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D E C I S I O N
of 30 October 1997

Case Number: T 0922/94 - 3.3.3

Application Number: 84306648.1

Publication Number: 0136186

IPC: C08F 2/50

Language of the proceedings: EN

Title of invention:
Photocurable resin composition

Patentee:
MITSUI PETROCHEMICAL INDUSTRIES, LTD.

Opponent:
Kuraray Co., Ltd.

Headword:
-

Relevant legal provisions:
EPC Art. 56, 100(c), 102(3), 123(2)
EPC R. 66

Keyword:
"Examination of Art. 123(2) in appeal (yes) - prevalence of Art. 102(3)"
"Amendments - main request - added subject-matter (yes) - sub-class of claimed compounds not originally disclosed"
"Inventive step - auxiliary request (yes) - no suggestion in prior art to separate two essential components"

Decisions cited:
T 0227/88, T 0288/92, G 0009/91, G 0010/91

Catchword:



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Boards of Appeal

Chambres de recours

Case Number: T 0922/94 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 30 October 1997

Appellant:
(Proprietor of the patent) MITSUI PETROCHEMICAL INDUSTRIES, LTD.
2-5, Kasumigaseki 3-chome
Chiyoda-ki
Tokyo 100 (JP)

Representative:
Goldin, Douglas Michael
J. A. KEMP & CO.
14 South Square
Gray's Inn
London WC1R 5LX (GB)

Respondent:
(Opponent) Kuraray Co., Ltd.
1621, Sakazu
Kurashiki-City, Okayama (JP)

Representative:
Thomas, Roger Tamlyn
D. Young & Co.
21 New Fetter Lane
London EC4A 1DA (GB)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 4 October 1994
revoking European patent No. 0 136 186 pursuant
to Article 102(1) EPC.

Composition of the Board:

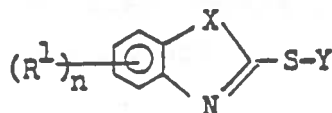
Chairman: C. Gérardin
Members: P. Kitzmantel
J. A. Stephens-Ofner

Summary of Facts and Submissions

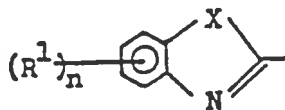
I. European patent application No. 84 306 648.1 in the name of MITSUI PETROCHEMICAL INDUSTRIES, LTD. which had been filed on 28 September 1984, claiming priority from three JP applications filed, respectively, on 28 September 1983 (one application) and 29 May 1984 (two applications) resulted in the grant of European patent No. 136 186 on 6 September 1989, on the basis of a set A of 14 claims for the Contracting States DE, FR and GB and of a set B of 15 claims for the Contracting States CH and LI.

Independent Claims 1, 13 and 14 of set A read as follows:

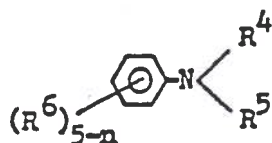
"1. A photocurable composition comprising (a) a radical-polymerizable monomer, (b) an α -ketocarbonyl compound and (c) an amine, wherein the amine (c) is at least one compound represented by the general formula:



wherein X is $>NR^2$, oxygen or sulfur, Y is hydrogen, $-SR^3$ or a monovalent, divalent or trivalent metal, R^1 is an alkyl group, an aryl group, an aralkyl group or halogen, n is 0 or an integer 1 to 4 with the proviso that when n is 2 or more, a plurality of groups R^1 may be the same or different, R^2 is hydrogen, an alkyl group, an aryl group or an aralkyl group, and R^3 is an alkyl group or an aryl group, or a group represented by the general formula:



wherein, X, R^1 and n are as defined above, and substituted amines represented by the following general formula:



wherein R^4 is hydrogen or an alkyl group, R^5 is hydrogen, an alkyl group, a hydroxy alkyl group or an aryl group, R^6 is for a monovalent, electron-attracting atom or organic group, and n is 0 or an integer 1 to 4 provided that when n is 0 and Y is hydrogen, X is other than oxygen, sulphur or $>NR^2$ wherein R^2 is hydrogen or C_{1-4} alkyl."

"13. A dental treatment material comprising a composition as set forth in any one of the preceding claims."

"14. A method of dentistry which comprises exposing to light a composition as set forth in any one of claims 1 to 12."

Claims 2 to 12 of set A were dependent on Claim 1 of this set.

Claim 1 of set B differed from the corresponding claim of set A by the lacking final proviso "provided that when n is 0 and Y is hydrogen, X is other than oxygen, sulphur or $>NR^2$ wherein R^2 is hydrogen or C_{1-4} alkyl."

Claims 2 to 15 of set B were identical to Claims 1 to 14 of set A.

II. Notice of Opposition was filed by KURARAY CO., LTD on 31 May 1990 requesting revocation of the patent on the grounds of Article 100(a) EPC, insofar as it related to the subject-matter of Claims 1 and 3 to 14 of set A, as well as to the subject-matter of Claims 1, 2 and 4 to 15 of set B.

The Opponent, in the course of the first instance opposition proceedings, relied i.a. on

D3: Pharmazeutische Zeitung, 127, Jahrgang Nr. 27
(8 July 1982) pages 1460-1462,

D5: JP-A-50 50440 (English translation), and

D16: EP-A-47 097.

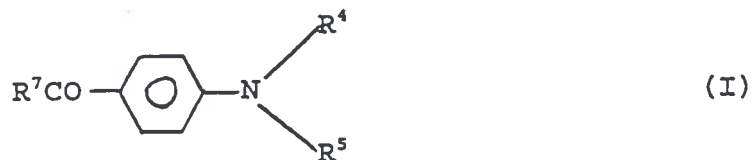
III. By its decision of 15 June 1994, issued in writing on 4 October 1994, the Opposition Division revoked the European patent No. 136 186.

That decision was based a main request (8 claims) and an auxiliary request (7 claims), which, respectively, comprise the following independent claims (each of these requests comprises only a single set of claims for all Contracting States):

Main request:

"1. A dental treatment composition curable by visible light which composition comprises (a) a radical-polymerisable monomer, (b) an α -ketocarbonyl compound and (c) an amine characterised in that the α -keto-carbonyl compound (b) is selected from camphorquinone

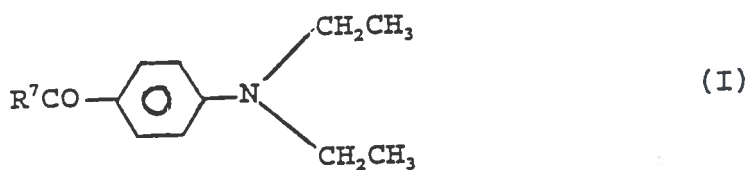
and diacetyl and the amine (c) is a compound of formula (I)



wherein R⁴ is an ethyl, propyl, butyl, pentyl or hexyl group,
R⁵ is an ethyl, propyl, butyl, pentyl or hexyl group,
and
R⁷ is hydroxyl or an alkoxy group of 1 to 6 carbon atoms."

Auxiliary request:

"1. A dental treatment composition curable by visible light which composition comprises (a) a radical-polymerisable monomer, (b) an α -ketocarbonyl compound and (c) an amine characterised in that the α -ketocarbonyl compound (b) is selected from camphorquinone and the amine (c) is a compound of formula (I)



wherein R⁷ is hydroxyl or an alkoxy group of 1 to 6 carbon atoms."

Independent Claim 8 of the main request corresponds to independent Claim 7 of the auxiliary request, both reading:

"A method of dentistry which comprises exposing to visible light a composition according to any one of claims 1 to 7 [or 6]."

Claims 2 to 7 of the main request and Claims 2 to 6 of the auxiliary request are dependent on the respective Claims 1.

The decision held that, in accordance with the practice set down in T 514/88, the subject-matter of the claims of both requests was directly and unambiguously derivable from the original disclosure and did not, therefore, contravene the provisions of Article 123(2) and (3) EPC.

That decision also held that said subject-matter was novel over the cited prior art, but, in view of the absence of a special technical effect derivable from the original disclosure, did not involve an inventive step. It was obvious, in the Opposition Division's opinion, to replace in the "Durafill B" dental compositions according to document D3 the amine co-initiator component butoxyethyl-(4-dimethylamino benzoate) by the structurally similar dialkylamino benzoic acid derivatives of formula (I) of Claim 1 of both requests; one skilled in the art was aware from document D5 that compounds of formula (I) have been used as amine components in UV-polymerizable compositions in combination with benzil - an alpha-ketocarbonyl compound such as camphorquinone used according to D3 - which latter compound was even known from document D16 to be suitable, together with amine reducing agents, as part of visible light sensitizing systems for photopolymerizable dental compositions.

In assessing the presence of an inventive step, the Opposition Division disregarded the evidence submitted by the Patentee who sought to demonstrate the surprising influence of the amine component on the storage stability of the claimed compositions, because that problem was not originally disclosed.

- IV. On 2 December 1994 the Patentee (Appellant) lodged an appeal against the decision of the Opposition Division and paid the appeal fee on the same day. The Statement of Grounds of Appeal, maintaining the claims (main request and auxiliary request) on which the decision was based, was filed on 13 February 1995.
- V. Oral proceedings proceedings were held on 30 October 1997.

In intermediate decisions during these proceedings, which were necessitated by objections under Article 123 (2) EPC raised by the Respondent (Opponent), the Board announced

- (i) that, although Article 100(c) EPC was not originally cited as a ground of opposition, in application of Article 102(3) EPC in combination with Article 111(1) EPC and Rule 66(1) EPC, the issue of Article 123(2) EPC had to be considered by the Board with respect to the now amended claims, and
- (ii) that the claims of the main request did not comply with the requirement of Article 123(2) EPC.

VI. The arguments of the Appellant may be summarized as follows:

- (i) The allowability of the claims of the main and auxiliary requests under Article 123(2) EPC was not an issue that the Board had the power, let alone the duty, to consider and decide. The issue, so he contended, was a new one in the sense of not being one of the grounds that had been pleaded and supported when the opposition was launched. The Enlarged Board's decision G 10/91 (OJ EPO 1993, 420), accordingly, prohibited any consideration of it without the Patentee's consent (*volenti non fit injuria*), which he expressly declined to grant in this case. He maintained his objection even in the face of the Board's having directed his attention to Article 102(3) and Article 111 EPC as well as Rule 66 EPC, whose provisions were germane because the main and auxiliary requests had involved amendments of the claims as originally filed.

- (ii) The subject-matter of Claim 1 of the main request was a limitation over the original disclosure which was directly and unambiguously derivable therefrom. The definitions of all substituents of formula (I) had been originally disclosed and no new matter was created by their combination. The same was true for the subject-matter of Claim 1 of the auxiliary request, which furthermore relied on the individualized diethylamino-substituted compounds disclosed on page 15, last paragraph of the original application.

- (iii) Document D3 only comprised lists of ingredients of dental compositions; apart from varying the relative weight proportions of the three components 2,2-dimethoxy-2-phenylacetophenone, 2,3-bornanedione (= camphorquinone) and butoxyethyl-(4-dimethylaminobenzoate), it did not offer any suggestion as to how to modify these compositions.
- (iv) When starting from document D16 as closest prior art the problem to be solved by the patent in suit was the provision of alternative dental compositions. Whereas camphorquinone was among the α -ketocarbonyl initiators enumerated in D16, all of the amine reducing agents disclosed as co-initiators were aliphatic and, thus, different from the aromatic ones to be used according to the patent in suit.
- (v) Together with the Statement of Grounds of Appeal the Appellant submitted new evidence (Annex 4, Declaration of Mr. Honda) intended to demonstrate that the colour tone of dental compositions according to the patent in suit, comprising as amine co-initiator component p-diethylaminobenzoic acid, was superior to that of dental compositions which are different only by the use of the other amine components p-dimethylaminobenzoic acid or ethyl p-dimethylaminobenzoate. In the Appellant's view, this effect - caused by the mere substitution of ethyl groups for methyl groups - was unpredictable from the cited documents and was therefore able to prove the presence of an inventive step.

By the filing of further evidence (Annexes 5 and 6; Declaration of Mr. Kiyomura and English translations of selected statements from four Japanese patent publications), the Appellant wanted to set aside the Opposition Division's refusal to take the alleged improvement of the storage stability into account for the purpose of assessing inventive step. That new evidence, in the Appellant's submission, proved that the storage stability of the composition was a problem both identified at the priority date and addressed in the patent in suit. Thus, the improvement of the storage stability over that of compositions according to the cited prior art, as demonstrated in the Experimental Report filed with Patentee's letter of 28 July 1992, was indicative of the presence of an inventive step.

- (vi) Document D5 related to the different field of UV-curable compositions and concentrated entirely on initiator systems comprising benzil as α -ketocarbonyl compound. Thus, although diethylaminobenzoic acid and diethylamino-benzoates were among the amine co-initiators disclosed in D5, this document would not suggest to combine the latter amino compounds with camphorquinone.
- (vii) Even if someone skilled in the art would contemplate to combine the teachings of D3, D16 and D5, which is denied he would do, he would therefore not arrive at the subject-matter of the patent in suit as now claimed.

VII. The arguments of the Respondent may be summarized as follows:

- (i) The raising of an Article 123(2) EPC objection for the first time in the appeal stage did not contravene G 10/91, when the claims at issue had been amended, as was the case here.

- (ii) In agreement with the conclusion drawn in T 288/92 the subject-matter of Claim 1 of the main request must be considered as an arbitrary selection from the original disclosure which was not directly and unambiguously derivable therefrom. This claim did not, therefore, comply with the requirement of Article 123(2) EPC. A similar objection, originally brought forward against Claim 1 of the auxiliary request was withdrawn by the Respondent during the oral proceedings.

- (iii) Although the amine co-initiators used in the dental compositions according to D16 comprised only aliphatic amines, the statement in D16, namely that other amine reducing agents could also be used, was not meant to exclude aromatic amines. Since the skilled person was aware from D3 that butoxyethyl-(4-dimethylaminobenzoate), an aromatic amine, was used in photocurable dental compositions comprising camphorquinone as α -ketocarbonyl compound, he would not hesitate to also consider as amine compound the p-diethylamino benzoic acid/esters which were, in combination with the α -ketocarbonyl initiator compound benzil, used according to document D5 as co-initiators in similar photocurable compositions.

The subject-matter of Claim 1 of the auxiliary request, therefore, was an obvious alternative to the compositions disclosed in D16 and D3.

VIII. The Appellant requested that the decision under appeal be set aside and, as final request, maintenance of the patent on the basis of the claims of the auxiliary request as filed on 13 February 1995.

The Respondent requested dismissal of the appeal.

Reasons for the Decision

1. The appeal is admissible.
2. *Procedural matters*
 - 2.1 Turning to the Patentee's objection to the Board's power to decide the Article 123(2) issue, it is important to bear in mind that both G 9/91 (OJ EPO 1993, 408) and G 10/91 (cf. supra) dealt with the power of a body exercising final jurisdiction (i.e. the Boards of Appeal) to admit into appeals matters that altered the legal framework of the decision under appeal, given that the function of appeals under the EPC was held in both cases to be to decide upon the correctness of the decision under appeal on its merits - a process which could not *ex hypothesis* be carried out if, *inter alia*, the legal framework of the case argued and supported on appeal was different from that upon which the decision under appeal was based. Were this not the case, the conclusions of both instances could be either true or false, thereby negating the legal purpose of the appeal.

2.2 Now it stands accepted that Article 123(2) EPC as such was never expressly pleaded under e.g. Rule 55(c) EPC. It did, however, form part, and indeed a vital one, of the Opposition Division's decision (see paragraph 3 of the Reasons). It follows that it constituted a part of its legal framework, so that the Appellant's reliance on G 10/91 is plainly irrelevant, and his consequential submission must therefore be dismissed, on this ground alone. In addition, Article 102(3) EPC in conjunction with Rule 66(1) EPC confer wide powers upon the boards to consider all possible objections under the EPC, pleaded or not pleaded, that may arise from an amendment of the claims as originally filed (see T 227/88, OJ EPO 1990, 292).

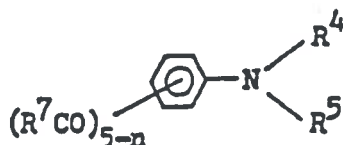
2.3 The Board accordingly decides to admit into the appeal the issue of the allowability of the main and auxiliary requests under Article 123(2) EPC.

Main Request

3. *Article 123(2) EPC*

3.1 As compared with the definition of the compositions encompassed by original Claim 1, the subject-matter of Claim 1 of the main request has been limited in the following respects:

- (i) curing only by visible light,
- (ii) α -ketocarbonyl compound (b) limited to camphorquinone and diacetyl,
- (iii) several limitations in the formula of the amine compound (c):



- (iii-1) selection of R⁷ as substituent R⁶,
- (iii-2) limitation of R⁷ to "hydroxyl or an alkoxy group of 1 to 6 carbon atoms",
- (iii-3) limitation of n to 4 (i.e. mono-substitution),
- (iii-4) limitation to only para-substitution of R⁶,
- (iii-5) limitation of R⁴ to "ethyl, propyl, butyl, pentyl or hexyl group",
- (iii-6) limitation of R⁵ to "ethyl, propyl, butyl, pentyl or hexyl group".

3.2 While there is an individual basis for all these limited features in the original application, there is no basis for their combination.

In other words, the original application does not disclose a sub-class that embraces all the aforementioned features (cf. T 288/92, Reasons 3.4). This is particularly conspicuous with respect to the following features:

- (a) on page 11, lines 13 to 15 of the original application there is a statement identifying diacetyl, benzil and camphorquinone as a preferred sub-group of α -ketocarbonyl compounds, but there is no suggestion of a preference of a further sub-group comprising only camphorquinone and diacetyl (as compared thereto, the further sub-group "camphorquinone and benzil" is identified in Claim 11 of the original application);
- (b) while the meanings "ethyl" and "propyl" for R⁴ and R⁵ are individually exemplified on page 15, lines 23 to 27 of the original application (4-diethylaminobenzoic acid, methyl 4-diethylaminobenzoate, methyl 4-dipropylaminobenzoate), there is no disclosure of the sub-group "ethyl, propyl, butyl, pentyl and hexyl" as a specific entity; rather the (now

excluded) methyl group was identified in the original application as the preferred meaning of R⁴ and R⁵ (cf. page 16, lines 1 to 3; Table 1, Examples 1 to 7, 24, 27, 28); it follows that there is also no disclosure of a sub-group of compounds of formula (I), where R⁷ is a hydroxyl group or an alkoxy group ordinarily having 1 to 6 carbon atoms and where R⁴ and R⁵ are both ethyl, propyl, butyl, pentyl or hexyl;

- (d) as a consequence there was also no direct and unambiguous disclosure in the original application of a sub-class of compositions comprising the afore-mentioned sub-group of compounds of formula (I) and a α -ketocarbonyl compound from the sub-group of camphorquinone and diacetyl.

3.3 The subject-matter of Claim 1 of the main request does therefore not comply with the requirement of Article 123(2) EPC.

Auxiliary Request

3.4 Claim 1 of this request differs from Claim 1 of the main request by the further restriction of the α -ketocarbonyl compounds to the use of camphorquinone only, and by the limitation of the substituents R⁴ and R⁵ to ethyl.

3.5 Camphorquinone is highlighted on page 11, lines 14 to 15 as especially preferred and this is underlined by its use as α -ketocarbonyl compound in 21 out of 28 worked examples.

Like the main request, Claim 1 of the auxiliary request is limited to compositions which are curable by visible light. Since all of the many exemplified compositions

that comprise camphorquinone as α -ketocarbonyl compound are visible light curable, it can be accepted that these two features have been disclosed in combination.

- 3.6 With respect to the meaning in Claim 1 of R^4 and R^5 being ethyl, there are two compounds individualized on page 15, lines 23 and 26 of the original application: 4-diethylaminobenzoic acid and methyl 4-diethylaminobenzoate.
- 3.7 As with the main request, also according to Claim 1 of the auxiliary request R^7 in formula (I) may either be OH (i.e. diethylaminobenzoic acid) or an alkoxy group having 1 to 6 carbon atoms (i.e. a C_1 - to C_6 -alkyl diethylaminobenzoate).
- 3.7.1 As set out in paragraph 3.6 above, the compound of formula (I) having the meaning $R^7 = OH$ (4-diethylaminobenzoic acid) is explicitly disclosed on page 15, line 23 of the original application.
- 3.7.2 With respect to the alternative meaning of R^7 (C_1 - to C_6 -alkoxy), the original application discloses one individualized compound coming under this definition, i.e. the C_1 -alkoxy ester methyl 4-diethylaminobenzoate (page 15, line 26); in view of the fact that the methoxy radical is a typical member of the sub-group C_1 - to C_6 -alkoxy, which is one of the meanings of R^7 specifically set out on page 15, lines 4 to 6 of the original application, the disclosure of this compound can be accepted to be representative for the whole sub-group C_1 - to C_6 -alkoxy. This conclusion is supported by the disclosure of the compound hexyl 4-dimethylaminobenzoate on page 15, lines 29 to 30, which compound - although not being a diethylamino benzoate - provides additional disclosure for the meaning of R^7 being up to C_6 -alkoxy.

3.8 The compositions according to Claim 1 of the auxiliary request therefore combine the use of the particularly preferred α -ketocarbonyl compound camphorquinone (plus visible light curability) either with the use of a fully individualized amino compound of formula (I) (alternative R7 = OH) or with the use of amino compounds of formula (I) which are disclosed by representation of one member of a specifically identified sub-group (R⁷ is C₁- to C₆-alkoxy).

3.9 The subject-matter of Claim 1 of the auxiliary request therefore was directly and unambiguously derivable from the original disclosure and, thus, complies with the requirement of Article 123(2) EPC. This was recognized by the Respondent during the oral proceedings.

3.10 It is also evident that the above amendments did not extend the protection conferred, so that no objection arises under Article 123(3) EPC.

4. *Novelty / Auxiliary Request*

This was not contested by the Respondent and also the Board is satisfied that this requirement of the EPC is complied with by the claims of the auxiliary request.

5. *Inventive step / Auxiliary Request*

5.1 Relevant prior art

5.1.1 Document D3

This document comprises 8 recipes of "Durafill" dental filling pastes, all comprising i.a. radical-polymerizable monomers and the same amounts of 2,3-bornanedione (= camphorquinone) and butoxyethyl-(4-dimethylaminobenzoate). D3 is silent on the curing

conditions and on the properties of the hardened compositions.

5.1.2 Document D5

This document relates to ultraviolet light curable photosensitive coating compositions, useful for printing inks and coating varnishes, consisting essentially of a radically crosslinking prepolymer containing ethylenically unsaturated double bonds and a mixture of photosensitizers comprising (i) p-dialkylaminobenzoic acid or its C₁₋₁₃-alkylesters, where the alkyl radicals of the dialkylamino group have 1 to 3 carbon atoms, and (ii) benzil in a weight amount ratio (i):(ii) of 1:1 to 1:10 (cf. page 1, last paragraph to page 2, penultimate paragraph). Among the sensitizer components (i) listed on pages 14, 15, 17 and 18 are p-diethylaminobenzoic acid and isopropyl p-diethylaminobenzoate (Varnish Nos. 20, 22 and 31 on page 15 as well as Varnish Nos. 14 and 17 on page 17).

Owing to this specific combination of sensitizers the coating compositions according to D5, before application, are stable without causing dark reaction, but when applied in considerably large thickness, can be solidified by irradiation with ultraviolet light in a very short period of time (cf. page 6, second paragraph; page 7, second para).

5.1.3 Document D16

This document is concerned with the provision of dental restorative compositions which are curable by the action of visible light and which maintain a good colour stability, have other beneficial physical properties, are easily workable and safe. They comprise a major proportion of an inorganic filler, a minor

proportion of a resin component and a photosensitizing system comprising an alpha diketone and an amine reducing agent (page 2, first paragraph; Claim 1). The resin component includes a wide variety of ethylenically unsaturated polymerizable compositions (page 12, lines 1 to 5), the most preferred alpha diketone is camphorquinone (page 14, lines 19 to 25) and the preferred amine reducing agents are N-alkyl dialkanolamines and trialkanolamines (page 15, lines 4 to 10). Aromatic amines, let alone dialkylaminobenzoates, are not disclosed as amine reducing agents.

5.2 Closest prior art

In the appealed decision document D3 was considered to be the closest prior art, but in view of the fact that Claim 1 of the auxiliary request is restricted to the use of visible light curable dental compositions, document D16 is now considered to represent the most relevant prior art and thus the closest starting point for the subject-matter of this claim.

5.3 Problem and solution

5.3.1 With respect to the disclosure of document D16 and taking into account that the patent in suit does not comprise a direct comparison with that subject-matter, the problem underlying the present invention can only be seen in the provision of alternative visible light curable dental compositions.

5.3.2 According to Claim 1 of the auxiliary request this problem is to be solved by the use as photoinitiators of a combination of camphorquinone and the p-diethylaminobenzoic acid/esters of formula (I).

5.3.3 The description of the patent in suit contains no worked example using as amino co-initiator a p-diethylaminobenzoic acid/ester compound of formula (I). However, there are several worked examples using dimethylamino homologues (Table 1, Examples Nos. 2, 3, 7, 24, 27, 28) and the respective compositions are reported to have properties which are valuable for dental applications. One skilled in the art will therefore assume that the diethylamino homologues will behave in a similar manner. Moreover, the experimental data submitted with the Declaration of Mr. Honda dated 24 January 1995 demonstrate that the colour tone stability values of compositions using p-diethylaminobenzoic acid ("Composition 1") are even better to some extent than the values for analogous compositions comprising ethyl-p-dimethylaminobenzoate ("Composition 2") and p-dimethylaminobenzoic acid ("Composition 3") (see Table on page 4 of the Declaration).

The Board is therefore satisfied that the existing problem of providing alternative visible light curable dental compositions has effectively been solved by the subject-matter of Claim 1 of the auxiliary request.

5.4 Obviousness

For the following reasons the subject-matter of Claim 1 of the auxiliary request is non-obvious over the cited prior art.

5.4.1 D16, the document representing the closest prior art, although suggesting on page 15, lines 10 to 14 the possible use of amine reducing agents other than trialkylamines, N-alkyl dialkanolamines and trialkanolamines (page 15, lines 4 to 10), does not contain any pointer towards dialkylaminobenzoic acids or their esters.

5.4.2 It would have been evident to a skilled practitioner from the use of the photoinitiator camphorquinone in radical curable compositions that the "Durafill" dental compositions disclosed in D3 are light curable. One skilled in the art, who, in order to solve the existing problem, was looking for alternatives to the dental materials disclosed in D16 (which also use camphorquinone as preferred initiator), would therefore consider the use of butoxyethyl-(4-dimethylamino-benzoate) - used as amine co-initiator according to D3 - in the compositions according to D16 in lieu of the aliphatic amines specified in the latter document. However, this compound is still different from the diaminoalkylbenzoates of formula (I) of Claim 1 of the patent in suit and there is no incentive for the skilled person in either D3 or D16 to replace in the dimethylaminobenzoate of D3 the butoxyethyl radical by a C₁-C₆-alkoxy radical and the two methyl radicals by two ethyl radicals. Particularly the change from butoxyethyl to C₁-C₆-alkoxy is not one the skilled person will try out routinely, because it involves radicals with different chemical constitution (ether/alkyl). Thus, this replacement is not one he would consider in the present case, because he had no reason to do so.

The provision of alternative compositions to the ones disclosed in D16, this being the problem to be solved here, offers a wide field of variations including all components of these compositions, i.e monomers, fillers, α -ketocarbonyl compound (camphorquinone is not the only one recommended in D16: cf. page 14, last paragraph), amine co-initiator and possible other ingredients. It needs hindsight to argue that, among the vast variety of possible modifications, the one specified in present Claim 1 would have been the obvious one.

5.4.3 D5, a document relating to UV-curable non-dental compositions, was introduced in order to close the gap in the obviousness argumentation left by the missing incentive in D3 and D16 for the choice of the dialkylaminobenzoic acids and esters of formula (I) as amine co-initiator. This document, although disclosing radical polymerizable compositions using as amine co-initiator p-diethylaminobenzoic acid and isopropyl-p-diethylaminobenzoate, i.e. compounds coming under the definition of formula (I) of present Claim 1, is limited to the use of benzil as only α -ketocarbonyl initiator compound. It is conspicuous from the statements in D5, page 6, second paragraph and page 7 second paragraph that the use of benzil is considered essential for the achievement of compositions having high light sensitivity and good storage stability. The latter properties are certainly also very important for dental compositions and insofar the teaching of D5 is also relevant to the present subject-matter.

However, while the focus is in D5 on the exclusive use as initiator of benzil, the subject-matter of present Claim 1 is limited to the exclusive use of camphorquinone. With respect to the α -ketocarbonyl initiators used respectively, these two teachings are therefore irreconcilable. Since the use of the amine co-initiators, which come under the definition of formula (I) of Claim 1 of the patent in suit, is bound in D5 to the co-use of benzil, and since D5, although discussing in the first paragraph of page 5 quite a number of known sensitizers/initiators, nowhere mentions the possible use of camphorquinone it cannot reasonably be argued that D5 comprises an incentive for the combined use of camphorquinone and amine co-initiators of formula (I).

Thus, the use of an initiator system comprising camphorquinone and one of the amino compounds which are disclosed in D5 (p-diethylaminobenzoic acid and isopropyl-p-diethylaminobenzoate), was not obvious to one skilled in the art looking for alternative dental compositions to those disclosed in D16. The same conclusion applies to a possible combination of D5 with D3 and D16, because the latter document is also limited to the use as α -ketocarbonyl initiator compound of camphorquinone.

5.4.5 The Respondent, therefore, did not succeed to establish that the subject-matter of Claim 1 of the auxiliary request was obvious over the cited prior art.

5.4.6 Owing to the non-obviousness of the compositions according to Claim 1, the subject-matter of the dependent Claims 2 to 6 and that of independent process Claim 7, which is directed to a method of dentistry using a composition according to Claim 1, is also non-obvious.

Order

For these reasons, it is decided that:

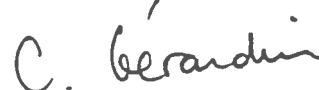
1. The decision under appeal is set aside.
2. The case is remitted to the Opposition Division with the order to maintain the patent on the basis of the auxiliary request filed on 13 February 1995, after any consequential amendment of the description.

The Registrar:



E. Gorgmajer

The Chairman:



C. Gérardin

