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D E C I S I O N
of 21 March 2001

Case Number: T 0278/97 - 3.3.6

Application Number: 89301953.9

Publication Number: 0331414

IPC: G03C 1/16

Language of the proceedings: EN

Title of invention:
Sensitizing dye for high chloride and low iodide silver halide photographic composition

Patentee:
EASTMAN KODAK COMPANY (a New Jersey corporation)

Opponents:
Fuji Photo Film Co., Ltd.
Agfa-Gevaert AG

Headword:
Blue sensitizing dye/EASTMAN KODAK

Relevant legal provisions:
EPC Art. 54(3), 56, 123(3)

Keyword:
"Novelty (no; "A"-countries, main request and auxiliary requests 1 and 2) - explicit teaching to replace one element by another"
"Novelty (yes; "B"-countries, main request)"
"Admissibility (no; auxiliary request 3) - change of category extending protection conferred"
"Inventive step (yes; "B"-countries, main request)"

Decisions cited:

T 0332/87

Catchword:
-

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Case Number: T 0278/97 - 3.3.6

D E C I S I O N
of the Technical Board of Appeal 3.3.6
of 21 March 2001

Appellant: (Opponent 01)
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Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted 23 January 1997 concerning maintenance of European patent No. 0 331 414 in amended form.**

Composition of the Board:

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

Summary of Facts and Submissions

I. This appeal is from the Opposition Division's decision maintaining European Patent No. 0 331 414 in amended form. In two notices of opposition based on lack of novelty and lack of inventive step, the following documents were, inter alia, submitted:

(1) US-A-4 837 140 (equivalent to document JP-A-62 287 250 with English abstract)

(2) EP-A-0 273 404

(3) EP-A-0 273 430

(4) EP-A-0 293 917
(designating DE, FR, GB and NL)

(5) EP-A-0 313 021

(6) JP 53007233 (abstracts from CA and CAPLUS),

(7) GB-A-2 161 948

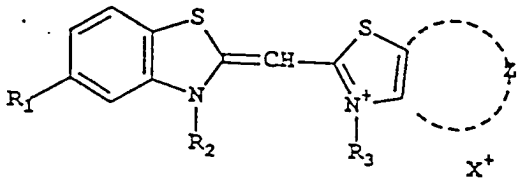
(8) W0 87/05127
(corresponding to EP-A-0 261 244)

(9) "The Theory of the Photographic Process", 4th edn., USA, MacMillan Publishing Company, 1977, 335-9.

II. Claim 1 of Claims 1 to 7 of the patent as maintained by the Opposition Division for the Contracting States DE, GB, NL and FR (designated as set A) read as

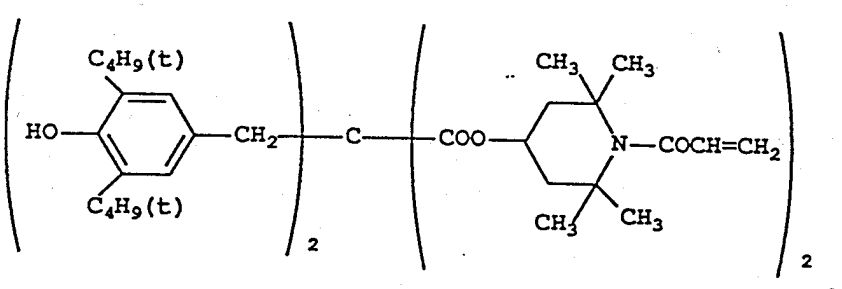
follows:

"1. A photographic element comprising a support, other than a cellulose triacetate film support, bearing at least one light sensitive layer comprising silver halide of at least 80 mole percent silver chloride and less than 1 mole percent silver iodide; a yellow dye-forming coupler; and a sensitizing dye of the formula:



where R_1 is halogen, substituted or unsubstituted phenyl, or substituted or unsubstituted styryl; R_2 and R_3 are each independently substituted alkyl, substituted alkenyl, or substituted aryl that are substituted with an anionic solubilizing group; Z represents the atoms necessary to complete a substituted or unsubstituted naphthyl ring and X^+ is a cation; and provided said sensitizing dye does not have any alkoxy group substituents on the ring of the naphthyl group attached to the thiazole ring; and said layer does not contain a compound of the formula:

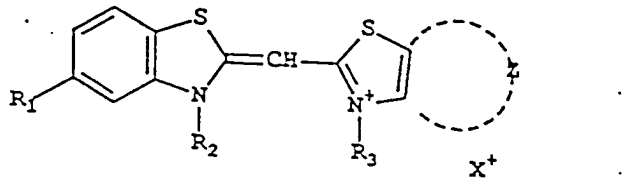
"



Claim 1 of Claims 1 to 7 of the patent as maintained

by the Opposition Division for the Contracting States AT, BE, CH, LI, ES, IT, and SE (designated as set B) read as follows:

"1. A photographic element comprising a support bearing at least one light sensitive layer comprising silver halide of at least 80 mole percent silver chloride and less than 1 mole percent silver iodide; a yellow dye-forming coupler; and a sensitizing dye of the formula:



where R_1 is halogen, substituted or unsubstituted phenyl, or substituted or unsubstituted styryl; R_2 and R_3 are each independently substituted alkyl, substituted alkenyl or substituted aryl that are substituted with an anionic solubilizing group; Z represents the atoms necessary to complete a substituted or unsubstituted naphthyl ring and X^+ is a cation;

and provided said sensitizing dye does not have any alkoxy group substituents on the ring of the naphthyl group attached to the thiazole ring."

III. In its decision the Opposition Division found that both sets of claims A and B complied with Article 123(2) EPC, that the subject-matter of the claims of both sets A and B was novel and, in particular, that the subject-matter of the set A claims was not anticipated by documents (1) to (9) and

that the subject-matter of the set B claims was not anticipated by documents (1) and (6) to (9); further it found that the subject-matter of both the A and B sets of claims was inventive over documents (1) and (6) to (8).

IV. The Appellants I and II (opponents 01 and 02) lodged appeals against the Opposition Division's decision.

V. In the course of the appeal proceedings the Respondent submitted a main request (which corresponded to the Claims as maintained by the Opposition Division) and auxiliary requests 1 to 4 (each containing, like the main request, A and B versions):

(1) Auxiliary request 1

Claim 1 of set A of auxiliary request 1 differs from Claim 1 of the main request in that the passage "other than a cellulose triacetate film support" was deleted and the feature "and wherein the photographic element is a colour print photographic element" was added at the end of the claim.

Claim 1 of set B of auxiliary request 1 differs from Claim 1 of the main request in that the feature "and wherein the photographic element is a colour print photographic element" was added at the end of the claim.

(2) Auxiliary request 2

Both Claims 1 of set A and set B of auxiliary request 2 differ from the respective Claims 1 of sets A and B of the main request in that the feature "and wherein

the dye has a peak adsorption (ë max) of 480 nm" was added at the end of the claims.

(3) Auxiliary request 3

Both Claims 1 of set A and set B of auxiliary request 3 differ from the respective Claims 1 of sets A and B of the main request in that "A photographic element comprising a support, other than a cellulose triacetate film" or "A photographic element comprising a" respectively were replaced by "A method of forming an image on a colour print photographic element using a 3000°K tungsten light source to expose a colour negative onto said photographic element wherein the photographic element comprises a colour print photographic element which comprises a".

(4) Auxiliary request 4

Auxiliary request 4 is a request to allow a combination of the first allowable "A" Request (i.e. Claims for States DE; FR; GB; and NL) with the first allowable "B" Request (i.e. Claims for States AT; BE; CH; ES; IT; LI; and SE).

VI. In the course of the appeal proceedings, Appellant II submitted document

(10) EP-A-0 322 648

in order to prove lack of novelty of the subject-matter of Claim 1 of all the auxiliary requests.

VII. The Appellants' arguments can be summarized as follows

as regards novelty:

- the words "colour print" in auxiliary requests I and III and the amendment referring to "ë= 480 nm" in auxiliary request 2 give rise to objections under Article 123(2) EPC;

- the subject-matter of both the A and B sets of claims was not novel over document (1), or over documents (2) to (5), or over document (10);

- the Opposition Division was wrong in finding that the sensitizers covered by Claim 1 of the patent in suit constituted a selection from those disclosed in document (1);

- in interpreting document (1) the whole content approach had to be applied, so that the compound of formula (I-6) of document (1) - which was covered by the formula of Claim 1 of the patent in suit - could also be used in Example 2 (eg sample 5-5) of document (1) and that therefore the claimed subject-matter lacks novelty;

and, as regards inventive step:

- document (6) disclosed the use of the compound of formula (I-6) as a sensitizer for blue light;

- document (1) was the starting point for evaluating inventive step;

- the Opposition Division was wrong in discarding the compound of formula (I-6) of document (1) because this compound, and not the compound of

formula (I-5) of the same document, was the closest to that of the patent in suit, and that it came to the wrong conclusion when appreciating the sensibility performance of the respective compounds;

- it was obvious to use a compound of formula (I-6) in samples 5-5 and 5-7 of document (1) instead of the compound of formula (I-9), thereby arriving at the subject-matter claimed in the patent in suit.

VIII. The Respondent's arguments can be summarized as follows:

- given the disclaimers, the subject-matter of the Claims is novel over the documents forming the state of the art according to Article 54(3) EPC;

- the compound according to formula (I-6) in Example 1 of document (1) was disclosed together with a magenta coupler, but not with a yellow coupler, and that therefore document (1) was not an anticipation;

- the sodium salt No. 14 of document (10), being equivalent to the sensitizer 2 of the patent in suit, was not used in the examples of document (10), which should be disregarded because of late filing;

- the effect due to the use of sensitizer 2 of the patent in suit was not predictable in the light of the prior art, especially not in emulsions of high silver chloride content.

IX. Oral proceedings took place on 21 March 2001.

Appellant I had withdrawn its request for oral proceedings by letter of 22 June 1998 and did not appear at the oral proceedings.

X. The Appellants requested that the decision under appeal be set aside and that the European patent No. 0 331 414 be revoked.

The Respondent requested that the appeal be dismissed and that the patent be maintained in accordance with the sets of claims A (for the Contracting States DE, GB, FR and NL) and B (for the Contracting States AT, BE, CH, LI, ES, IT and SE) in each of its main and first, second and third requests or in accordance with its fourth auxiliary request submitted during the oral proceedings.

XI. At the end of the oral proceedings the Chairman announced the decision of the Board.

Reasons for the Decision

1. *Main request*

1.1 Claims 1 to 7 of set A

1.1.1 Article 114(2) EPC

Exercising its discretion under Article 114(2) EPC the Board decided not to take document (10) into account. This late-filed document had no material bearing on the issues since it added nothing to the evidence

already available from the other Article 54(3) EPC documents.

1.1.2 Document (1)

All the parties agreed to refer to US-A-4 837 140 as document (1) instead of referring to the English translation of JP-A-62 287 250.

1.1.3 Articles 84 and 123 EPC

The Board is satisfied that the Claims 1 to 7 of the main request comply with the requirements of Articles 84 and 123 EPC. It is not necessary to give further details since this request fails for other reasons.

1.1.4 Article 54(3) EPC

1.1.4.1 The subject-matter of Claim 1 of the patent in suit concerns in essence a photographic element comprising a support other than a cellulose triacetate film support, a light sensitive layer of at least 80 mole percent silver chloride and less than 1 mole percent silver iodide, a yellow dye forming coupler and a specific sensitizing dye defined by the formula of Claim 1.

1.1.4.2 Document (4) claiming a priority date of 05.06.1987 from Japan was published on 07.12.1988, whereas the patent in suit claims a priority date of 01.03.1988 from US; document (4) is thus to be considered as state of the art under Article 54(3) EPC.

Example 4 of document (4) concerns a photographic

element comprising a cellulose triacetate film support which comprises layer 9, a blue-sensitive emulsion layer. The emulsion of this layer is a silver halide emulsion including 100 mole % silver chloride; it contains less than 1 mole % silver iodide. Layer 9 contains a yellow dye-forming coupler; the emulsion (405) in layer 9 includes the sensitizing dye VI, the formula of which falls within the general formula of Claim 1 of the patent in suit (page 34, line 54; page 38, Table 9; page 82, lines 30 to 40).

It is true that the triacetate film support of this Example 4 is excluded from Claim 1 by way of a disclaimer; however, the disclosure of a patent or a patent application is not confined to its examples but has to be established by taking account of its complete contents. The description of document (4) addresses the support in unequivocal terms: "A reflective support ... increases reflectivity to obtain a clear dye image in the silver halide emulsion layer. .... a transparent support having a reflective layer or comprising a reflective material, e.g., a glass plate, a polyester film such as a polyethyleneterephthalate, cellulose triacetate, cellulose nitrate film, a polyamide film. ... These supports can be arbitrarily selected in accordance with a purpose. Supports having a mirror reflective support ... may be used. A transparent support is also used in the present invention" (page 16, line 49 to page 17, line 4).

1.1.4.3 Thus, in the light of the generic disclosure of the description, the teaching of Example 4 extends to reflective materials other than cellulose triacetate. This conclusion follows from a consideration of all

the information disclosed by document (4): if cellulose acetate is not used as a support, then another support can be used. Not only were there no reasons which would prevent a skilled person from making such a combination (see T 332/87), but there was even an explicit teaching suggesting the selection of another support if cellulose triacetate were not chosen. Therefore a disclaimer limited to cellulose acetate is not sufficient to establish novelty.

1.1.4.4 Accordingly, the subject-matter of Claim 1 is not novel; Claim 1 of the main request of set A does not meet the requirements of Articles 52(1) and 54(3) EPC.

1.2 Claims 1 to 7 of set B

1.2.1 Articles 84 and 123 EPC

The Board is satisfied that the Claims 1 to 7 of the main request comply with the requirements of Articles 84 and 123 EPC. It is not necessary to give further details since no objections were raised in this regard.

1.2.2 Novelty

Claim 1 concerns a photographic element comprising a support bearing at least one light sensitive layer comprising silver halide of at least 80 mole percent silver chloride and less than 1 mole percent silver iodide; a yellow dye-forming coupler; and a sensitizing dye having the specific formula as defined in Claim 1.

The novelty of this claim was attacked solely on the

basis of document (1).

Sample 5-5 of document (1) discloses the sensitizer (I-9) which is used in a blue sensitizing layer but which does not fall under the definition of the specific formula of Claim 1 of the patent in suit. The Appellants argued that the sensitizer (I-6), which falls under the definition of the formula of the patent in suit, could be substituted for the sensitizer (I-9) in sample 5-5 of Example 2 thereby allegedly leading to a composition falling within the range of Claim 1. However, this argument fails since, even when applying the "whole content" approach (which is of course always the proper method for interpreting a document), no real hint can be found in document (1) to substitute formula (I-6) for formula (I-9) in sample 5-5.

It follows that the subject-matter of Claim 1 is not anticipated by document (1).

The Board is also satisfied that no other citation destroys the novelty of the subject-matter of Claim 1 of the main request which, therefore, complies with the requirements of Article 54 EPC.

1.2.3 Inventive step

1.2.3.1 Claim 1 concerns a photographic element comprising a support bearing at least one light sensitive layer comprising silver halide of at least 80 mole percent silver chloride and less than 1 mole percent silver iodide; a yellow dye-forming coupler; and a specific sensitizing dye defined by the formula in Claim 1.

1.2.3.2 The problem as stated in the patent in suit was the insufficient speed of blue-sensitive emulsions when high silver chloride emulsions were used. This was due to the lower intrinsic sensitivity to blue light of high silver chloride emulsions as compared to low silver chloride emulsions. The goal was to provide blue sensitizing dyes which impart greater sensitivity to blue light in silver halide emulsions having a high chloride content and a low iodide content (page 2, lines 17 to 23).

1.2.3.3 The problem of spectral sensitizing properties was addressed by document (1) which all the parties took as the starting point for evaluating inventive step. This document concerns a colour image-forming high silver chloride colour photographic material and mentions that high silver chloride emulsions require spectral sensitization even when used as an emulsion sensitive to light of the blue region (column 2, lines 14 to 18).

1.2.3.4 Thus the problem underlying the patent in suit was to obtain an improved speed in the blue-sensitive emulsions under real life conditions, in this case the light of a colour printer; these conditions can be simulated with a 3000°K tungsten lamp.

1.2.3.5 In view of Examples 1 to 5 of the patent in suit, the Board accepts that this problem was credibly solved by using a sensitizing dye according to the formula as defined in Claim 1 of the patent in suit.

1.2.3.6 The question remains whether the use of such a sensitizing dye involved an inventive step or was obvious.

Document (1) discloses the compound of formula (I-6) which falls within the formula of Claim 1 of the patent in suit. The Appellants argued that it was obvious to replace the compound (I-9) of sample 5-5 of Example 2 of document (1) (see Table 12) by a compound of formula (I-6) of document (1) in the layer of blue sensitization. The compound of formula (I-6) was known from document (8) as a sensitizer in the blue region (page 22, formula I-2; page 130, lines 1 to 10). However this document teaches keeping the amounts of chloride below 80 mole % in order to avoid the increase of fog formation (page 137, lines 9 to 11). In document (1) there was no incentive to replace the compound of formula (I-9) of sample 5-5 by a compound of formula (I-6). The compound of formula (I-6) was used with a magenta coupler (column 40, line 32; column 41, Table 3, samples 3-7 to 3-11) but not with a yellow coupler. Further, not only does formula (I-9) comprise a thiazole ring and an oxazole ring (hereinafter called "oxazole-thiazole" type) but the other formulas in Table 12 of document (1) also do not correspond to the formula of the patent in suit comprising two thiazole rings.

The comparative test results submitted by the Respondent by letter of 6 February 1996 are reproduced in the following table.

emulsion		invention patent in suit	document (1)
		formula (2)*	formula (I-9)

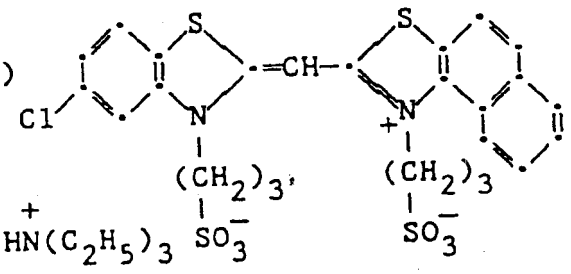
silver bromide content (0.5%)	speed	302	100
silver chloride content (100%)	speed	281	100
*the core structure of formula (2) is identical to that of formula (I-6) of document (1)			

The table shows that the speed of a photographic element comprising the dye according to the invention

- the core structure of formula (2) of the patent in suit (page 3)

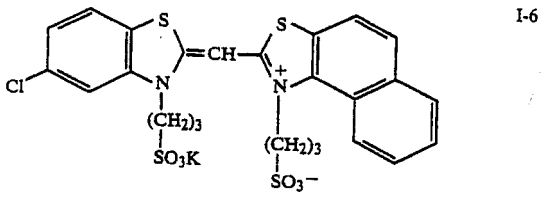
being identical to that of formula (I-6) of document (1)

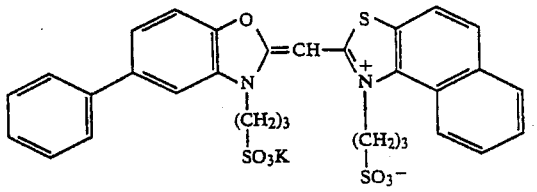
(2)



- is higher, namely 302 (the emulsion comprising 0.5% silver bromide) and 281 (the emulsion comprising 100% silver chloride) than that of a photographic element comprising the dye according to the formula (I-9) of document (1),

I-6



namely  I-9

100 for both 0.5% silver bromide and 100% silver chloride).

Dye (I-5) of document (1) which is of the oxazole-thiazole type is identical to dye A mentioned for comparative purposes in the patent in suit; said dye (I-5) has a white light speed and printer light speed of 100 whereas the invention dye 2 (the core structure of which is identical to that of dye (I-6) of document (1) where it is used in the green sensitive layer) used in the blue sensitive layer, has a white light speed of 468 and a printer light speed of 708, all the measurements having been made at a ë of 480 nm (patent in suit, page 10, Table 1).

No evidence was provided to show that it was known that speed in the blue region could be improved by using a dye such as that of the formula of Claim 1 of the patent in suit in a high chloride content emulsion. Thus, the effect on speed in the blue region could not have been predicted by a person skilled in the art.

1.2.3.7 Therefore the subject-matter of Claim 1 of set B of the main request meets the requirements of Article 56 EPC. The dependent Claims 2 to 7 derive their patentability from Claim 1.

2. *Auxiliary requests*

Having identified an allowable set B of claims in the main request, only the claims of set A of the auxiliary requests need to be considered.

2.1 Auxiliary request 1

2.1.1 Articles 84 and 123

The Board is satisfied that Claims 1 to 7 of set A of auxiliary request 1 comply with the requirements of Articles 84 and 123 EPC. It is not necessary to give further details since this request fails for other reasons.

2.1.2 Novelty

The subject-matter of Claim 1 of set A of auxiliary request 1 differs from that of Claim 1 of the main request in that there is no disclaimer with respect to the cellulose triacetate film and in that the sentence "and wherein the photographic element is a colour print photographic element" was added at the end of Claim 1.

The views of the Board set out in 1.1.4.2 and 1.1.4.3 above apply mutatis mutandis to the subject-matter of Claim 1 of auxiliary request 1.

According to the description, "the[se] supports can be arbitrarily selected in accordance with a purpose" (document (4), page 16, line 49 to page 17, line 4). This purpose is explicitly described as being a mirror reflective support which increases reflectivity to

obtain a clear dye image in the silver halide emulsion layer. "Any processing can be applied to the light sensitive material ... as long as a colour developer is used. Examples of processing are those for colour paper, colour reversal paper, a colour positive film, a colour negative film, a colour reversal film and the like" (document (4), page 23, lines 6 to 8). It results from the context that colour prints are included; the following passages are mentioned which refer to "prints": see in particular "photographic material for prints" and "a colour printing material" (document (4), page 3, line 17; page 4, lines 20 and 21).

Hence, the subject-matter of Claim 1 is not novel; Claim 1 of the auxiliary request 1 of set A does not meet the requirements of Article 54(3) EPC.

2.1.3 Auxiliary request 2

2.1.3.1 Articles 84 and 123

The Board is satisfied that the Claims 1 to 7 of set A of auxiliary request 2 comply with the requirements of Articles 84 and 123 EPC. It is not necessary to give further details since this request fails for other reasons.

2.1.3.2 Novelty

Claim 1 of set A of auxiliary request 2 differs from Claim 1 of set A of the main request in that the sentence "and wherein the dye has a peak adsorption (ë max) of 480 nm" was added at the end of the claim. This feature is an inherent characteristic of the

photographic element; therefore, any photographic element having all the other features would automatically also satisfy the adsorption requirement.

The views of the Board set out in 1.1.4.2 and 1.1.4.3 above apply mutatis mutandis to the subject-matter of Claim 1 of auxiliary request 2.

Hence, the subject-matter of Claim 1 is not novel; Claim 1 of set A of the auxiliary request 2 does not meet the requirements of Article 54(3) EPC.

2.1.4 Auxiliary request 3

2.1.4.1 Articles 84 and 123

Claim 1 of set A of Auxiliary request 3 differs from Claim 1 of set A of the main request in that "A photographic element comprising a support, other than a cellulose triacetate film" was replaced by "A method of forming an image on a colour print photographic element using a 3000°K tungsten light source to expose a colour negative onto said photographic element wherein the photographic element comprises a colour print photographic element which comprises a".

The change of category introduces a novel feature which was not mentioned in the product claims, namely an image. The introduction of this novel feature extends the protection conferred by the claim since the end-product was not covered by the product claims concerning the photographic element.

Therefore the subject-matter of Claim 1 of auxiliary request 3 contravenes Article 123(3) EPC.

2.1.5 Auxiliary request 4

Auxiliary request 4 is a request to allow one set of the claims of set A and to allow one set of the claims of the set B independently of the set of claims allowed for the "A"-countries.

However, as outlined under 1.2.3.7 above, only set B of Claims 1 to 7 of the main request for the Contracting States AT, BE, CH, LI, ES, IT and SE submitted by letter of 6 February 1998 is allowable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked for the contracting States BE, GB, FR and NL.

3. The case is remitted to the first instance with the order to maintain the patent on the basis of the set B of Claims 1 to 7 of the Main Request for the Contracting States AT, BE, CH, LI, ES, IT and SE submitted by letter of 6 February 1998 and a description to be adapted thereto.

The Registrar: The Chairman:

G. Rauh P. Krasa

Case Number: T 0278/97 - 3.3.6

D E C I S I O N
of 7 August 2001 correcting errors in the decision of the Technical Board of Appeal 3.3.6 of 21 March 2001

Appellant: (Opponent 01)
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Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted 23 January 1997 concerning maintenance of European patent No. 0 331 414 in amended form.**

Composition of the Board:

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

In application of Rule 89 EPC the decision given in case T 0278/7 on 21 March 2001 is hereby corrected as follows:

In point 2 of the Order "BE" is replaced by "DE"

The Registrar: The Chairman:

G. Rauh P. Krasa