over the prior art (heat-sensitive plates with a composition comprising a photo-acid generator). More particularly, claim 1 was unclear since its wording excluded neither a chemical change in the plate nor the presence of a photo-acid generator.
- iii) The definition of the high molecular compound (b) in the then pending claim 1 reading "*of which the solubility in an alkali developer is changeable mainly by a change other than a chemical change*" was purely functional and merely defined a desired resulting behaviour "rather than defining the essential composition/features/structure of this compound".

3. For the board, the clarity of claim 1 in its further amended wording according to the main request now at issue, is not, or no longer, objectionable for said three reasons in view of the following considerations:

3.1 Ad reason i)

3.1.1 Most of the evidence submitted by the appellant to establish a definition of the expression "*chemical change*" was published after the priority date of the application in suit. However, the Board also became aware of document

D9 = Hawley's Condensed Chemical Dictionary,
11th ed., Van Nostrand Reinhold, New
York, 1987, page 250,

which contains the following definition:

"chemical change" *Rearrangement of the atoms, ions or radicals of one or more substances resulting in the formation of new substances often having entirely different properties. Such a change is called a chemical reaction. [...] Chemical changes should be distinguished from physical changes in which only the state or condition of a substance is modified its chemical nature remaining the same. [...] Examples [...] are:*

Chemical changes

fuel + oxygen -> CO₂ + water + heat (exothermic)

water + CO₂ + energy -> sugar + oxygen (endothermic)

Physical changes

water to ice or steam [...]".

3.1.2 Hence, the board is convinced that the skilled person reading claim 1 and taking into account common general knowledge as illustrated by D9 understands, even without having to refer to the description, that the method according to claim 1 requires an increase in solubility of the photosensitive composition, which is **not** caused by a **chemical reaction** and that, therefore,

the compounds involved do not change in terms of their chemical nature.

3.1.3 The board's understanding of the expression "*chemical change*" is also consistent with the further indications contained in the description in this respect. More particularly, the description of the application in suit defines specific examples and a non-example of a "*chemical change*". Reactions like the decomposition of a compound (paragraph [0018] of the A2 publication), reactions initiated by a photo-acid generator, a radical initiator, a cross-linking agent or a sensitizer (paragraph [0009]) are referred to as chemical change, whereas a change in conformation (paragraph [0020]) is presented as a non-chemical change (paragraph [0107]). These indications are thus in line with the general definition given in D9.

3.1.4 The board is satisfied that the skilled person reading claim 1 at issue is in a position to distinguish a change in solubility brought about by a chemical change involving a chemical reaction from a change in solubility brought about without a chemical reaction.

Hence, in the board's judgement, no lack of clarity arises from the expression "*change other than a chemical change*" as such.

3.1.5 Reason i) given by the examining division also takes into account the explanations provided by the applicant with regard to the mechanism possibly underlying the change in solubility achieved according to the invention, i.e. the mere formation/breakage of hydrogen bonds. The examining division regarded the formation/breaking of hydrogen bonds as a "*chemical change*" and hence considered that the appellant's explanations

corroborated the view that claim 1 lacked clarity considering that a change in solubility due to hydrogen bond formation/breakage was excluded by the wording of claim 1.

The board, however, observes that the examining division did not provide any proof corroborating its position, let alone a prior art document or a document illustrating common general knowledge showing that the skilled person would consider that the expression "*chemical change*", as used in the context of claim 1, could also refer to the mere formation/breakage of hydrogen bonds.

- 3.1.6 Quite to the contrary, the board accepts the appellant's argument that the skilled person would indeed consider the formation/breaking of hydrogen bonds as a physical change and not as a chemical change. This is, for instance, apparent from document D10, submitted by the appellant. In D10 "hydrogen bonding" is not considered as a type of "chemical bonding" (described on pages 78 to 90) but is expressly presented as a special case of "physical bonds" (page 90, heading "Physical bonds" to page 92, penultimate paragraph).

D10 is a general handbook for the printing industry (see the indication "... International printing guide" on the cover page). Although D10 was published in 1998, i.e. after the priority dates claimed by the application at issue, the board, considering the very basic nature of the information presented on the quoted pages as regards chemical and physical bonding has no doubt that this specific information belonged to common general knowledge even prior to the first priority date claimed.

3.2 Ad reason ii):

3.2.1 The board notes that the wording of claim 1 (see "*composition comprises...*") does not exclude the additional presence of some photo-acid generator in the composition.

3.2.2 However, even in that case claim 1 in its present wording expressly requires that the sought-after "*increase in solubility*" of the composition upon exposure is induced by the essential components (a) and (b) of the composition by a change other than a chemical change, i.e. by a non-chemical change.

3.2.3 Whether or not a photo-acid generator contributes to distinguish the claimed method from prior art disclosures and provides a corresponding technical effect is not an issue of clarity, but rather of novelty and inventive step.

3.2.4 Therefore, in the board's judgement, the fact that the presence of a photo-acid generator is not excluded by the wording of claim 1 does not *per se* render claim 1 unclear.

3.3 Ad reason iii):

3.3.1 The third reason given by the examining division regarding lack of clarity of claim 1 was that the definition of resin (b) to be used according to claim 1 then on file was purely functional.

3.3.2 By virtue of the amendments made, claim 1 now at issue no longer defines the alkali-soluble resin used as component (b) in functional terms only. Claim 1 at

- issue additionally requires that said resin, which is one of the essential components of the composition inducing the increase in solubility, must be *"selected from a novolak resin, a resol resin, a polyvinyl phenol resin and a copolymer of an acrylic acid derivative"*.
- 3.3.3 Already for this reason alone, reason iii) given by the the examining division no longer applies.
- 3.4 Therefore, in the board's judgement, none of the three reasons given in the decision under appeal in substantiation of the clarity objection raised under Article 84 EPC against the then pending claim 1 is tenable with respect to claim 1 according to the main request at issue.
4. In its statement of grounds of appeal (point 4, second paragraph) the appellant identified an inconsistency between the description and claim 1 at issue: Whereas claim 1 at issue merely requires *"a light absorbing dye having an adsorption band covering a part or whole of the wavelength region of from 650 to 1300 nm as a photo thermal conversion material"*, it is stated on page 10, lines 18 to 19 of the application as filed that (emphasis added) *"the light absorbing dye **to be used** in the present invention is a compound which effectively absorbs light in a wavelength region of from 650 to 1300 nm, **while it does not substantially absorb, or absorbs but is not substantially sensitive to, light in an ultraviolet region, and which will not modify the photosensitive composition by a weak ultraviolet ray which may be contained in white light**"*.
- 4.1 The appellant held that this inconsistency "would be a problem of lack of support" under Article 84 EPC. Considering that "the UV-insensitivity of the dye is

not an essential feature of the invention in the application as filed", it held this problem was overcome by the amended description page 10 filed with the statement of grounds, according to which said UV-insensitivity is merely presented as a preferred feature.

4.2 Concerning the question of whether or not said UV-insensitivity is presented as an essential feature in the application as filed, the board observes the following:

4.2.1 On page, first paragraph, of the application as filed the **general** object of the invention is defined as follows: *"it is an object of the present invention to provide a positive photosensitive composition and a positive photosensitive lithographic printing plate, which are simple in their construction, which are suitable for direct recording by e.g. a semiconductor laser or YAG laser and which have high sensitivity and excellent storage stability"*.

In the next but one paragraph it is stated that *"a **further** object of the present invention is to provide a photosensitive material and a positive photosensitive lithographic printing plate, which do not require an operation under yellow light and whereby the operation can be carried out under usual white light containing ultraviolet light"* (emphasis added).

Thus, from those two passages it does not clearly emanate whether the insensitivity to ultraviolet light is a general goal of the invention or only relates to a preferred embodiment.

4.2.2 More details regarding this issue can be gathered from page 10, second full paragraph, of the application as filed, which reads as follows (emphasis added by the board):

"Now, the photo-thermal conversion material (hereinafter referred to as a light-absorbing dye) as the first component used for the positive photosensitive composition of the present invention, will be described. **This material is not particularly limited** so long as it is a compound capable of converting absorbed light to heat. However, it is **preferably** a light-absorbing dye (a) having an **absorption band covering a part or whole of a wavelength region of from 650 to 1300 nm**. The light-absorbing dye to be used in the present invention is a compound which effectively absorbs light in a wavelength region of from 650 to 1300 nm, while it does not substantially absorb, or absorbs but is not substantially sensitive to, light in an ultraviolet region, and which will not modify the photosensitive composition by a weak ultraviolet ray which may be contained in white light."

Thus, given the statement that the dye material is "not particularly limited" and that the specific absorption band covering wavelengths "from 650 to 1300 nm" defines a preferred embodiment, the board concludes that the additional non-sensitivity of the dye at given wavelengths defines another, even more preferred, i.e. more limited, alternative embodiment. Hence, the features relating to UV-insensitivity are not presented as being essential for performing the invention.

4.2.3 This finding is also corroborated by examples 1 to 10, 61 to 67, which refer to operation under a yellow lamp. In view of the teaching given in paragraph [0006] the

lithographic printing plates referred to in these examples thus appear to be sensitive to UV-light.

- 4.2.4 Hence, in the board's judgement, features defining an absence of or low sensitivity of the dye used to ultraviolet light are not presented as being essential for the invention and do not, consequently, need to be incorporated into the wording of the independent claim 1. Or, in other words, the fact that claim 1 does not contain such features does not make it objectionable under Article 84 EPC for lack of clarity or lack of support.

Allowability of the amendments - Main request - Claim 1

5. Basis for claim 1 in the parent application as filed Article 76(1) EPC
- 5.1 In its "additional comments" included as *obiter dicta* in the appealed decision (see item IV), the examining division held that according to the parent application (page 10, lines 18 to 25) the light absorbing dye to be used had to meet the additional criterion reading "*...while it does not substantially absorb, or absorbs but is not substantially sensitive to, light in an ultraviolet region, and which will not modify the photosensitive composition by a weak ultraviolet ray which may be contained in white light*".

Since this limitation was not present in claim 1 (point III, *supra*) according to the then pending request, the examining division took the view that the requirement of Article 76(1) EPC was not met.

- 5.2 The board does not concur with this view. As pointed out by the appellant, in the parent application as

filed (claims 1 and 2; page 1, lines 6 to 8; page 10, lines 10 to 18) a "light-absorbing dye having an absorption band covering part or whole of a wavelength region of from 650 to 1300 nm" is mentioned, without restriction, as suitable photo-thermal conversion material.

The fact that said criterion was not included in claim 1 at issue is thus not objectionable under Article 76(1) EPC.

- 5.3 Moreover, the board is satisfied that claim 1 of the main request at issue is fairly based on the disclosure of the parent application. More particularly, it finds basis the following parts of the parent application as filed: Claims 1, 2, 13, 15, page 41, lines 1 to 2, page 42, line 8 to page 43, line 8, page 29, line 21 to page 30, line 3.

In the board's judgement, claim 1 according to the main request at issue is thus not objectionable under Article 76(1) EPC.

6. Basis for claim 1 in the application as filed
Article 123(2) EPC

- 6.1 The board is also satisfied that claim 1 at issue finds basis in the application as filed, more particularly in the following parts thereof:
Page 1, lines 6 to 8, and lines 13 to 14; page 6, lines 3 to 11, 18 to 20; page 10, lines 10 to 18; page 29, line 21 to page 30, line 3; page 41, lines 1 to 2; page 42, line 8 to page 43, line 8.

6.2 Thus, in the board's judgement, claim 1 according to the main request is not objectionable under Article 123(2) EPC.

Remittal to the department of first instance

7. In the decision under appeal, compliance of the subject-matter of the dependent claims with Articles 76(1) and 123(2) EPC, and pending issues of sufficiency of disclosure, validity of the claimed priorities, novelty and inventive step were not addressed at all, or only in *obiter dicta*. Considering also that the wording of claim 1 was significantly amended in response to the decision under appeal, the board considers it appropriate to remit the case to the examining division for further prosecution (Article 111(1) EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance for further prosecution.

The Registrar:

The Chairman:



D. Magliano

B. Czech

Decision electronically authenticated