



Case Number: T 0994/97 - 3.3.6

D E C I S I O N
of 8 January 2002 correcting errors in the decision
of the Technical Board of Appeal 3.3.6
of 24 August 2001

Appellant: Du Pont de Nemours (Deutschland) GmbH
(Opponent) Dornhofstr. 10
D-63263 Neu-Isenburg (DE)

Representative: Pistor, Wolfgang, Dr. Dipl.-Chem.
Patentanwälte
Lippert, Stachow, Schmidt und Partner
Frankenforster Strasse 135-137
D-51427 Bergisch Gladbach (DE)

Respondent: AGFA-GEVAERT N.V.
(Proprietor of the patent) Septestraat 27
B-2640 Mortsel (BE)

Representative: -

Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office posted 17 July 1997
concerning maintenance of European patent
No. 0 427 892 in amended form.

Composition of the Board:

Chairman: P. Krasa
Members: G. N. C. Rath
C. Rennie-Smith

In application of Rule 89 EPC the decision given in case T 994/97 on 24 August 2001 is hereby corrected as follows:

In the table on page 10:

16	C ₂ H ₅	H	C ₂ H ₅	CH ₂ COO ⁻ Na ⁺	H	H
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is replaced by

16	CH ₃	H	C ₂ H ₅	CH ₂ COO ⁻ Na ⁺	H	H
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and

17	CH ₃	H	CH ₃	CH ₂ COO ⁻ Na ⁺	H	H
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is replaced by

17	C ₂ H ₅	H	CH ₃	CH ₂ COO ⁻ Na ⁺	H	H
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and

22	C ₂ H ₅	H	C ₂ H ₅	CH ₂ COOH bis(dbu)	H	phenyl
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is replaced by

22	C ₂ H ₅	H	C ₂ H ₅	CH ₂ COOH bis(dbu)	H	CH ₃ O
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The Registrar:

The Chairman:

J 
G. Rauh


P. Krasa

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(C) [] To Chairmen
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D E C I S I O N
of 24 August 2001

Case Number: T 0994/97 - 3.3.6

Application Number: 89202880.4

Publication Number: 0427892

IPC: G03C 1/26

Language of the proceedings: EN

Title of invention:
Spectrally sensitized silver halide emulsions

Patentee:
AGFA-GEVAERT N.V.

Opponent:
Du Pont de Nemours (Deutschland) GmbH

Headword:
Merocyanine dyes/AGFA-GEVAERT

Relevant legal provisions:
EPC Art. 56, 111(1), 114(1), 123

Keyword:
"Admissibility of an objection raised by the Board (main request) - yes"
"Remittal to first instance (auxiliary request 1) - no"
"Singling out (auxiliary requests 2, 6) - not admissible"
"Reformatio in peius (auxiliary requests 3, 3bis, 4, 4bis, 5, 5bis) - yes"
"Inventive step (auxiliary request 7) - yes; singling out (admissible); provision of specific compounds (non obvious)"

Decisions cited:
G 0010/91, G 0001/99, T 0341/92, T 0859/94, T 0615/95,
T 0050/97

Headnote:
Re reformatio in peius see points 4 and 5 of the Reasons for the Decision.



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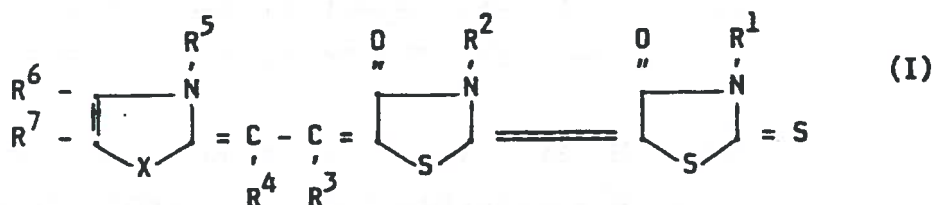
Summary of Facts and Submissions

I. This appeal is from the Opposition Division's interlocutory decision maintaining in amended form European patent No. 0 427 892 relating to spectrally sensitized silver halide emulsions. In a notice of opposition, the Appellant (Opponent) requested revocation of the patent on the grounds of lack of inventive step based, inter alia, on the following documents:

- (A3) Riedel-deHaën, "Photofarbstoffe PINA^R", 1989
- (A4) US-A-3 682 640
- (A5) H. Meier, "Spectral Sensitization", London and New York, The Focal Press, 1986
- (A6) H. Zwicky, "Einführung in die Technologie photographischer Schichten", November 1979
- (A8) English translation of JP-A-63 280 243
- (B3) Letter Riedel-deHaën of 12.09.1988 to Du Pont de Nemours
- (B5) F.Varescon, Du Pont de Nemours, "Versuchsbericht", 17 August 1995
- (B9) H. Zwicky, Eidesstattliche Versicherung, 28 October 1996.

II. The six claims of the patent as granted were those as originally filed; those parts of Claims 1 and 2 necessary for the purpose of this decision read:

"1. Method of forming a silver image comprising image-wise exposing by means of a light source emitting light in the wavelength range of from 600 to 690 nm a photographic material comprising a light-sensitive silver halide emulsion incorporating at least one trinuclear merocyanine dye spectrally sensitizing said emulsion for said wavelength range or for a substantial part of said wavelength range, and wet-processing the exposed photographic material with aqueous developing or activating solutions and fixing solutions, thereby dissolving away said dye from the resulting silver-image-containing material, wherein said dye corresponds to one of the following general formulae I and II :



wherein:

X is -S- or -Se-,

at least 2 members of R¹, R², R³ and R⁴ - but R³ and R⁴ not together - stand for an organic radical carrying a water-solubilizing group in free acid form, in salt form, or in latent form, and are same or different, the members of R¹, R², R³ and R⁴ that do not represent a said organic radical carrying a water-solubilizing group standing for hydrogen, an alkyl group, a substituted alkyl group, an alkenyl group, a substituted alkenyl group, an aryl group, or a substituted aryl group,

R⁵ is an alkyl group,

2. A method according to Claim 1, wherein said organic radical carrying a water-solubilizing group is chosen from $-(\text{CH}_2)_n\text{-COOM}$, $-\text{C}_6\text{H}_4\text{-COOM}$, $-\text{CH}_2\text{-C}_6\text{H}_4\text{-COOM}$, $-(\text{CH}_2)_n\text{-SO}_3\text{M}$, $-\text{C}_6\text{H}_4\text{-SO}_3\text{M}$, $-\text{CH}_2\text{-C}_6\text{H}_4\text{-SO}_3\text{M}$, $-\text{CH}_2\text{-COO-CH}_2\text{-COO-R}^b$, $-\text{CH}_2\text{-COO-CH}_2\text{-COR}^b$, wherein n is a positive integer of from 1 to 4, M is hydrogen, ammonium, an alkali metal atom, or an organic amine salt and R^b is an alkyl group."

Dependent Claims 3 and 4 specify the amounts of the sensitizing dye; dependent Claims 5 and 6 specify the surface area ratio of the surface [1,0,0] to the total surface area of the silver halide particles of the silver halide crystals and the light source, respectively.

III. Claim 1 as maintained by the Opposition Division differed from Claim 1 as originally filed and as granted in that the passage after formula I and defining the symbols R^1 , R^2 , R^3 and R^4 read:

"X is -S- or -Se-, R^1 and R^2 , each stand for an organic radical carrying a water-solubilizing group in free acid form, in salt form, or in latent form, and are same or different, R^3 stands for an alkyl group, a substituted alkyl group, and R^4 is hydrogen,"

Claim 2 as maintained differed from Claim 2 as originally disclosed and as granted in that the water-solubilizing group was restricted to " $-(\text{CH}_2)_n\text{-COOM}$ " with n and M keeping their original meaning.

Dependent Claims 3 to 6 as maintained were not changed.

In its decision the Opposition Division found that the subject-matter of Claims 1 to 6 in the amended form was novel and inventive over documents (A4), (A5) and (A8).

IV. The Appellant filed an appeal; it no longer contested novelty but submitted that the subject-matter of Claim 1 did not involve an inventive step, in particular, in view of documents (A3), (A5), (A6), (A8), (B5), (B9); in support of its arguments it filed document

(B13) Letter Riedel-deHaën, 12 June 1990.

The Appellant submitted in summary the following arguments with respect to lack of inventive step:

- Starting from example II-10 of document (A8), which is an embodiment of the group of compounds defined by formula II of this citation, it was obvious to arrive at the compounds of formula (I) of the patent in suit. The symbol R_{12} of this formula II, corresponding to the symbol R^3 of formula I of the patent in suit, has the meaning carboxyphenyl for compound II-10, in which the residues corresponding to R^1 and R^2 of the compounds of the patent in suit were both carboxymethyl groups. As document (A8) itself suggested replacing this carboxyphenyl group by an alkyl group (page 6, paragraph 2), this structural change of the polymethine chain as stipulated in the patent in suit was obvious to a skilled person. The conclusion that the compounds of formula I of the patent in suit and their use as spectral sensitizers were obvious was corroborated by the facts that dye KF 641 and dye W 329, disclosed in documents (A3) and (B9) respectively,

also had carboxymethyl groups at the positions of R^1 and R^2 , and that dye KF 693 (found in document (B5)) possessed a methyl group at the position of R^3 .

- The Opposition Division should have considered document (A3) from which dye KF 641 was known as a sensibilization agent in the red spectrum having optimal residual colour stain properties and its formula was available (see document (B3)); dye KF 693 representing an embodiment of formula (I) of the patent in suit differed from dye KF 641 in that R^3 was methyl instead of hydrogen; its residual colour stain properties were at best equivalent to those of KF 641 (see document (B5)).
- The objective problem underlying the patent in suit was therefore the provision of an alternative compound according to formula (I) to be used as a sensibilization agent in the red spectrum with an optimized position for the maximum absorption and the maximum sensibilization.
- The measures to be taken by the skilled person were obvious in view of the existing common general knowledge:
- Substitution in the methine chain influences the absorption and the sensitizing property of polymethine dyes; the chief substituents used in substitution in the methine chain are, inter alia, methyl and ethyl groups (see document (A5), page 64, paragraph numbered 3); as to the substituents on the nitrogen atom, the carboxy groups were known to be water-solubilizing groups and sensitization improvers (document (A5), page 64, lines 2 and 3); dye KF 641 for instance had these carboxy groups at the positions R^1 and

R²; the skilled person would not change the arrangement of these groups; he would also consider other water-solubilizing groups than those mentioned in document (A5) (page 63, paragraph numbered 2) and document (A6) (page 120, table 12 and lines 3 to 5); finally, substitution on the condensed benzene rings was also known (see document (A5), page 63, paragraph numbered 1); this substitution concerns the positions R⁶ and R⁷ of the formula I of the patent in suit, which may form an annellated carbocyclic ring system, e.g. benzene, again with substituents R⁶ and R⁷ (patent in suit, page 4, lines 28 to 31).

V. The Respondent (Proprietor), which had requested accelerated examination by its letter of 11 October 2000, submitted in summary the following arguments:

- document (A8) did not give any hint that the replacement of carboxyphenyl by an alkyl group at the R³ position in dye II-10 would produce a beneficial effect;
- neither document (A3) nor document (A8) suggested modifying the structure of either dye KF 641 or the dye of example II-10 so as to arrive at the compounds of formula (I);
- the alkyl substitution at the R³ position was highly beneficial and resulted in a bathochromic shift of the absorption maximum and in increased speed which was not to be expected in view of documents (A5) and (A6).

In support of its arguments it filed comparative data and the document

(A10) J.Fabian, H. Hartmann, "Light Absorption of Organic Colorants", Theoretical Treatment and Empirical Rules, Springer Verlag, Berlin·Heidelberg·New York, 1980, 165-6.

VI. On 17 August 2001, shortly before the oral proceedings which took place on 24 August 2001, the Board issued a communication in which the parties were informed that Claim 1 as maintained by the Opposition Division had to be discussed in the light of Article 123(2) EPC.

VII. The Respondent filed new sets of claims as auxiliary requests which, to the extent necessary for the purpose of this decision, were as follows:

Auxiliary request 3

Claim 1 differed from Claim 1 as originally disclosed and as granted in that the passage "or a substituted aryl group, R⁵ is an alkyl group" was replaced by "or a substituted aryl group excluding for R³: hydrogen, aryl, substituted aryl and aryl carrying a water-solubilizing group R⁵ is an alkyl group".

Auxiliary request 3bis

Claim 1 differed from Claim 1 of auxiliary request 3 in that the passage "stand for an organic radical carrying a water-solubilizing group in free acid form, in salt form, or in latent form," was replaced by "are $-(CH_2)_n-COOM$, wherein n is a positive integer of from 1 to 4, M is hydrogen, ammonium, an alkali metal atom, or an organic amine salt"; and the expression "organic radical carrying a water-solubilizing group" was replaced by " $-(CH_2)_n-COOM$ ".

Auxiliary requests 4 and 4bis

In these requests Claim 1 differed from Claim 1 of auxiliary request 3 and 3bis in that the words "and R⁴ - but R³ and R⁴ not together - " and "and R⁴" after the words "the members of R¹, R², R³" were deleted; and in formula I "R⁴" was replaced by "H".

Auxiliary request 5

Claim 1 differed from Claim 1 as granted in that the expression "R¹, R², R³ and R⁴ - but R³ and R⁴ not together - stand" was replaced by "R¹, R², and R⁴ stand"; and further, in that the passage "R³ being an alkyl group, a substituted alkyl group, an alkenyl group or a substituted alkenyl group" was inserted between "or a substituted aryl group," and "R⁵".

Auxiliary request 5bis

Claim 1 differed from Claim 1 of auxiliary request 5 in that the passage "stand for an organic radical carrying a water-solubilizing group in free acid form, in salt form, or in latent form," was replaced by "are -(CH₂)_n-COOM, wherein n is a positive integer of from 1 to 4, M is hydrogen, ammonium, an alkali metal atom, or an organic amine salt".

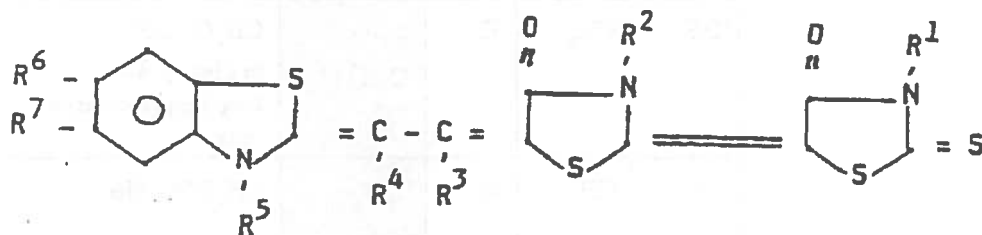
Auxiliary request 6

Claim 1 differed from Claim 1 as granted in that the whole passage after the formula I "wherein: X is -S- ...or a substituted aryl group" was replaced by "X is -S-, R¹ and R² each stand for CH₂COOM wherein M is hydrogen, ammonium, an alkali metal atom or an organic amine salt, R³ stands for an alkyl group and R⁴ is hydrogen".

Auxiliary request 7

The set of Claims 1 to 5 differed from the set of Claims 1 to 6 as maintained by the Opposition Division in that the expression "the following general formulae I and II:" was replaced by "the following formulae"; the formula I together with the whole passage "wherein X is...the above substituents" was replaced by chemical formulae I.02, I.11 to I.17, I.19 to I.27 as represented on pages 5 to 10 of the patent as granted; and "given to R⁶ and R⁷ individually, and" was replaced by the passage "or to the following general formula II:".

The compounds of the chemical formulae I.02, I.11 to I.17, I.19 to I.27 can be delineated by the formula



if the substituents R¹ to R⁷ have the meanings given in the following table:

I.	R ⁵	R ⁴	R ³	R ¹ and R ² each	R ⁶	R ⁷
				counterion		
02	C ₂ H ₅	H	C ₂ H ₅	CH ₂ COOH	H	H
11	C ₂ H ₅	H	C ₂ H ₅	CH ₂ COOH	CH ₃	CH ₃
12	C ₂ H ₅	H	CH ₃	CH ₂ COOH	CH ₃	CH ₃
13	C ₂ H ₅	H	C ₂ H ₅	CH ₂ COO ⁻ Na ⁺	CH ₃	CH ₃
14	C ₂ H ₅	H	C ₂ H ₅	CH ₂ COO ⁻ Na ⁺	H	H
15	CH ₃	H	CH ₃	CH ₂ COO ⁻ Na ⁺	H	H

16	C ₂ H ₅	H	C ₂ H ₅	CH ₂ COO ⁻ Na ⁺	H	H
17	CH ₃	H	CH ₃	CH ₂ COO ⁻ Na ⁺	H	H
19	C ₂ H ₅	H	C ₂ H ₅	CH ₂ COOH bis [diazabicycloundecane] salt (bis (dbu))	CH ₃	CH ₃
20	C ₂ H ₅	H	C ₂ H ₅	CH ₂ COOH bis [ethyl-di-isopropylammonium] salt	CH ₃	CH ₃
21	CH ₃	H	C ₂ H ₅	CH ₂ COOH bis (dbu)	H	phenyl
22	C ₂ H ₅	H	C ₂ H ₅	CH ₂ COOH bis (dbu)	H	phenyl
23	C ₂ H ₅	H	CH ₃	CH ₂ COOH bis [ethyl-di-isopropylammonium] salt	H	H
24	C ₂ H ₅	H	iso-C ₃ H ₇	CH ₂ COOH bis (dbu)	H	-CH ₃ O
25	CH ₃	H	iso-C ₃ H ₇	CH ₂ COOH bis [ethyl-di-isopropylammonium] salt	H	H
26	CH ₃	H	iso-C ₃ H ₇	CH ₂ COO ⁻ Na ⁺	H	H
27	C ₂ H ₅	H	iso-C ₃ H ₇	CH ₂ COOH bis (dbu)	CH ₃	CH ₃

Claim 2 was deleted, and the granted Claims 3 to 6 remained unchanged apart from renumbering as appropriate.

VIII. The Appellant requested that the decision under appeal be set aside and the European patent No. 0 427 892 be revoked.

The Respondent requested

1. as main request, that the objection raised in the Board's communication of 17 August 2001 be held inadmissible;
2. as first auxiliary request, that, if said objection is held admissible, the case be remitted to the first instance for further prosecution;
3. as second auxiliary request, that the appeal be dismissed;
4. as third to tenth auxiliary requests, that the decision under appeal be set aside and the patent be maintained according to one of the sets of claims submitted during the oral proceedings and numbered 3, 3bis, 4, 4bis, 5, 5bis, 6 and 7.

Reasons for the decision

1. Main request

1.1 Article 114(1) EPC

According to Article 114(1) EPC, in proceedings before it, the European Patent Office shall examine the facts of its own motion; it shall not be restricted in this examination to the facts, evidence and arguments provided by the parties and the relief sought. This

also applies to a review on appeal of a patent maintained in amended form, i.e. to the question whether or not the amendments are admissible.

- 1.2 The communication issued by the Board dated 17 August 2001 read:

"The group of compounds of formula I of present Claim 1 is a sub-group of the original class of compounds of formula I.

At the forthcoming oral proceedings it will have to be discussed where this sub-group finds support in the application as filed (Article 123(2) EPC); in other words where the particular combination of the remaining meanings of the symbols R^3 and R^4 were originally disclosed."

At the beginning of the oral proceedings, the Board explained its severe doubts that Claim 1 as maintained by the Opposition Division was in compliance with the requirements of Article 123(2) EPC. The group of compounds of formula I of said Claim 1 was a sub-group of the class of compounds as defined by the formula I of the application as originally filed; the particular combination of the remaining meanings of the symbols R^3 and R^4 should be supported by the original disclosure.

- 1.3 The Respondent argued that the objection relating to Article 123(2) EPC raised in the communication should be considered inadmissible because the communication was only sent by fax one week before the oral proceedings.

Further, by implicitly referring to G 10/91, the Respondent argued that the objection raised by the Board would amount to a new ground of opposition which would go beyond the grounds covered by the statement under Rule 55(c) EPC.

- 1.4 The Board cannot agree with the Respondent for several reasons. First, the objection raised under Article 123(2) EPC arises solely from a comparison of the wording of Claim 1 as originally filed and Claim 1 as maintained. Therefore the facts under consideration were known and no new facts were introduced. The Respondent was aware of the actual basis on which the patent would be judged (see T 341/92). Second, according to established Board practice, prior to examination of the patentability requirements laid down in Articles 52 to 57 EPC, amended claims are checked by the Board of its own motion during the opposition appeal proceedings for formal admissibility and, in particular, the possibility of an infringement of Article 123(2) and (3) EPC (see T 341/92). Further, a period of five working days in which to consider the objection was sufficient for the Respondent to prepare for a discussion, which even without any preliminary communication indicating the objection, it could and should have expected. And, in the event, in addition to the advance warning in the communication, the Respondent was given the opportunity to file further requests during the oral proceedings.

Lastly, as already indicated, in raising the objection under Article 123(2) EPC, the Board was exercising its discretion under Article 114(1) EPC; the objection concerns an amendment made during the opposition procedure, and is not a new ground of opposition. Therefore, the Board concludes that it was not only entitled but also obliged to examine whether the amendments made to Claim 1 as maintained meet the

requirements of Article 123(2). Hence, the objection, raised in compliance with Article 114(1) EPC, was admissible.

For these reasons, the main request is dismissed.

2. *Auxiliary request 1*

The Respondent requested that, if the Article 123(2) EPC objection should be admissible, the case be remitted to the first instance for further prosecution, arguing that the Opposition Division had found Claim 1 as amended complied with Article 123(2) EPC. Not to allow the amendment in the appeal proceedings would amount to a fresh case which the Respondent was entitled to have considered by two instances.

The Board cannot accept this argument. As explained, both the application as filed and the amended version of the patent as maintained were known to all parties and to the Opposition Division. Therefore, the factual situation has not changed in this respect and the Opposition Division, on the basis of these facts, has already made its decision on this issue. The Board which under Article 111(1) EPC may exercise any power within the competence of the Opposition Division, decides not to remit the case to the first instance.

For these reasons, auxiliary request 1 is dismissed.

3. *Auxiliary request 2*

The Respondent requested that the appeal be dismissed, i.e. that the patent be maintained in the version as maintained by the Opposition Division.

Claim 1 as originally filed covered a class of chemical compounds in which any of the residues R^1 , R^2 , R^3 or R^4 was either "an organic radical carrying a water-solubilizing group" or hydrogen or an optionally substituted alkyl, alkenyl, or aryl group, provided that at least one further of these groups - but not R^3 and R^4 together - was also such a water-solubilizing group carrying organic radical (see point II).

In contrast, in the chemical compounds defined by the formula I of Claim 1 as maintained by the Opposition Division the meaning "an organic radical carrying a water-solubilizing group" is restricted to R^1 and R^2 which symbols can no longer stand for any of their other original meanings hydrogen, alkyl, substituted alkyl, etc.. Further, from the very great number of original possibilities, hydrogen was selected as the only possible meaning for R^4 and the meaning of R^3 was restricted to optionally substituted alkyl (see point III).

The Respondent argued that Claim 1 thus amended would not violate Article 123(2) EPC since all the possible meanings for the residues R^1 to R^4 were originally disclosed.

The Board accepts that all the remaining definitions of the residues R^1 to R^4 were already disclosed in the application as filed. However, this is not the issue to be decided. Rather, the critical question is, whether the particular combination of the remaining meanings - which apart from "hydrogen" are generic ones - and resulting in the now claimed group of compounds (which is sub-generic to that originally claimed) was disclosed in the application as filed. The Respondent did not claim, and the Board could not find, an explicit original disclosure of this subgroup of compounds in the application as filed.

There were in fact lists specifying all the possible meanings for residues R^1 to R^4 all of which were largely restricted, inter alia, R^1 and R^2 to organic radical carrying a water-solubilizing group only; for R^3 all the original meanings were deleted but two, namely alkyl and substituted alkyl, and the list of meanings for residue R^4 shrank to just one meaning, namely hydrogen. The amendments thus amounted to an arbitrary selection of a sub-class of chemical compounds from the original class of compounds of formula I, in particular with a specific combination of structural features in that R^1 and R^2 each stand for an organic radical carrying a water-solubilizing group, R^3 stands for a (substituted) alkyl group and R^4 is hydrogen. This class of chemical compounds was not foreshadowed in the application as filed.

The Respondent's argument that this was an implicit disclosure, since in seventeen examples R^1 and R^2 were a carboxy group, which is a water-solubilizing group, is not convincing because the specific term "carboxy" can not support the generic term "water-solubilizing group" as required by Article 84, second sentence, EPC. Moreover, four of these seventeen examples are not compounds of Claim 1 as maintained since their respective residues R^3 fall outside the definition of "alkyl or substituted alkyl" (for examples I.08, I.09 and I.10 R^3 is H, and for example I.18 R^3 is $\text{CH}_2\text{CH}_2\text{COOH}$; it should be mentioned that according to the original terminology "substituted alkyl" cannot mean "organic radical carrying a water-solubilizing group" since the latter meaning was excluded from the scope of "substituted alkyl" (see Claim 1 as quoted in point III)). It follows that the class of chemical compounds defined by formula I of Claim 1 as maintained by the Opposition Division could not be

clearly deduced by a skilled person from the examples of the application as filed, but can only be seen as an unjustified generalization of arbitrarily selected examples.

Therefore the limitation brought about in Claim 1 as amended results in an inadmissible singling out of a particular combination of specific definitions, i.e. a sub-class of compounds not specifically mentioned hitherto (see T 859/94 not published in the OJ EPO, point 2 of the reasons). Hence the amendment violates Article 123(2) EPC. This finding is not at variance with the decisions T 615/95 and T 50/97 which both found certain restrictions of generic chemical formulae admissible since they were properly supported by the respective description as filed and did not result in a particular combination of specific meanings of respective residues not originally disclosed (T 615/95, catchword 1 and point 6 of the reasons; T 50/97, point 2 of the reasons, both not published in the OJ EPO).

For these reasons, auxiliary request 2 is dismissed.

4. *Auxiliary request 3*

Claim 1 differed from Claim 1 as originally disclosed and as granted in that the passage "excluding for R³ hydrogen, aryl, substituted aryl and aryl carrying a water-solubilizing group" was inserted between "or a substituted aryl group," and "R⁵".

According to G 1/99, the Proprietor/Respondent may be allowed to file requests as follows:

- in the first place, for an amendment introducing one or more originally disclosed features which limit the scope of the patent as maintained;
- if such a limitation is not possible, for an amendment introducing one or more originally disclosed features which extend the scope of the patent as maintained, but within the limits of Article 123(3) EPC;
- finally, if such amendments are not possible, for deletion of the inadmissible amendment, but within the limits of Article 123(3) EPC.

So, in the first place, the Respondent may amend the claims in such a way that one or more originally disclosed features which limit the scope of the patent as maintained are introduced. Only if it is not possible to produce an acceptable amendment within this limitation, may the Respondent proceed - in the given order - to one of the next possibilities to amend.

Claim 1 as amended during the opposition proceedings and maintained by the Opposition Division contained restrictions to several meanings for residues R¹, R², R³ and R⁴. So, R³ and R⁴ - but R³ and R⁴ not together - could no longer stand for an organic radical carrying a water-solubilizing group in free acid form, in salt form, or in latent form; further, the meanings for R¹ and R² that do not represent an organic radical carrying a water-solubilizing group could no more stand for hydrogen, an alkyl group, a substituted alkyl group, an alkenyl group, a substituted alkenyl group, an aryl group, or a substituted aryl group.

According to the (non allowable) amendment made during the appeal proceedings by the Respondent, the meanings for R^1 and R^2 that do not represent an organic radical carrying a water-solubilizing group could now once again stand for hydrogen, an alkyl group, a substituted alkyl group, an alkenyl group, a substituted alkenyl group, an aryl group, or a substituted aryl group. Further, R^3 and R^4 - but R^3 and R^4 not together - could now once again stand for an organic radical carrying a water-solubilizing group.

Thus, when making amendments to Claim 1 in the framework of the appeal proceedings, the Respondent started from Claim 1 as granted instead of Claim 1 as maintained by the Opposition Division; thus by implicit deletion of the inadmissible restrictions made during the opposition proceedings, it extended the scope of Claim 1 and thus put the Opponent and sole Appellant in a worse situation than if it had not appealed (*reformatio in peius*); Claim 1 of auxiliary request 3 must therefore be rejected (see G 1/99, Order).

For these reasons, auxiliary request 3 is dismissed.

5. *Auxiliary requests 3bis, 4, 4bis, 5 and 5bis*

All the various amendments in the respective Claims 1 of these auxiliary requests (see point VII) amount to a corresponding further restriction which however cannot remedy the deficiency of claiming generic groups comprising compounds which were not covered by Claim 1 as maintained.

Therefore, the reasons for dismissing auxiliary request 3 apply mutatis mutandis to auxiliary requests 3bis, 4, 4bis, 5 and 5bis.

Consequently, these requests are also dismissed.

6. *Auxiliary request 6*

The amendments to Claim 1 result in further restrictions of the subject-matter of Claim 1 as maintained by the Opposition Division. Therefore, no objections against this claim can be based on the prohibition of reformatio in peius. However, these further restrictions of the sub-group of chemical compounds of Claim 1 as maintained cannot overcome the objection raised against the latter claim, i.e. that a combination of structural features, not originally disclosed, results from the amendment. Therefore, the reasons for dismissing auxiliary request 2 apply mutatis mutandis to auxiliary request 6 which thus is also dismissed.

7. *Auxiliary request 7*

7.1 Articles 84 and 123 EPC

Claim 1 is now directed to the group of chemical compounds of original formula II and to a number of specific embodiments of formula I of the application as originally filed (see point VII). This amended Claim 1 finds proper basis on pages 6, and 8 to 11, and in Claim 1 of the application as originally filed (corresponding to pages 5, and 7 to 10, and Claim 1 of the patent in suit), and does not put the Opponent and sole Appellant in a worse situation than if it had not appealed.

Dependent Claims 2 to 5 were renumbered but are otherwise identical to dependent Claims 3 to 6 of the application as filed and of the patent as granted.

Therefore, the claims of auxiliary request 7 meet the requirements of Article 123 EPC and comply also with G 1/99 (see Order, first sub-paragraph of the second paragraph).

The Board is also satisfied that these claims meet the requirements of Article 84 EPC and, since no objections were raised in this regard, no further reasons need be given.

Therefore, auxiliary request 7 is admissible.

7.2 Novelty

The Board is satisfied that none of the documents anticipates the subject-matter of Claim 1. Since novelty is not in issue, no detailed reasons need be given.

7.3 Inventive step

7.3.1 The patent in suit concerns a method of forming a silver image by exposing a silver halide emulsion spectrally sensitized with a trinuclear merocyanine dye represented by one of the specific chemical compounds defined in Claim 1 to light of 600 to 690 nm and wet-processing the emulsion with aqueous developing or activating solution and fixing solution, thereby dissolving away said dye from the resulting silver-image-containing material.

The problem as stated in the patent in suit was

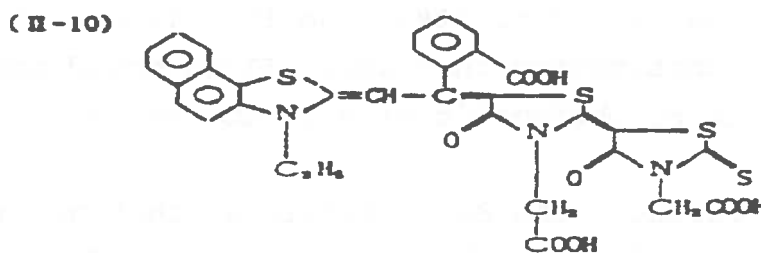
1
L2

"to find a method for forming silver images that are free or almost free of residual colour stain in wet-processable photographic silver halide materials, said materials having been spectrally sensitized with dyes that in addition to providing a desired spectral sensitivity range of from 600 to 690 nm and a satisfactory speed and gradation to the silver halide emulsion, are sufficiently soluble in water so that after development and fixing of the photo-exposed silver halide emulsion they are rinsed away for the greater part" (patent in suit, page 2, lines 37 to 42) L.

7.3.2 Processes for making a silver halide photographic emulsion with little residual colouration due to the sensitizing pigment were known at the priority date of the patent in suit.

7.3.2.1 Document (A8) is concerned with silver halide photographic emulsions with increased sensitivity and with little residual colouration due to the sensitizing pigment. It suggests achieving this by incorporating at least one alkali metal sulfite and ascorbic acid into a silver halide photographic emulsion containing, e.g. a compound of formula II-10 (page 3, last paragraph, page 4, first paragraph, in combination with page 10).

The Appellant pointed to the similarity between the formulae as listed in claim 1 of the patent in suit and the sensitizing merocyanine pigment represented by formula II-10 of document (A8).



Referring to document (A5), the Appellant argued that substitution in the polymethine chain (the position of the carboxyphenyl group in formula II-10 corresponds to R³ in the formulae as defined in Claim 1 of the patent in suit) was a well known measure to influence the absorption of the dye; inter alia, methyl and ethyl were cited as the main substitution possibilities (page 64, paragraph numbered 3). The Appellant thus argued that such a substitution in formula II-10 would be obvious to produce formula I of the patent in suit.

The Board cannot agree. It is true that substitution was mentioned but, in the same document (A5), the teaching as to how the substitution would influence the sensitizing behaviour served if anything to warn the skilled person against substituting: "...the dye which after substitution absorbed at a longer wavelength often had desensitising properties whereas the non-substituted compound which absorbed at a short wavelength sensitized" (document (A5), page 52, paragraph numbered 2.2.3, lines 6 to 8). This warning is confirmed by document (A6), cited by the Appellant to illustrate the skilled person's general knowledge. As to the effect of steric hindrance between a methyl substituent on the polymethine chain and the groups on the heterocyclic rings, it is said that the steric hindrance forces the molecule in a non-planar

conformation and thereby causes a desensitising effect (pages 127 to 128; page 128, lines 2 to 4). Therefore, substitution in formula II-10 could not be considered to be obvious in view of documents (5) and (6).

Further, the Board mentioned that documents (A5) and (A6) dealt with binuclear compounds (two thiazole ring structures) whereas the patent in suit deals with trinuclear compounds (three thiazole ring structures). There is no evidence showing that findings regarding binuclear compounds would be applicable as such to trinuclear compounds. Therefore, the Board does not share the Appellant's opinion that documents (5) and (6) gave the skilled person useful substitution hints.

7.3.2.2 The Appellant argued that the skilled person would at least have tried to omit one water solubilizing group. It based its reasoning on the trial and error practice in the field of photography.

The Board objected that chemical formula II-10 showed three water solubilizing groups, namely the carboxy groups at the positions of the residues R^1 , R^2 and R^3 whereas all the chemical formulae of claim 1 displayed only two water solubilizing groups at the positions R^1 and R^2 . It was known that the higher the number of water solubilizing groups, the lower the residual colour stain since the dye was rinsed away after developing and fixing of the photo-exposed silver halide emulsion (patent in suit, page 2, lines 40 to 42). Apart from the fact that there was no hint of omitting the carboxy group specifically at the R^3 position, omitting one such group would not in the Board's judgement be logical if the objective was to obtain high water solubility, i.e. a high rinsing out performance leading to less colour stain.

The Board therefore considers that document (A8) is not appropriate as closest state of the art.

7.3.3 The Appellant relied also on documents (B9) and (A3) in support of lack of inventive step. Both documents disclosed a dye having a formula similar to that of the formulae defined in Claim 1 of the patent in suit which has two water-solubilizing groups. Document (B9) disclosed dye W 329 whereas document (A3) disclosed dye KF 641. Both dyes had two water-solubilizing groups. The formula of dye KF 641 is given in point 7.3.4 below; the dye W 329 being otherwise identical has a methoxy group in the 5-position of the benzo-1,3-thiazole system (= R⁷).

It followed from the arguments made in written form and during oral proceedings, that structural modifications of residues R⁵, R⁶ and R⁷ (R¹ and R² of all the compounds were carboxy groups, R⁴ was hydrogen) were of no significance for evaluating speed and residual colour, but the residue R³ was of high relevance.

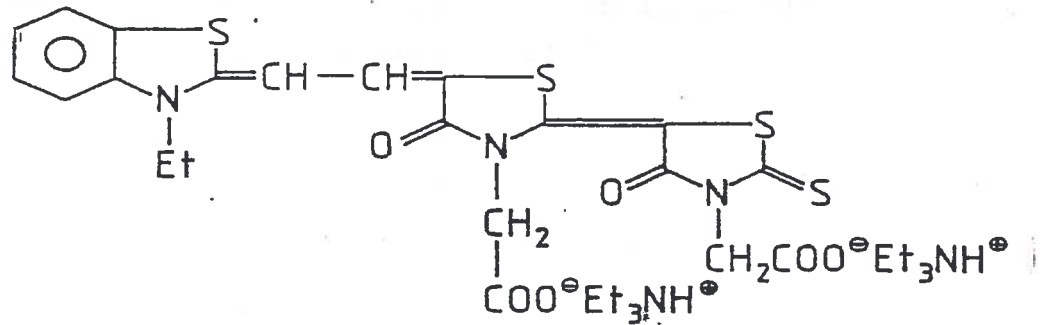
Since the influence of the residue R⁷ was not relevant for assessing inventive step, the difference between W 329 and KF 641 is not significant. However, as to the significance of the documents, the mere reference to the similarity between the structures of dye W 329 and of the claimed compounds without any link to the technical problem to be solved, in particular the reduction of colour stain, disqualifies document (B9) as starting point for evaluating inventive step.

7.3.4 Document (A3), on the contrary, contains this link to the technical problem. It disclosed "products with improved characteristics, especially with lower stain" (introduction, right hand column, paragraph 4, lines 2 to 4) thereby addressing the technical problem of

stain reduction which fits with the objective of the patent in suit. As a new red sensitizer the compound KF 641 is disclosed (Chapter II, Sensitizers and Desensitizers, paragraph 4, line 2 and the table under the heading "Product list Red sensitizers").

The formula of KF 641 was available on request from the manufacturer prior to the priority date of the patent in suit (see document (B3)).

KF 641



Since KF 641 of document (A3) contains only two solubilizing groups as do the compounds listed in Claim 1, the Board takes document (A3) as the starting point for evaluating inventive step.

7.3.5 The problem underlying the patent in suit in the light of document (A3), pointing explicitly to lower colour stain, can be redefined as the provision of red sensitizing dyes having sufficient speed and a minimum of colour stain.

7.3.6 In view of the data supplied by the Respondent in its letter dated 26 May 1998 the Board is satisfied that this technical problem was solved by the claimed subject-matter.

The question remains whether the solution involves an inventive step; in other words, whether or not it was obvious to arrive at the compounds represented by the specific formulae of Claim 1.

- 7.3.7 The Appellant argued that the sensitizer KF 641 listed in the product list of red sensitizers of document (A3) would have caught the eye of the skilled person because the indication of the solubility "1:25 in methanol" hinted at low residual coloration.

However, apart from the fact that solubility in methanol can not be equated to solubility in water, the λ_{\max} of 562 nm measured in methanol (see document (B3)) would have dissuaded the skilled person from using dye KF 641 in the range of 600 to 690 nm as required by the patent in suit. Further, the extinction coefficient of KF 641 was the second worst of the compounds in the product list of red sensitizers, which would militate against the choice of dye KF 641. Therefore, the Board concludes that there was no incentive for the skilled person to select in particular dye KF 641 as starting point for solving the existing technical problem.

- 7.3.8 The results of tests supplied by the Respondent showed that the ethyl, methyl and isopropyl substituents improved the speed over hydrogen, ethyl substitution giving the best results (see annex to the Respondent's letter dated 26 May 1998). The Respondent's speed measurement taking account of the type of alkyl substitution provided a more accurate evaluation than the Appellant's descriptive comments since it gives an actual quantification of the test results.

So, the higher speed of merocyanine dyes according to the invention is due to the replacement of hydrogen by (m)ethyl and isopropyl at the R³ position.

Further, such replacement induced a bathochromic shift i.e. to a longer wavelength of the absorption maximum (see annex to the Respondent's letter of 26 May 1998, paragraph 6.1.)

The values were measured by the Respondent for each dye on photographic material, i.e. the dye was adsorbed on the silver halide crystals:

R ³	hydrogen	methyl	ethyl	phenyl	isopropyl
	KF 641 prior art	invention	invention	*	invention
λmax	625 nm	635 nm	640 nm	645 nm	655 nm

* no embodiment of the invention

The phenyl substitution had the disadvantage of an unacceptable residual colour level after processing.

From theoretical and empirical considerations, one would expect that an electron-donor substituent such as alkyl on the odd numbered position (R³) of a polymethine chain to result in a hypsochromic shift of the absorption maximum i.e. to a shorter wavelength (see document (A10)). However, just the opposite was measured (see above table).

None of these test results have been disputed.

Thus the results actually achieved with embodiments of Claim 1 would not have been expected by a skilled person.

The documents cited during the opposition and appeal proceedings did not give any hints to the beneficial effects the Respondent was looking for; the choice of the specific compounds having ethyl, methyl or

isopropyl at the R³ position and the related effects, namely a balance of a minimum of residual colour and sufficient speed, was not foreshadowed in these documents.

7.3.9 For these reasons, the Board concludes that the subject-matter of Claim 1 meets the requirements of Article 56 EPC. The dependent Claims 2 to 5 relate to specific embodiments of Claim 1 and derive their patentability from Claim 1.

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 that the patent be maintained with the Claims 1 to 5 of the auxiliary request numbered 7 and the description to be adapted thereto.

The Registrar:



G. Rauh

The Chairman:



P. Krasa

