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D E C I S I O N
of 26 March 2002

Case Number: T 0266/98 - 3.3.6

Application Number: 88902749.6

Publication Number: 0378529

IPC: G03C 1/815

Language of the proceedings: EN

Title of invention:
Optically brightened photographic support and element containing same

Patentee:
EASTMAN KODAK COMPANY (a New Jersey corporation)

Opponent:
Felix Schoeller Jr. GmbH & Co. KG

Headword:
Optical brightener/EASTMAN

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Novelty (yes) - combination of features not disclosed in prior art documents"
"Inventive step (yes) - no pointer or in prior art documents to reduce the amount of one specific component"

Decisions cited:
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Catchword:
-

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Case Number: T 0266/98 - 3.3.6

D E C I S I O N
of the Technical Board of Appeal 3.3.6
of 26 February 2002

Appellant: (Opponent)
Felix Schoeller Jr. GmbH & Co. KG
Burg Gretesch
D-49086 Osnabrück (DE)

Representative:
Cohausz & Florack
Patentanwälte
Postfach 33 02 29
D-40435 Düsseldorf (DE)

Respondent: (Proprietor of the patent)
EASTMAN KODAK COMPANY
(a New Jersey corporation)
343 State Street
Rochester
New York 14650 (US)

Representative:
Buff, Michel
KODAK INDUSTRIE
Département Brevets - CRT
Zone Industrielle - B.P. 21
F-71102 Chalon sur Saône Cedex (FR)

Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted 16 Janaury 1998 concerning maintenance of European patent No. 0 378 529 in amended form.**

Composition of the Board:

Chairman: P. Krasa
Members: G. N. C. Raths
M. B. Tardo-Dino

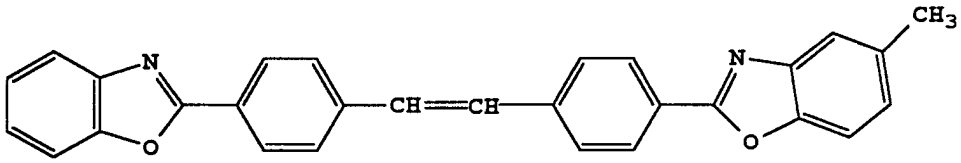
Summary of Facts and Submissions

I. This appeal is against the interlocutory decision of the Opposition Division concerning the maintenance of European patent No. 378 529 in amended form; said patent related to an optically brightened photographic support and element containing same.

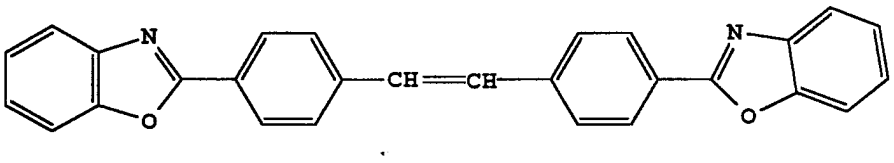
II. Claim 1 of the patent in suit as maintained reads:

"1. A photographic support comprising a paper base material having thereon a polyolefin coating containing a white pigment and a mixture of optical brighteners, characterized in that said mixture comprises

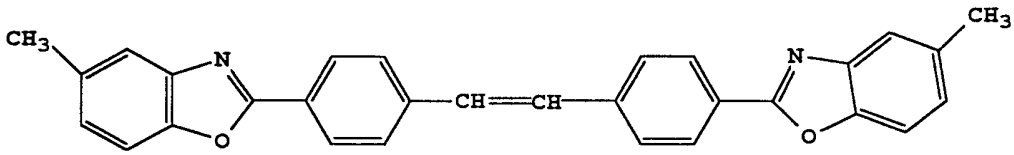
from 40 to 70 weight % of compound (A)



from 10 to 35 weight % of compound (B)



and from 10 to 35 weight % of compound (C)



such percentages being based on the total weight of the mixture."

III. The notice of opposition, based on lack of novelty and inventive step (Articles 100(a), 54 and 56 EPC) cited, inter alia, documents

(1) DE-A-2 165 364,

(2) US-A-3 260 715 and

(3) US-A-3 366 575.

IV. In its decision the Opposition Division held in essence the subject-matter of all the Claims as amended to be novel and also to involve an inventive step, in particular, in view of citation (1) and in view of the test reports submitted by both parties. The Opposition Division held that the testing method of the proprietor was closer to reality than the method of the opponent which used high pressure testing; the proprietor's testing method showed that no migration took place of the optical brightener to the front surface of the polyolefin coated paper base material. Whereas the proprietor was looking for avoidance of optical brightener exudation said problem was not addressed by document (3) which was concerned with brightening effects.

V. An appeal was filed against this decision. The appellant (opponent) argued in essence, orally and in writing, that the subject-matter of the invention lacked an inventive step in view of document (1); in particular the appellant submitted the following arguments:

- it was obvious for the skilled person to reduce the amount of compound (B) in the composition containing compounds (A), (B) and (C), since it is compound (B) which mostly contributes to exudation on storage;

- the migration of the Kayalight O brightener, an optical brightener according to the state of the art (see 3.4.1), was hardly less than the migration of the optical brightener according to the invention;

- in a zero-load test series the optical brightener comprised in the claimed photographic support according to the invention showed no difference in migration behaviour with respect to the Uvitex-OB brightener, known for its bad migration properties;

- the procedure applied by the proprietor was subjective, and not apt to evaluate the migration behaviour of the respective composition.

VI. The respondent (proprietor) contested these submissions. It argued that the appellant had measured the diffused optical brightener, ie the wrong material on the reverse-side ie the wrong side of the paper. Exudation was at stake, and not diffusion, since the former caused deficiencies in the preparation of the

photographic support.

VII. During oral proceedings on 26 February 2002 the appellant drew the attention to document

(6) P.D. Calvert and N.C. Billingham "Loss of additives from polymers: A theoretical model", Journal of Applied Polymer Science, volume 24, 1979, 367-70,

which was cited by the respondent in its letter dated 15 December 2001 (page 7).

VIII. The appellant requests that the decision under appeal be set aside and the patent be revoked.

The respondent requests that the appeal be dismissed.

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

Reasons for the Decision

1. *Articles 84 and 123 EPC*

Claim 1 differs in essence from Claim 1 as originally filed in that the subject-matter of Claim 6, directed to the respective concentrations of (A),(B) and (C), was incorporated into Claim 1. The Board is satisfied that Claim 1 meets the requirements of Articles 84 and 123 EPC; as no objections were raised in respect to said Articles, further reasons need not be given.

2. *Novelty*

The combination of the three bis(benzoxazoyl)stilbenes (A), (B) and (C) together with their respective amounts was not anticipated by any of the cited documents; Novelty was not an issue during the appeal procedure and the Board has no reason to deviate from the findings of the Opposition Division in this respect. Claim 1 meets the requirements of Article 54 (1)(2) EPC.

3. *Inventive step*

3.1 Claim 1 concerns a photographic support comprising a paper base material having thereon a polyolefin coating containing a white pigment and a mixture of optical brighteners (A), (B) and (C) as defined above.

3.2 Such compositions were known from document (1) (page 1, line 3 from the bottom; page 2, lines 2 to 4; pages 11 and 12, example 4).

Both parties took document (1) as the starting point for evaluating inventive step; the Board can agree.

3.3 The technical problem as stated in the patent in suit was to provide a photographic support comprising a paper base support having thereon a polyolefin coating containing, inter alia, a composition of optical brighteners which are resistant to exudation at the polyolefin surface (page 2, lines 40 and 55). Resistance to exudation was not addressed in document (1).

3.4 Both parties had submitted test protocols.

3.4.1 According to Table I of the patent in suit exudation

was avoided when the mixture of optical brighteners (A), (B) and (C) was used; a light exudation appeared when only the optical brightener (B) was used. Further, the respondent's test protocol of 23 May 1996 compared Hostalux, Kayalight O and OB-1. The results are summarized in the following table:

Brightener	A(wt%)	B(wt%)	C(wt%)	exudation
Hostalux (invention)	53	25	23	none
Kayalight O (document (1))	45	41	15	worse
OB-1	0	100	0	worst

The respondent's evaluation method consisted in examining rolls of polyolefin coated supports by visual inspection under UV light and testing for exudation by rubbing the surface of the polyolefin coating with a white non-fluorescent glove and observing the glove under the UV light (patent in suit, page 5, line 57 to page 6, line 2).

3.4.2 The appellant objected to this evaluation method of the respondent as being subjective. On the contrary, the appellant submitted the results of tests consisting in pressurizing sheets of the coated photographic support in a stack covered by a glass plate, loaded with 10 kg, and aging them at 50°C in an oven. The difference between light remission on the adjacent reverse side of the photographic coated support at 420 nm with and without a UV filter gave the ÄFZ value. The appellant found no significant difference between Hostalux KS, a composition used according to the patent in suit

(see Table at point 3.4.1), and Kayalight O. Further, the appellant found that none of the optical brighteners Hostalux KS, Kayalight O and Uvitex-OB migrated under zero-load conditions, the latter optical brightener being known for its bad migration tendency (see the appellant's letter 26 May 1998, page 5, paragraph 2). In other words, the appellant wanted to show that a zero-load testing method was not appropriate to distinguish between a suitable and a non-suitable optical brightener, and thereby to support its objection to the respondent's test procedure.

3.4.3 No matter how scientific the testing and evaluation method of the appellant was, the respondent had relied on a simple and quick testing method which was suitable for industrial practice. The Board has no reason to deviate from the Opposition Division's findings that the testing method of the respondent was sufficient to decide whether or not a coated photographic support could be used in the manufacture of photographic elements. The objective of this test procedure was to determine whether crystals were formed due to the exudation of the optical brightener or not. Such crystals could cause adhesion problems to a photographic element to be coated on the support layer.

According to the aim of the patent, the respondent's test procedure focused on determining the presence of such crystals which were due to the exudation of optical brighteners. The appellant conceded during oral proceedings that its test method could not directly differentiate between diffusion and exudation. Therefore, the Board accepts the respondent's test procedure. It was sufficient to comply with the practical needs of the skilled person concerned with

the manufacture of photographic elements from the respective photographic support. To this end the tests established sufficiently the results sought by the patentee.

It is true that Hostalux KS is only one composition exemplifying the claimed whole range of compositions comprising compounds (A), (B) and (C) illustrating the successful performance of the invention. In the absence of a proof to the contrary, which would have to have been submitted by the appellant, this is sufficient evidence for showing that the technical problem is solved over the whole scope of Claim 1. Under these circumstances the technical problem as defined in the patent in suit need not be reformulated (see above point 3.3).

3.5 The question remains whether or not the claimed solution of the existing technical problem involves an inventive step.

3.6 There was no dispute that component (B) was known. The skilled person had no incentive to reduce the concentration of component (B) ie Kayalight O disclosed by document (1), since exudation problems were not mentioned in said document.

On inquiry the appellant could not confirm, let alone prove that the disadvantages of compound B such as low solubility in a polyolefin layer and the tendency to exudate, mentioned in the letters of the appellant of 22 January 2002 (page 4, item 4, paragraph 2, last line) and of the respondent of 12 December 2001 (page 2, paragraph 2) were known at the priority date of the patent in suit.

The knowledge of the general problem of optical brighteners tending to migrate and to exudate did not yet focus on the specific problem of one single component, ie component (B).

Document (1) neither mentions the above defined technical problem nor suggests a solution to it; document (2) concerns only the manufacture of bis-benzoxazolyl stilbene compounds and their use as optical brighteners and document (3) relates to optical brightening agents for polyolefin fibres but not for photographic supports without any indication of an exudation problem.

The appellant submitted that document (6) would have led the skilled person to the claimed solution, ie to the reduction of the amount of compound (B).

The Board cannot accept this argument. Document (6) relates generally to the loss of additives from polymers (see heading) and addresses three factors: solubility, volatility and diffusion coefficient of the additive (see page 357, synopsis). The passage which the appellant referred to in particular reads:

"Once the additive is soluble, the most important consideration is to reduce its volatility. The use of long flexible substituents is ideal since it increases solubility, reduces volatility, and has little effect on diffusion coefficient relative to the unsubstituted molecule. Thus, the stabilization....is most effectively achievable by additives of high solubility and low volatility."(page 369, lines 14 to 19).

The skilled person would have concluded therefrom, so

the appellant argued, that the amount of compound (B) having the lowest solubility and the highest volatility of the three compounds (A), (B) and (C) should be reduced to solve the existing technical problem However, the Board finds the above cited passage discloses rather to provide the respective molecule with a long flexible substituent in order to increase its solubility and reduce its volatility (page 369, lines 15 to 19) instead of reducing its amount. Moreover, as already indicated, the individual skilled person would not have been aware of the unfavourable exudation properties of the component (B). So there was no pointer or indication in document (6) to lead the skilled person to the claimed solution.

3.7 For the above reasons, the Board finds that the subject-matter of Claim 1 involves an inventive step. Claims 2 to 7 refer to specific embodiments of Claim 1 and derive their patentability from Claim 1.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Rauh P. Krasa