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File Number: T 369/91 - 3.3.1

Application No.: 82 200 602.9

Publication No.: 0 066 915

Title of invention: Detergent composition containing performance additive and copolymeric compatibilizing agent therefor

Classification: C11D 3/37

D E C I S I O N
of 7 October 1992

Proprietor of the patent: THE PROCTER & GAMBLE COMPANY, et al

Opponent:
01) Unilever PLC / Unilever N.V.
02) S.A. Camp
03) Ciba-Geigy AG

Headword: Detergent compositions/PROCTER & GAMBLE

EPC Articles 54 and 56

Keyword: "Novelty - main request (denied) - 1st and 2nd auxiliary requests (confirmed)"
"Inventive step (denied)"



Case Number : T 369/91 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 7 October 1992

Appellant :
(Opponent 03)

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Decision under appeal :

Interlocutory decision of the Opposition Division
of the European Patent Office dated 11 March 1991
concerning maintenance of European patent
No. 0 066 915 in amended form.

Composition of the Board :

Chairman : K.S.A. Jahn
Members : R.W. Andrews
E.M.C. Holtz

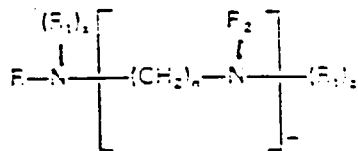
Summary of Facts and Submissions

I. European patent No. 0 066 915 in respect of European patent application No. 82 200 602.9, which was filed on 17 May 1982, was granted on 11 November 1987 (cf. Bulletin 87/45) on the basis of four claims. The only independent claim reads as follows:

"A detergent composition with a conventional matrix on basis of surface-active agents, builders, performance additives and a copolymeric ingredient, characterized in, that the performance additive is present in an amount from 0.002% to 5% by weight, and is selected from:

(a) a water-soluble photoactivator from the group of porphine or mono-, di-, tri-, or tetraaza porphine solubilized with anionic, nonionic, and/or cationic substituent groups and metal free or metallated with Zn(II), Ca(II), Cd(II), Mg(II), Sc(III), Al(III) or Sn(IV); and

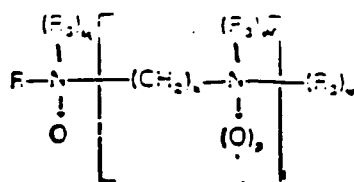
(b) a soil release agent which is a polyamine having the formula



wherein R is an alkyl or alkenyl group having 10 to 22 carbon atoms, the R₁'s, which are identical or different, are ethylene oxide or propylene oxide, R₂ is hydrogen C₁₋₄ alkyl or (R₁)_y, where x, y, and z are numbers such that the sum (x+y+z) is in the range from 2 to 25, n is a number from 1 to 6 and m is a number from 1 to about 9;

or

an amine oxide having the formula:



wherein R is an alkyl or alkenyl group having 10 to 22 carbon atoms, the R₃'s which are identical or different are selected from C₁₋₄ alkyl, ethylene oxide and propylene oxide, k is an integer from 1 to 6, l is an integer from 0 to 6, p is 0 or 1, u, v, and w are each 1 for alkyl substituents, and integers in the range from 1 to 10 for ethylene oxide or propylene oxide substituents such that the sum of (u+v+w) is not greater than 25, and that the copolymeric ingredient consists of an ethylenically unsaturated monocarboxylic acid monomer having not more than 5, preferably 3 or 4, carbon atoms, and an ethylenically unsaturated dicarboxylic acid monomer having not more than 6, preferably 4, carbon atoms, whereby the molar ratio of the monomers is in the range of 1:4 to 4:1; and whereby the weight ratio of the copolymer to the performance additive is in the range of from 500:1 to 1:5."

II. Notices of opposition, which were filed on 26 July 1988, 9 and 11 August 1988, requested the revocation of the patent on the grounds that its subject-matter lacked novelty and did not involve an inventive step. The oppositions were supported, inter alia, by the following documents:

- (3) US-A-3 308 067
- (7) EP-A-0 025 551 and
- (9) EP-A-0 003 149.

III. By an interlocutory decision issued on 11 March 1991, the Opposition Division decided to maintain the patent in amended form on the basis of Claims 1 to 4 filed on 26 June 1990. Claim 1 of this set of claims differed from the claim cited above in that it did not include an amine oxide as a possible performance additive within its scope

since the Opposition Division held that this subject-matter did not involve an inventive step.

With respect to a detergent composition comprising a combination of the copolymeric ingredient with a water-soluble porphine photoactivator, the Opposition Division decided that this combination was novel. With respect to inventive step, the Opposition Division considered that there was no suggestion in the prior art that the detergency of prior art compositions containing photoactivators would be improved by the selected copolymeric builder in the claimed amounts.

The composition comprising the copolymeric ingredient and a polyamine soil-release agent was considered by the Opposition Division to represent a non-obvious alternative in the light of the disclosure of document (3).

- IV. Opponent 03 lodged an appeal against this decision on 10 May 1991 with payment of the prescribed fee. An appeal filed by the Patentees was held to be inadmissible (cf. Interlocutory Decision of 15 May 1992). In the Statement of Grounds of Appeal filed on 22 July 1991 and during the oral proceedings held on 7 October 1992, the Appellant (Opponent 03) contended that a composition comprising the copolymeric ingredient, including the one specified in the granted Claim 2, and a photoactivator lacked novelty in the light of the disclosure of document (9) when construed having regard to document (3), the content of which was stated to be incorporated by reference into document (9).

The Appellant also argued that the combination of the copolymeric ingredient with water-soluble photoactivator was obvious in the light of the disclosure of documents (9), (3) and (7). With respect to the comparative tests submitted during the examination proceedings, the

Appellant questioned whether an improvement is actually achieved in view of the small differences in the panel score units (PSU) between a composition containing only a photoactivator and one containing both a photoactivator and a copolymer and the results of the comparative tests filed by the Appellant on 26 September 1989.

- V. The Respondents admitted that document (9) disclosed a detergent composition comprising a surfactant, a builder and a water-soluble photoactivator of the type referred to in the disputed patent and that the reference to document (3) in document (9) should be considered as bringing the teaching of the former document into the disclosure of the latter. However, document (9) disclosed that suitable builders may be selected from inorganic alkaline detergency builders, four types of organic alkaline detergency builders, polycarboxylate builders and certain zeolites. Moreover, not one of the builders disclosed in document (3) or even one remotely similar in nature to those of this document was used in the examples of document (9). In those circumstances, the Respondents considered it highly unlikely that the skilled person would seriously contemplate using a builder of the type disclosed in document (3) in combination with a photoactivator as specified in document (9). Additionally a further selection must be made from the much wider range of homopolymers and copolymers suggested for use of builders in document (3). In view of the two levels of selection of builders for use in combination with the photoactivators disclosed in document (9) and in view of the failure to show that either of those selections was inevitable or would be seriously contemplated by the skilled person, the Respondents considered that the claimed subject-matter was novel.

With respect to inventive step, the Respondents contended that the technical problem underlying the disputed patent was to improve the performance of the photoactivators of document (9) and that in the light of the results of the comparative tests submitted during examination proceedings this technical problem had been solved since a difference of 1 PSU was considered by the skilled person to be significant. With respect to document (7), the Respondents argued that it disclosed the use of the copolymeric ingredient as an incrustation inhibitor, i.e. to prevent the deposition of inorganic material on the fibres and hence a feeling of hardness and an appearance of greyness. In the Respondents' opinion, there is nothing to suggest that the skilled person faced with the present technical problem would look at either document (3) or (7).

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

The Respondents request that the appeal be dismissed (main request) or that the patent be maintained alternatively on the basis of Claims 1 to 3 submitted in the oral proceedings in which amine oxides are included as one of the three possible performance additives (first auxiliary request) or on the basis of Claims 1 to 3 submitted in the oral proceedings from which amine oxides are excluded (second auxiliary request). Claim 1 of the first auxiliary request is a combination of Claims 1 and 2 as granted, i.e. the copolymeric ingredient is copolymer of (meth)acrylic acid and maleic acid. Claim 1 of the second auxiliary request represents a combination of Claims 1 and 2 as allowed by the Opposition Division. Claims 2 and 3 of the auxiliary requests correspond to granted Claims 3 and 4 respectively.

VII. At the conclusion of the oral proceedings, the Board's decision to revoke the patent was announced.

Reasons for the Decision

1. The appeal is admissible.
2. There are no objections under Article 123 EPC to any of the versions of the claims. In particular, Claim 1 of each set of claims is derived from Claim 1 as granted by the deletion of the amine oxide as a possible performance additive, by combining granted Claims 1 and 2 or by combining granted Claim 1 from which the amine oxide performance additive has been deleted with granted Claim 2 (cf. also Claims 1, 2, 5 and 6 as originally filed in combination with page 5, lines 16 and 17 of the patent application). Claims 2 to 4 and Claims 2 and 3 of the three sets of claims correspond to granted Claims 2 to 4 and granted Claims 3 and 4 respectively (cf. Claims 2, 4 and 5 as originally filed).
- 2.1 In the Interlocutory Decision T 369/91 of 15 May 1992 in which the Patentees' cross appeal was held to be inadmissible, the legal consequences of this finding were fully set out in paragraphs 6.1 and 6.7 thereof.

However, since the Board has become aware that a relevant question has been referred to the Enlarged Board of Appeal in G 9/92 (cf. T 60/91 and T 96/92 of 5 October 1992; to be published), the Board has decided to consider the Appellant's first auxiliary request even though in the Board's opinion the subject-matter of Claim 1 of this request is not within the terms of the claims allowed by the Opposition Division.

3. The disputed patent relates, inter alia, to a detergent composition comprising surface active agents, builders, 0.002% to 5% by weight of a water-soluble photoactivator as defined and a copolymeric ingredient consisting of an ethylenically unsaturated monocarboxylic acid monomer not having more than 5 carbon atoms and an ethylenically unsaturated dicarboxylic acid monomer not having more than 6 carbon atoms, whereby the molar ratio of the monomers is the range from 1:4 to 4:1 and whereby the weight ratio of the copolymer to the water-soluble photoactivator is in the range of from 500:1 to 1:5.

Document 9, which is considered to represent the closest state of the art, discloses detergent bleach compositions comprising a surfactant and from 0.005% to 0.5% by weight of a water-soluble photoactivator of the type specified in the disputed patent (cf. Claim 1).

The Respondents submitted that in the light of this closest prior art, the technical problem underlying the patent in suit should be seen in improving the performance of these prior art compositions with respect to bleachable stain removal and fabric whiteness.

According to the disputed patent, this technical problem is essentially solved by compositions containing, in addition to the water-soluble photoactivator, the specific copolymeric ingredient as an essential component.

In the light of the comparative test submitted on 22 October 1986 during the examination proceedings, the Board considers it plausible that the technical problem as defined above has been solved. In reaching this conclusion, the Board has accepted the Appellants' statement that a difference of about 1 PSU between the performance of composition B in accordance with the

disputed patent and that of composition A considered by the Board as being representative of the compositions of document (9), is significant.

The Appellant's test report, which was submitted on 26 September 1989, allegedly demonstrated that the technical problem as defined above had not been solved by the claimed compositions (cf. Table 2). However, the Board has disregarded this evidence since the washed material was dried in the dark. In the Board's view, such a test is not convincing since a photoactivator can only influence bleaching on exposure to daylight. Although it is not expressly stated in the Respondents' test report that the washed material was dried in daylight, the Respondents confirmed during the oral proceedings that the drying was carried out in daylight.

4. The first issue to be decided is whether the subject-matter of Claim 1 as allowed by the Opposition Division is novel having regard to the disclosure of document (9). This forms the basis of the Respondents' main request that the appeal be dismissed.

In accordance with the established jurisprudence of the Boards of Appeal (cf. Decisions T 124/87 "Copolymers/DUPONT", OJ EPO 1989, 491, paragraph 3.2; "Diastereomers", OJ EPO 1982, 296, paragraph 5; T 198/94 "Thiochloroformates", OJ EPO 1985, 209, paragraph 4; and T 666/89 "Washing Composition/UNILEVER", Headnote published OJ EPO 6/1992), in order to decide this question it is necessary to consider whether the disclosure of document (9) is such as to make available to the public the compositions claimed in accordance with this claim in the form of a technical teaching. Therefore, it is necessary to determine the nature and the extent of the

information imparted to the skilled person by this document as distinct from its literal disclosure.

- 4.1 As mentioned above, document (9) discloses a detergent composition comprising a surfactant, 0.005% to 0.5% by weight of a water-soluble photoactivator of the type specified in the present Claim 1 and, optionally, an alkaline detergency builder (cf. Claims 1 and 8). According to page 33, lines 25 to 27, examples of suitable organic alkaline detergency builders are the water-soluble salts of polycarboxylates and copolymers as described in US-A-3 308 067 (document (3)).

When assessing novelty, it is not permissible to combine separate items of prior art. However, in a case where there is a specific reference in one prior art document to a second prior art document, when construing the former document the presence of such a specific reference may necessitate that part or all of the disclosure of this latter document be considered as part of the disclosure of the first document (cf. T 153/85 "Alternative claims/AMOCO CORPORATION, OJ EPO 1988, 1, paragraph 4.2). In the present case the skilled person would be in no doubt from the wording on page 32, lines 25 to 34 and page 33, lines 25 to 27 that the compositions underlying the invention of document (9) may contain, as an optional ingredient, the builders disclosed in document (3).

- 4.2 According to document (3) the builder compounds are:
- (a) water-soluble salts of a homopolymer of an aliphatic polycarboxylic acid, such as, for example, poly(maleic acid), poly(itaconic acid), poly(mesaconic acid), poly(fumaric acid), poly(aconitic acid), poly(methylenemalononic acid) and poly(citraconic acid);

- (b) water-soluble salts of a copolymer of at least two of the aliphatic polycarboxylic acids described in (a), for example, (itaconic/aconitic acid) copolymer, (itaconic/maleic acid) copolymer, (mesaconic/fumaric acid) copolymer and (methylenemalononic/citraconic acid) copolymer; and
- (c) water-soluble salts of a copolymer of an alkylene or monocarboxylic acid with the aliphatic polycarboxylic acids described in (a). Specific examples of such copolymers are a 1:1 copolymer of ethylene and itaconic acid with an equivalent weight of 79, a 1:1 copolymer of propylene and maleic acid with an equivalent weight of 79, a 1:9 copolymer of isocrotonic acid and citraconic acid with an equivalent weight of 66.2, a 1:1.9 copolymer of methacrylic acid and aconitic acid with an equivalent weight of 62.2, a 1:3 copolymer of acrylic acid and itaconic acid with an equivalent weight of 66, a 1:4 copolymer of 3-butenic acid and maleic acid with an equivalent weight of 61.1, and a 1.2:1 copolymer of a 4-pentenoic acid and itaconic acid with an equivalent weight of 78.3; wherein the ratios are molar ratios (cf. column 2, line 46 to column 3, line 58). The last three copolymers under heading (c) fall within the definition of the copolymeric ingredient of the present Claim 1.

4.3 The range of the amount of water-soluble photoactivator present in the detergent composition of the present Claim 1 (0.002 to 5% by weight) clearly overlaps with that disclosed in document (9) (0.005 to 0.5% by weight). Therefore, this feature of the present Claim 1 has been made available to the public by the disclosure of document (9).

- 4.4 Finally, the present Claim 1 requires that the weight ratio of copolymeric ingredient to the photoactivator is in the range of from 500:1 to 1:5. The Appellant calculated on the basis of the weight ratios of photoactivator to surfactant disclosed in the second complete paragraph of page 11 of document (9) and the weight ratios of surfactant to total builder specified on page 32, lines 34 to 36 that document (9) disclosed weight ratios of copolymeric ingredient to photoactivator of 50,000:1 to 4:1. The Respondents did not question the Appellant's calculation and admitted that there was an overlap between the present range for this parameter and that taught in document (9).
- 4.5 Therefore, in the Board's judgment, the teaching of document (9) makes available to the public a detergent composition falling within the terms of the Claim 1 allowed by the Opposition Division. Therefore, the Respondents request to dismiss the appeal must be rejected.
- 4.6 The Respondents argued that to arrive at a composition according to this claim a double selection was necessary i.e. initially a selection from the disclosure of document (9) and then a further selection from that of document (3).

However, in Decision T 12/90 of 23 August 1990 ([1991] EPOR 312, particular paragraphs 2.5 to 2.11 on pages 317 to 319) this Board held that, since the purpose of Article 54(1) EPC was to prevent the prior art from being re-patented, in order for a selection from a known class to be deemed novel, the selection must add a new element to what was already known. Therefore, generally, novelty cannot be deemed to exist merely because the particular

area selected is defined by different limits, in the absence of any different technical teaching. In the present case, the Board cannot recognise any difference in the technical teaching of the two documents.

- 4.7 In the Decision T 26/85 "Thickness of magnetic layers/TOSHIBA", OJ EPO 1990, 22, it was held that in assessing the novelty of the invention under examination over the prior art in a case where overlapping ranges of certain parameters exist, it has to be considered whether the skilled person would, in the light of the technical facts, seriously contemplate applying the technical teaching of the prior art document in the range of overlap.

Although none of the detergent compositions exemplified in document (9) contain one of the copolymers in question, there is nothing in this document to indicate to the skilled person that the copolymers are not suitable for use in these prior art compositions. Therefore, in the light of the technical facts there is no reason for the skilled person not to seriously contemplate using any of the alkaline detergency builders referred to on pages 33 and 34 of document (9) in the compositions described therein.

5. In the Board's judgment, the subject-matter of Claim 1 according to the Respondents' first auxiliary request is novel. In Claim 1 of this request, the copolymeric ingredient is defined as being comprised of (meth)-acrylic and maleic acid monomers.

In the absence of any mention of such copolymers in document (3) and hence document (9), the Board considers that this feature introduces a new element into the

technical teaching of the disputed patent which distinguish it from that of document (9).

6. It remains to be decided whether the subject-matter of Claim 1 of the Respondents' first auxiliary request involves an inventive step.

6.1 The skilled person seeking to improve the performance of the compositions of document (9) with respect to their bleachable stain removal and fabric whiteness would turn his attention to documents in the detergent field dealing with these specific technical problems or related ones.

Document (7) relates to the use of copolymers which, based on the weight of polymers, contain 40 to 90% of acrylic or methacrylic acid and 50 to 10% of maleic acid as copolymeriser units, or their alkali metal ammonium salts as incrustation inhibitors in detergents (cf. Claim 1). It was agreed by the parties that some of these copolymers fell within the definition of the copolymers in the present Claim 1.

According to document (7) incrustation is the deposition of inorganic water-soluble salts on fibres (cf. the paragraph bridging pages 1 and 2). It is desirable to prevent incrustation since it leads to a feeling of hardness and a greying of the laundry, particularly after repeated washing. Naturally, if this deposition can be prevented or at least minimised, the whiteness of the laundry will be improved.

The skilled person would be encouraged to use (meth)-acrylic/maleic acid copolymers to solve the present technical problem with respect to improving whiteness by the effectiveness of these copolymers in inhibiting

incrustation as demonstrated by the examples of document (7).

The fact that document (7) teaches that (meth)-acrylic/maleic acid copolymers are deposition inhibitors would not deter the skilled person from using them in the present compositions since they inhibit the deposition of inorganic, water-insoluble salts and the skilled person would not consider that they would also inhibit the deposition of water-soluble photoactivators of the types specified in the present Claim 1.

In the Board's judgment, the proposed solution to the technical problem as defined above is obvious. Therefore, the subject-matter of Claim 1 of the Respondents' first auxiliary request does not involve an inventive step.

Claims 2 and 3 of this request relate to preferred embodiments of the composition according to Claim 1. It was not argued that these claims contain any independent inventive features, therefore, lacking such features, they are unallowable in the absence of an acceptable main claim.

7. Claim 1 of the Respondents' second auxiliary request is identical to that of the first auxiliary request apart from the exclusion from its scope of compositions comprising amine oxides as performance additives.

Thus, compositions comprising water-soluble photoactivators as performance additives fall within its scope. Therefore, for the reason given above in connection with the first auxiliary request, the subject-matter of this request, although novel, does not involve an inventive step and the Respondents' second auxiliary request is also unallowable.

Order

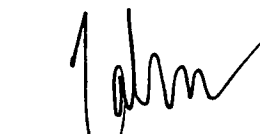
For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:


E. Gorgmaier

The Chairman:


K.J.A. Jahn