

Internal distribution code:

- (A) [] Publication in OJ
(B) [] To Chairmen and Members
(C) [X] To Chairmen

D E C I S I O N
of 4 March 1999

Case Number: T 0532/95 - 3.3.1

Application Number: 86307737.6

Publication Number: 0219302

IPC: B41M 5/155

Language of the proceedings: EN

Title of invention:
Recording materials

Patentee:
Fuji Photo Film Co., Ltd.

Opponent:
New Oji Paper Co., Ltd.

Headword:
Recording materials/FUJI

Relevant legal provisions:
EPC Art. 54, 56, 83, 111(1), 114, 123(2), (3)
EPC R. 88

Keyword:
"Correction of granted claim - admitted (yes) - obvious error
- declaratory nature"
"Sufficiency of disclosure (yes) - lack of evidence to the
contrary"
"Novelty (yes) - multiple selection"
"Inventive step (yes) - determination of the closest state of
the art - unobvious solution"

Decisions cited:

G 0003/89, G 0011/91, T 0016/87, T 0182/89, T 0406/91,
T 0686/91, T 0482/92, T 0298/93

Catchword:

-



Europäisches
Patentamt

European
Patent Office

Office européen
des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number: T 0532/95 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 4 March 1999

Appellant: New Oji Paper Co., Ltd.
(Opponent) 7-5 Ginza 4-chome
Chuo-ku Tokyo (JP)

Representative: Morf, Jan Stefan, Dr. Dipl.-Chem.
Patentanwälte Abitz und Partner
Postfach 86 01 09
81628 München (DE)

Respondent: Fuji Photo Film Co., Ltd.
(Proprietor of the patent) 210 Nakanuma
Minami-Ashigara-shi
Kanagawa 250-01 (JP)

Representative: Bubb, Antony John Allen
Chancery House
Chancery Lane
London WC2A 1QU (GB)

Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office posted 27 April
1995 concerning maintenance of European patent
No. 0 219 302 in amended form.

Composition of the Board:

Chairman: A. J. Nuss
Members: R. Freimuth
W. Moser

Summary of Facts and Submissions

- I. The Appellant (Opponent) lodged an appeal against the interlocutory decision of the Opposition Division which found that the European patent No. 219 302 in the form as amended during opposition proceedings according to the then pending main request met the requirements of the EPC.
- II. The opposition was based on the grounds that the invention was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 100(b) EPC), and of lack of novelty and inventive step (Article 100(a) EPC). It was supported by several documents including:

- (1) JP-B-55-1195
- (2) US-A-4 236 732 and
- (3) US-A-3 983 292.

The Opposition Division held that the amendments made to claim 1 of the patent in suit as granted satisfied the requirements of Article 123(2), (3) and Rule 88 EPC. The definition of 7 to 18 carbon atoms in the substituted or unsubstituted alkyl group had a basis in claim 3 as granted. The deletion of the suffix "oxy" from the definition "4-dodecyloxy" for the group R was considered to be the correction of an obvious error. The former restriction of the number of carbon atoms as well as the latter correction did not broaden the scope of protection of the patent in suit as granted.

The patent in suit as amended was found to disclose the invention in a manner sufficiently clear and complete

to be carried out by a skilled person, since the Appellant-Opponent did not provide evidence to support his objections. Moreover, the patent in suit comprised five detailed examples showing how to carry out the invention.

The subject-matter claimed represented a selection from the disclosure of document (1) or (3) which did not destroy the novelty of the patent in suit as amended.

The problem underlying and solved by the patent in suit consisted in reducing fog due to solvents, and discoloration or decoloration of a developed color image due to fats, oils and chemicals. However, since none of the documents in the proceedings dealt with the same problem, the cited state of the art could not give any incentive on how to solve that problem. Thus, the subject-matter claimed involved an inventive step.

III. The **Appellant** submitted that the amendment made to the definition "4-dodecyloxy" in claim 1 of the patent in suit as amended was not the correction of an obvious error, but that it extended the protection conferred by the patent in suit as granted, and that the claimed invention lacked sufficient disclosure, novelty and inventive step, essentially for the following reasons:

A. The skilled reader would not notice any defect in the definition "4-dodecyloxy" for the group R given in claim 1 of the patent in suit as granted. Only when comparing the claim with the different definition of that particular compound given on page 3, line 37 of the patent in suit, would he notice that one of the definitions was not

correct, without knowing, however, which was the correct one. Thus, the deletion of the suffix "oxy" in the definition given in claim 1 of the patent in suit as granted was not the correction of an obvious error pursuant Rule 88 EPC and that amendment broadened the scope of protection conferred by the patent in suit as granted, thus contravening Article 123(3) EPC.

- B. The patent in suit did not disclose how the starting compound R-Z could be obtained, which was needed to prepare the compounds of formula (I) according to the reaction scheme on page 8, lines 10 to 15 of the patent in suit. The substituent to the alkyl group R was not restricted in any way. Even if some simple starting compounds R-Z were known, the whole breadth of R-Z compounds was not known, so that all compounds of formula (I) used for the claimed recording material could not be prepared and, thus, the patent in suit was lacking sufficient disclosure contrary to the requirements of Article 100(b) EPC.
- C. Documents (1) and (3) were novelty destroying. They disclosed recording materials wherein the accepting compound was defined by a general formula which covered the salicylic acid derivatives of formula (I) of the patent in suit, however, without giving specific examples falling within that formula. Nevertheless, taking into account the whole disclosure, those documents disclosed *inter alia* the substitution at the 4-position on the salicylic acid, the alkoxy

substituent and a carbon number of up to 8 in the alkyl group R. All features of the claimed invention being known from that state of the art, a new element necessary to establish novelty did not arise with respect to the subject-matter claimed.

- D. Further, having regard to inventive step, documents (1) and (3) dealt with the stability of the formed color image against solvents or against the atmosphere of other chemicals. The patent in suit addressed the reduction of fog generation caused by solvents which was the same problem. No advantage regarding the fog density was achieved by turning from a substitution at the 5-position on the salicylic acid to that at the 4-position as demonstrated in the test report dated 16 March 1995 filed during opposition proceedings. Documents (1) and (3) as well as document (2) disclosed salicylic acids substituted at the 4-position, e.g. 4-methoxysalicylic acid, and document (3) recommended alkoxy substituents having higher carbon numbers. Thus, the substitution at the 4-position on the salicylic acid with an alkoxy radical having higher carbon numbers, thereby arriving at the compounds of formula (I) of the patent in suit, was obvious.

The documents submitted with the letter dated 14 November 1995, i.e.

- (8) JP-A-58-205797, considered in the form of its partial English translation,

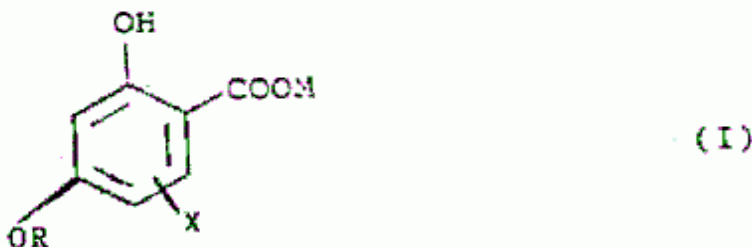
(9) JP-A-57-6795, considered in the form of its partial English translation, and

(10) JP-A-59-185693, considered in the form of its partial English translation,

disclosed heat-sensitive recording materials using salicylic acids which were superior in chemical resistance. Therefore they dealt with the particular problem addressed in the patent in suit.

IV. At the oral proceedings before the Board, held on 4 March 1999, the **Respondent** (Proprietor of the Patent) defended the maintenance of the patent in suit in amended form on the basis of a sole claim, submitted during these oral proceedings and superseding all previous requests. The claim read as follows:

"A heat-sensitive recording material, containing an electron-donating leuco dye and an electron-accepting compound, characterized in that said electron-accepting compound is a salicylic acid derivative or metal salt thereof represented by the formula (I);



wherein R represents a substituted or unsubstituted alkyl group having from 7 to 18 carbon atoms; X

represents an alkyl group, an alkoxy group or a halogen or hydrogen atom, or a 6-phenyl group when R represents a dodecyl group; and M represents a hydrogen atom or $M_1^{1/n}$, wherein M_1 represents an n-valent metal atom, and n represents an integer corresponding to the valence number of the metal atom."

- V. The Respondent argued that the modification of the definition "4-dodecyloxy" in claim 1 of the patent in suit as amended was the allowable correction of an error and that the invention was sufficiently disclosed, was novel and involved an inventive step, essentially for the following reasons:
 - A. The definition "4-dodecyloxy" for the group R in general formula (I) of claim 1 of the patent in suit as granted was an obvious error for the person skilled in the art since the "oxy" group and the "4-"position of the substitution on the salicylic acid were already specified in that general formula (I). The literal meaning arising from that "oxy" group and that general formula (I) was a peroxy derivative making no sense in the present context. The correction offered was self-evident and backed up by the particular compound 4-dodecyloxy-6-phenylsalicylic acid listed on page 3 of the patent in suit. It consisted in deleting those redundancies resulting in the definition "dodecyl" for the group R. Therefore, that amendment corrected an obvious error in the sense of Rule 88 EPC without violating Article 123 EPC.
 - B. Having regard to the alleged lack of sufficient

disclosure of the invention, the reactant R-Z, which was employed as starting compound in a process for preparing the compounds of formula (I) according to the reaction scheme on page 8 of the patent in suit, was well known to the synthetic organic chemist. In view of the standard nature of the starting compound R-Z, the burden of proof for insufficient disclosure, which rested on the Appellant, could not be discharged simply by making unsubstantiated assertions with respect to that starting compound.

- C. None of the documents (1) and (3) anticipated the subject-matter claimed. The invention represented a selection of a narrow section of the much larger area covered by those documents. In that state of the art the emphasis was not put on the 4-alkoxy substitution on the salicylic acid. That new element was the prerequisite for a selection situation. Document (1) disclosed specifically 4-methoxysalicylic acid and 5-octoxysalicylic acid, which were not covered by claim 1 of the patent in suit as amended requiring the substituent to be in the 4-position and having at least 7 carbon atoms. Document (3) referred *inter alia* on the one hand to a substitution in the 4-position on the salicylic acid and on the other to an octoxy substituent; both features, however, were disclosed separately and not in combination.
- D. Having regard to inventive step, the objective to be achieved by the patent in suit was to prevent fogging and discoloration of recording materials due to solvents and chemicals. None of the

documents (1), (2) and (3) addressed that objective. Document (8) related to fogging and discoloration of recording materials due to oils, i.e. the objective aimed at by the patent in suit. Therefore that document was to be regarded as the closest state of the art. However, the newly introduced documents (8) to (10) did not teach the use of 4-alkoxy substituted salicylic acids. Thus, the state of the art did not render the claimed subject-matter obvious. Furthermore, the Respondent's test report included in the letter dated 26 February 1996 evidenced the reduction of fogging when using salicylic acids according to the patent in suit, contrary to Appellant's submissions.

- VI. The Appellant requested that the decision under appeal be set aside and that the patent be revoked.

The Respondent requested that the decision under appeal be set aside and that the patent be maintained on the basis of the sole claim submitted during oral proceedings.

- VII. Oral proceedings were held in the absence of the Appellant who, after having been duly summoned, informed the Board that he would not attend. At the end of the oral proceedings the decision of the Board was given orally.

Reasons for the Decision

1. The appeal is admissible.

2. *Late-filed evidence (Article 114 EPC)*
 - 2.1 Documents (8) to (10) are new evidence cited in the Appellant's letter dated 14 November 1995 for the first time, i.e. less than three months following the Statement of Grounds of Appeal. Those documents were prompted by and intended to overcome the Opposition Division's essential argument set out in the decision under appeal that none of the then addressed documents dealt with the objectives aimed at in the patent in suit. The Respondent provided detailed comments on those documents in his letter dated 26 February 1996 since they reached the Respondent before he replied to the Appellant's appeal. Thus, the filing of documents (8) to (10), the time limit for appeal having just expired, caused no undue delay in the appeal proceedings. Since these documents seem to be *prima facie* relevant for the assessment of inventive step, the Board admits them into the appeal proceedings under Article 114(1) EPC.

 - 2.2 The Respondent's test report, submitted for the first time in his letter of reply to the appeal dated 26 February 1996, is to be taken into consideration in the appeal proceedings, as it cannot be held to be filed late within the meaning of Article 114(2) EPC. The Respondent submitted that test report in due time since it countered directly the Appellant's test report, which was presented in the opposition proceedings very shortly before the oral proceedings.

3. *Amendments (Article 123(2) and (3) and Rule 88 EPC)*

3.1 The first amendment to independent claim 1 of the patent in suit as granted, which consists in defining the recording material as "heat-sensitive", finds support in claim 1 of the application as filed. The second amendment to that claim, which consists in specifying the substituted or unsubstituted alkyl group R in the general formula (I) as "having 7 to 18 carbon atoms", is backed up by claim 2 and page 5, line 5 of the application as filed. Therefore both amendments to claim 1 as granted comply with the requirements of Article 123(2) EPC.

Those amendments of claim 1 as granted bring about a restriction of the scope of the claims, and therefore of the protection conferred thereby, which is in keeping with the requirements of Article 123(3) EPC.

3.2 As third amendment, the definition "4-dodecyloxy" for the group R in the general formula (I) of claim 1 of the patent in suit as granted was replaced by the definition "dodecyl" in the sole claim of the patent in suit now on file. The Appellant and the Respondent had divergent views on the matter whether or not that amendment represented the correction of an obvious error within the meaning of Rule 88 EPC or broadened the scope of protection conferred by the patent in suit as granted contrary to the requirements of Article 123(3) EPC.

3.2.1 Rule 88, second sentence, EPC governs the present issue where the Respondent submits that an error occurred in a claim of the patent as granted so that its text does not conform to what was intended and where he seeks to correct that error in order to bring the text into

conformity with the intended wording. In order for a correction of a claim under Rule 88, second sentence, EPC to be allowable, it must be established

- (a) that an error is in fact present in the document filed at the EPO, and
- (b) that the correction of the error is obvious in the sense that it is immediately evident that nothing else would have been intended than what is offered as the correction.

3.2.2 With respect to the above requirement (a), the patent in suit as granted must, following an amendment under Article 123 EPC, contain such an **obvious** error that a skilled person has no doubt that this information is not correct and - considered objectively - cannot be meant to read as such (see opinion G 3/89 and decision G 11/91, OJ EPO 1993, 117 and 125, point 5 of the reasons). In the present case, the general formula (I) in claim 1 of the patent in suit as granted, which defines the salicylic acid derivatives incorporated into the claimed recording material, comprises the substituent -OR, which is mandatorily bonded to the 4-position on that salicylic acid. The group R of the substituent -OR represents a "substituted or unsubstituted alkyl group" according to the general definition given in claim 1 as granted. The particular definition "4-dodecyloxy" for the group R of that substituent -OR, additionally contained in claim 1 as granted, results in a peroxy derivative when taking its literal meaning, since the oxygen atom of the dodecyl**oxy** group R would then be linked to the oxygen atom of the substituent -OR already comprised in

general formula (I). However, the skilled person immediately realises that unstable and highly reactive peroxy derivatives make no sense in the present context, either with respect to the general definition "substituted or unsubstituted alkyl group" for the group R in claim 1 as granted, or with respect to the technical field of heat-sensitive recording materials. Therefore the skilled person has no doubt that the suffix "**oxy**" in the definition "4-dodecyloxy" for the group R is not correct.

Nor has the skilled person any doubt that the indication of the "**4-**"position in the definition "4-dodecyloxy" for the group R of the substituent -OR makes no sense in the context of claim 1 as granted and that it is incorrect, since the 4-position on the salicylic acid is in any case mandatory for the substituent -OR according to the general formula (I).

For these reasons, the Appellant's allegation that the skilled reader would not notice any defect in the definition "4-dodecyloxy" for the group R in claim 1 as granted is not supported by the facts and, in the Board's judgement, that definition - when considered objectively - cannot be meant to read as such on the ground that two obvious errors occurred, with the consequence that the above requirement (a) is fulfilled.

3.2.3 With respect to the above requirement (b), the prohibition of extension enshrined in Article 123(2) EPC also applies to such a correction. This means that it is essential to determine whether the skilled person would objectively, i.e directly and unambiguously, have derived the corrected feature from the European patent application as a whole on the date of filing of the application (see opinion G 3/89 and decision G 11/91, loc cit., points 2 and 6 of the reasons). In the present case, the definition "dodecyl" for the group R of the substituent -OR is offered as the correction of the obvious errors in claim 1 of the patent in suit as granted (cf. point 3.2.2 above). According to the sole claim of the patent in suit now on file, the corrected definition for the group R arises only when the substituent X in general formula (I) represents a phenyl group at the 6-position on the salicylic acid. The specification of that combination identifies an individual chemical compound having the structure 4-dodecyloxy-6-phenylsalicylic acid. That compound is specifically disclosed on page 10, lines 7 and 8 of the application as filed and is the sole individual chemical compound of general formula (I) disclosed in the application as filed wherein the substituent X represents a phenyl group. Any skilled person would therefore immediately realise that the definition for the group R of the substituent -OR in the sole claim of the patent in suit now on file should read "dodecyl", when the substituent X represents a 6-phenyl group, in order to reflect correctly that particular individual chemical compound. Furthermore, the correction offered is self-evident to the skilled person, since it consists merely in deleting the redundancies in claim 1 as granted arising from defining twice the presence of

an "oxy" substituent at the "4-"position on the salicylic acid, i.e. once in the general formula (I) and another time in the definition "4-dodecyloxy" for the group R.

For these reasons, in the Board's judgement, the skilled person would directly and unambiguously derive the corrected definition for the group R from the application as filed, and there are no doubts that nothing else was intended than what is proposed as the correction, with the consequence that the above requirement (b) is fulfilled as well.

- 3.2.4 To conclude, the third amendment consisting in substituting the definition "dodecyl" for the group R of the substituent -OR in the claim as amended for the definition "4-dodecyloxy" in claim 1 as granted is an allowable correction in the sense of Rule 88, second sentence, EPC.
- 3.2.5 In accordance with the opinion of the Enlarged Board of Appeal G 3/89 and the decision G 11/91 (loc cit.) such an obvious correction is of strictly declaratory nature and does not infringe the prohibition of extension under Article 123(2) EPC.
- 3.2.6 Moreover, in the Board's judgement, that obvious correction also does not extend the protection conferred by claim 1 of the patent in suit as granted as prohibited pursuant to Article 123 (3) EPC, since a skilled person, interpreting the scope of said claim as granted in the light of the considerations in the preceding points 3.2.2 and 3.2.3, would have disregarded the obviously erroneous definition for the

group R and would have rectified that feature immediately, giving the erroneous definition the clearly intended correct meaning, ie. "dodecyl".

3.3 Therefore, all the amendments made to claim 1 as granted comply with the requirements of Article 123(2) and (3) and Rule 88 EPC.

4. *Insufficiency of the disclosure of the invention (Article 100(b) EPC)*

4.1 The Appellant argued that the patent in suit was silent about how to obtain the starting compound R-Z, which was necessary according to the reaction scheme on page 8, lines 10 to 15 thereof, to prepare the compounds of general formula (I) used in the present invention. The substituent to the alkyl group R not being restricted in any way, the whole breadth of R-Z compounds was not known, so that all compounds of general formula (I) incorporated into the claimed recording material could not be prepared and, thus, the invention was lacking sufficient disclosure.

4.2 The patent in suit indicates on page 8, lines 6 to 17 a process for preparing the compounds of general formula (I) which is illustrated by a reaction scheme. That process comprises the reaction of a phenolated hydroxysalicylic acid with an alkyl halide or an alkyl sulfonate, the latter characterised in the reaction scheme with the formula R-Z wherein R represents an alkyl group and Z a halogen atom or a sulfonyloxy group. Should the starting compound R-Z not be available to the person skilled in the art, then the compounds of general formula (I) contained in the

claimed recording materials could not be prepared according to this preparation process. To that extent, the Board concurs with the Appellant's submissions.

However, the Respondent emphasised and the Appellant conceded in his letter dated 28 August 1995, page 4, paragraph 1, that the simple starting compounds R-Z, e.g. alkyl halides, belong to classical organic chemistry and are of standard kinds well known to the synthetic organic chemist for a long time. The synthesis examples 1 to 5 of the patent in suit exemplify starting compounds R-Z and their use in that preparation process which show that the skilled person has no difficulties in carrying out the invention. Therefore the Board has no reason to divert from the common approach of both Appellant and Respondent that a skilled person, using his common general knowledge, was able to prepare the compounds of general formula (I) starting from the simple compounds R-Z.

- 4.3 The Appellant, when objecting that the alkyl group R may comprise unspecified substituents so that there were millions of starting compounds R-Z being "certainly not known", with the consequence that not all conceivable compounds of general formula (I) could be prepared, has merely speculated without providing substantiating facts or evidence in support of that allegation. According to the established jurisprudence of the Boards of Appeal, it is with the Appellant-Opponent invoking the partial invalidity of a patent on the ground that the invention cannot be carried out for certain compounds claimed that the onus of proof rests for the facts he alleges (see decisions T 182/89, OJ EPO 1991, 391, point 2 of the reasons; T 16/87, OJ EPO

1992, 212, point 4 of the reasons; T 406/91, point 3.1 of the reasons, the latter not published in OJ EPO). In the absence of any pertinent evidence presented by him, the Appellant has not discharged the burden of proof which is upon him, with the consequence that the Board does not accept his submissions in this respect.

4.4 Consequently, the Appellant's challenge of the sufficiency of the disclosure of the patent in suit under Article 100(b) EPC is rejected.

5. *Novelty*

5.1 Document (1) is directed to a recording sheet for heat-sensitive recording systems comprising a chromogenic compound and an acceptor containing an organic carboxylic acid and/or polyvalent metal salt thereof. That document discloses a leuco dye as chromogenic compound and *inter alia* salicylic acid derivatives of general formula (2) as organic carboxylic acid. According to that general formula (2), the salicylic acid derivatives are either unsubstituted or substituted, optionally at each of their positions 3, 4, 5 and 6 and optionally by one or more substituents R. The generic definitions alternatively listed for the substituent R comprise *inter alia* the alkoxy substituent without, however, indicating any number of carbon atoms contained in the alkyl group which forms part of that alkoxy substituent. Six individual salicylic acids, alkoxy substituted at the 3-, 4- or 5-position, are exemplified. The Appellant argued that this general disclosure amounted to the disclosure of the particular combination as defined in the claim of the patent in suit, i.e. of salicylic acids mandatorily

substituted on the 4-position with an alkoxy substituent, the alkyl group forming part of that substituent having 7 to 18 carbon atoms.

The particular combination claimed, however, results from a multiple selection within the above-mentioned numerous optional and alternative features. In the absence of any pointer to **that** particular combination, that combined selection of features does not, for the skilled person, emerge clearly and unambiguously from document (1). Furthermore, in view of the silence about the number of carbon atoms contained in the alkyl group forming part of the alkoxy substituent, the generic disclosure of the alkoxy substituent in that document does not reveal to the skilled person the particular number of carbon atoms of from 7 to 18 indicated in the claim of the patent in suit.

Therefore, the particular combination of an alkoxy substituent on the 4-position of the salicylic acid, wherein the alkyl group forming part of that alkoxy substituent has 7 to 18 carbon atoms, as covered by the claim of the patent in suit, is not disclosed in document (1). Hence, the general disclosure of that document does not destroy the novelty of the subject-matter claimed.

The individual compounds of general formula (2) disclosed in document (1) do not alter that conclusion. The individual compound 4-methoxysalicylic acid has merely 1 carbon atom in the alkyl group forming part of the alkoxy substituent, contrary to the lower limit of 7 carbon atoms required in the claim of the patent in suit, and the individual compound 5-octoxysalicylic

acid is alkoxy-substituted at the 5-position, contrary to the claim of the patent in suit requiring substitution at the 4-position.

- 5.2 The subject-matter claimed of the patent in suit as amended is delimited from document (3) since its sole claim is directed to heat-sensitive recording materials, whereas that document discloses pressure-sensitive recording materials.
- 5.3 In the Board's judgement, documents (1) and (3) do not anticipate the invention as defined in the claim of the patent in suit for the reasons given above.
- 5.4 The Board is satisfied that the subject-matter claimed of the patent in suit is not disclosed in any of the further cited documents, either. This not being in dispute between the Parties during appeal proceedings and the Opposition Division having already acknowledged novelty, it is not necessary to give detailed reasons for this finding.
- 5.5 For the above reasons, the Board concludes that the subject-matter of the patent in suit is novel and meets the requirements of Articles 52(1) and 54 EPC.

6. *Inventive step*

- 6.1 In accordance with the "problem-solution approach" consistently applied by the Boards of Appeal to assess inventive step on an objective basis, it is necessary to establish the closest state of the art being the starting point, to determine in the light thereof the technical problem which the invention addresses and

solves, and to examine the obviousness of the claimed solution to this problem in view of the state of the art. In this context, the Boards of Appeal have developed certain criteria that should be adhered to in order to identify the closest state of the art being the starting point. One such criterion is that the "closest prior art" is normally a prior art document disclosing subject-matter aiming at the same objective as the claimed invention and having the most relevant technical features in common (see decisions T 686/91, point 4 of the reasons; T 482/92, point 4.1 of the reasons; T 298/93, point 2.2.2 of the reasons; none published in OJ EPO).

- 6.2 The patent in suit relates to a heat-sensitive recording material containing a leuco dye and a salicylic acid derivative. The objectives to be achieved, as indicated in the patent in suit, consist in overcoming the disadvantages of (a) fog generation due to solvents, and (b) discoloration or decoloration of a developed color image due to fats, oils and chemicals (cf. patent specification page 2, lines 18 to 20). These objectives are more precisely specified in the patent in suit as being to overcome the fact that upon contact with stationery or office supplies, e.g. ink pens, fluorescent pens, inkpads, adhesives, pastes, diazo developers, or cosmetics, such as hand creams or milky lotions, the white background develops a color, which is called "fog", or a color developed area undergoes discoloration (cf. patent specification page 2, lines 20 to 23 and 33). In relation to these objectives and to the relevant technical features in common, a selection among the documents cited in the proceedings must be made as to which is to be

considered as the "closest prior art".

- 6.2.1 Document (8) refers to a heat-sensitive recording material containing a leuco dye and a salicylic acid derivative (claim 1, page 1, last paragraph). That document aims at improving the disadvantage of fog generation on the background (page 1, paragraph 2, second sentence), which represents the above objective (a) of the patent in suit, and the disadvantage of poor oil resistance of the recorded image disappearing due to contact with a finger or a hair liquid (page 1, paragraph 2, third sentence), which corresponds to the above objective (b) of the patent in suit.

Thus, document (8) aims at the same objectives as the claimed invention and has all the relevant technical features in common.

- 6.2.2 Document (9) refers to a heat-sensitive recording material containing a chromogenic material and metal salts of aliphatic or aromatic carboxylic acids. The objectives addressed in that document consist in providing a recording material which is stable against the contact with plasticizers, stabilizers or additives of plastic material before and after developing a color image.

Thus, document (9) does not aim at the objectives indicated in the patent in suit and does not specifically disclose the relevant technical feature of using a salicylic acid derivative in the recording material. Therefore, it cannot represent the closest prior art.

6.2.3 Document (10) refers to a heat-sensitive recording material containing a chromogenic material and a polyvalent metal salt of aliphatic organic acids and an aromatic carboxylic acid, e.g. a salicylic acid derivative. That document teaches explicitly that the color development cannot be attained by solely using an aromatic carboxylic acid, but that this aromatic carboxylic acid has to be used together with a polyvalent metal salt of aliphatic acids. The objectives addressed in that document consist in providing a recording material which is stable against the contact with plasticizers and which furthermore is superior in whiteness and color developability.

Thus, in contrast to document (8), document (10) on the one hand does not aim at the objectives, indicated in the patent in suit, of avoiding (a) fog generation on the white background due to solvents and (b) discoloration or decoloration of the developed color image due to fats, oils or chemicals, and on the other hand it does not point to the relevant feature specified in the patent in suit that the salicylic acid derivative achieves these objectives on its own. The Board concludes, therefore, that document (10) represents prior art further away from the patent in suit than document (8).

6.2.4 Document (1) refers to a heat-sensitive recording material containing a chromogenic compound and an organic carboxylic acid, e.g. a salicylic acid derivative. That document teaches explicitly that the organic carboxylic acid is to be used in admixture with a compatible organic high molecular compound. The objective addressed in that document consists in

achieving superior stability of the recording material against ultraviolet, heat and water before and after recording a color image. Contrary to the Appellant's submissions, the stability aimed at in document (1) is neither identical nor similar to the specific objectives (a) and (b) indicated in the patent in suit. Both objectives (a) and (b) relate to the stability of the recording material due to solvents, fats, oils or chemicals arising from the contact with stationery or office supplies, or cosmetics, which, as a matter of course, is distinct to any stability against ultraviolet, heat or water.

Thus, document (1) concerns an objective different to those indicated in the patent in suit, and it does not point to the relevant technical feature specified in the patent in suit according to which the salicylic acid derivative achieves these objectives on its own. Therefore, that document cannot represent the closest prior art.

6.2.5 Document (3) relates to a pressure-sensitive recording material, whereas the claim of the patent in suit as amended is now directed to a heat-sensitive recording material. These different technical fields disqualify that document from representing the closest prior art.

6.2.6 For these reasons, in the Board's judgement, document (8) represents the prior art closest to the patent in suit and thus, the starting point in the assessment of inventive step.

6.3 In the next step, the technical problem which the invention addresses in the light of the closest state

of the art is to be determined.

In view of the closest state of the art, i.e. document (8), the technical problem underlying the patent in suit consists in providing a **further** heat-sensitive recording material which avoids (a) fog generation due to solvents and (b) discoloration or decoloration of a developed color image due to fats, oils and chemicals (cf. patent specification page 2, lines 18 to 20).

- 6.4 The sole claim of the patent in suit as amended proposes, as the solution to this problem, to comprise in the heat-sensitive recording material a salicylic acid derivative or metal salt thereof, which is mandatorily substituted at the 4-position with an alkoxy substituent according to general formula (I), wherein the (un)substituted alkyl group, forming part of that alkoxy substituent, has 7 to 18 carbon atoms.
- 6.5 The specification of the patent in suit demonstrates in tables 3 and 5 on pages 13 and 16 that the claimed heat-sensitive recording materials achieve the objectives of preventing from (a) fog generation and (b) discoloration, due to chemicals. The examples 3 to 9 and 12 to 18 of those tables relate to heat-sensitive recording materials according to the claimed invention, i.e. containing a salicylic acid derivative or metal salt thereof, which is mandatorily substituted at the 4-position with an alkoxy substituent according to general formula (I), wherein the (un)substituted alkyl group, forming part of that alkoxy substituent, has 7 to 18 carbon atoms. Those heat-sensitive recording materials were tested for chemical resistance against

the chemicals ethanol and castor oil. The results indicate that the fog generation and the color disappearance due to these chemicals is in fact avoided.

For these reasons, the Board is satisfied that the problem underlying the patent in suit has been successfully solved. This finding has not been challenged by the Appellant.

In view of the above, any purported superiority in fog density of the claimed recording materials compared to others is not relevant in the present case, since the problem underlying the patent in suit does **not** consist in providing **improved** heat-sensitive materials, but rather in providing merely **further** heat-sensitive recording materials, i.e. the less ambitious problem resulting from an objective comparison with the closest state of the art (see point 6.3 above). It is thus not necessary to deal with the parties' test reports which present comparisons carried out under different experimental conditions and which report experimental results for fog density showing gross differences.

6.6 It remains to be decided whether or not the proposed solution to the problem underlying the patent in suit is obvious in view of the cited state of the art.

6.6.1 Document (8), i.e. the closest prior art document (see point 6.2.1 above), teaches the incorporation into the heat-sensitive recording material of a salicylic acid derivative having on any position thereof a substituent such as phenyl or phenethyl. It does not give any

incentive to use a salicylic acid derivative mandatorily substituted at the 4-position with an alkoxy substituent. Thus, document (8), on its own, does not render obvious the solution proposed by the claimed invention.

- 6.6.2 Documents (9) and (10) do not address the technical problem underlying the patent in suit of avoiding (a) fog generation due to solvents and (b) discoloration or decoloration of the developed color image due to fats, oils and chemicals as set out above in detail (see points 6.2.2 and 6.2.3). Therefore, those documents cannot give any hint on how to solve these technical problems.

The salicylic acid derivatives to be incorporated into the heat-sensitive recording material, which are specifically taught in document (10), bear a phenyl, a benzyl or alkyl substituents at the 3- and/or 5-positions. Document (9) is silent about any salicylic acid derivative to be used in the heat-sensitive recording material. Hence, those documents do not point to the claimed solution, i.e. to use a salicylic acid derivative mandatorily substituted at the 4-position with an alkoxy substituent.

Consequently, documents (9) and (10) do not render obvious the proposed solution to the technical problems underlying the patent in suit either.

- 6.6.3 The same conclusion applies to documents (1) and (2). Document (1) also does not address the technical problem underlying the patent in suit (see point 6.2.4). Document (2) relates to the problem of

providing heat-sensitive recording materials having improved heat-sensitivity and being adapted for high speed recording (column 1, lines 7, 8, 52 and 56), which is different to the technical problems (a) and (b) addressed by the patent in suit. Therefore, those documents cannot give any hint on how to solve the technical problem underlying the present invention.

Salicylic acid derivatives taught to be incorporated into the heat-sensitive recording material of document (1) may optionally be substituted *inter alia* with an alkoxy substituent at any one of the positions 3, 4, 5 and 6, without defining or suggesting any concrete number of carbon atoms to be contained in the alkyl group forming part of that alkoxy substituent. Document (2) teaches the incorporation of aromatic carboxylic acids into the heat-sensitive recording materials including *inter alia* salicylic acid derivatives. The individual compounds specified in documents (1) and (2) identify *inter alia* 4-methoxysalicylic acid, which has only 1 carbon atom in the alkyl group forming part of the alkoxy substituent, and 5-octoxysalicylic acid, which is substituted at the 5-position. Hence, those documents do not point to the claimed invention, i.e. to use a salicylic acid derivative mandatorily substituted at the 4-position with an alkoxy substituent, the alkyl group forming part of that substituent having 7 to 18 carbon atoms.

Consequently, documents (1) and (2) do not render obvious the proposed solution to the technical problems underlying the patent in suit.

6.6.4 Document (3) is directed to pressure-sensitive

recording materials, the claimed invention, however, to heat sensitive recording materials, which is a different technical field. Moreover, that document addresses the technical problem of recording stable markings "not disappearing by influence of heat, light or water or not reducing density" (column 2, lines 3 to 5; column 12, lines 16 to 22). The stability aimed at in document (3) is not identical to the particular technical problem (a) and (b) indicated in the patent in suit which relate to the stability of the recording material due to solvents, fats, oils or chemicals arising from the contact with stationery or office supplies, or cosmetics, which is different to any stability against light, heat or water. The Appellant submitted that the patent in suit and document (3), the latter additionally referring to the stability of the recorded markings against disappearing when exposed to the "atmosphere of other chemical materials" (column 12, line 23), addressed the same technical problem; the Respondent contested this finding. Irrespective of whether or not that additional technical problem referred to in document (3) was tantamount to the technical problem (b) underlying the patent in suit, that document exclusively aims at the stability of the recorded markings, i.e. of the developed color image, but nowhere at preventing the white background of the recording material to develop a color, i.e. generating fog, due to solvents, which is the technical problem (a) underlying the patent in suit. Therefore, that document cannot give any hint on how to solve the technical problem (a) underlying the present invention.

The Appellant argued with respect to the obviousness of

the claimed invention that document (3) recommended at column 9, lines 20 to 27 the use of salicylic acid derivatives having an alkoxy substituent with higher carbon numbers, thus arriving at the salicylic acid derivatives of general formula (I) in the claim of the patent in suit. The passage of that document referred to by the Appellant defines the **overall** number of carbon atoms contained in the salicylic acid derivatives to be at least 12, preferably at least 19. However, that finding does not teach the solution proposed by the claimed invention, which consists in requiring the carbon number of a particular **part** of the salicylic acid derivatives, i.e. the alkyl group of the alkoxy substituent on the salicylic acid, to be within the range of 7 to 18. It appears that the Appellant's view is based on hindsight with the knowledge of the present invention. For that reason, the Appellant's argument is not supported by the facts and is rejected by the Board.

Furthermore, the Appellant pointed particularly to the fact that the salicylic acid derivatives to be incorporated into the heat-sensitive recording material of document (3) were optionally substituted *inter alia* with an alkoxy substituent at any one of the positions 3, 4, 5 and 6. That document, so he argued, disclosed a list of equivalent substituents on the salicylic acid derivatives comprising *inter alia* the alkoxy substituent octoxy (column 2, line 62 and 63), which has 8 carbon atoms in the alkyl group forming part of that substituent. Therefore, salicylic acid derivatives substituted at the 4-position with an alkoxy substituent, the alkyl group forming part of that substituent having 7 to 18 carbon atoms, as required by

the claim of the patent in suit, were taught in that document.

Nevertheless, the Appellant's argument does not convince the Board, since document (3) is directed to a technical field different to that of the patent in suit and since it does not address the technical problem (a) underlying the patent in suit, thus giving no incentive to its solution, with the consequence that document (3) cannot render the claimed invention obvious.

6.6.5 The Appellant not relying on further documents in order to object to the presence of an inventive step, the Board is satisfied that none of the aforementioned documents in the proceedings, either individually or in combination, renders the proposed solution obvious.

6.7 For these reasons the Board concludes that the subject-matter of the sole claim of the patent in suit as amended involves an inventive step within the meaning of Articles 52(1) and 56 EPC.

7. *Remittal*

Having so decided, the Board has not, however, taken a decision on the whole matter, since substantial amendments to the description are required in order to bring it into conformity with the sole remaining claim of the patent in suit as amended. Under these circumstances the Board considers it appropriate to exercise its power conferred by Article 111(1) EPC to remit the case to the Opposition Division for the sole purpose of properly adapting the description of the patent in suit to the present single claim. When doing

so, the Opposition Division should not restrict itself to considering whether the amendments made to the claim during the appeal proceedings are properly reflected throughout the description of the patent in suit. The Board has noticed that the amendments made to the description before the Opposition Division were not sufficient in view of the amendments then made to the claims, i.e especially in respect of defining the alkyl group R to have 7 to 18 carbon atoms. Therefore, particularly the long list of exemplary individual compounds of general formula (I) enumerated on page 2 and the top of page 8 of the patent in suit should also be reviewed to establish whether or not further consequential amendments are necessary.

The remittal of the present case to the Opposition Division gives the Appellant, not present at oral proceedings before the Board, the opportunity to present any comment on the description yet to be adapted, if he so wishes, in conformity with his right to be heard pursuant to Article 113(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 Opposition Division with the order to maintain the patent on the basis of the sole claim submitted during oral proceedings and the description to be adapted thereto.

The Registrar:

The Chairman:

E. Görgmaier

A. Nuss