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File Number: T 859/90 - 3.3.1
Application No.: 84 200 873.2
Publication No.: 0 130 639
Title of invention: Detergent compositions containing polyethylene glycol and polyacrylate

Classification: C11D 3/37

D E C I S I O N
of 5 November 1992

Applicant: THE PROCTER & GAMBLE COMPANY

Opponent: Unilever PLC / Unilever N.V.

Headword: Detergent compositions/PROCTOR & GAMBLE

EPC Article 56

Keyword: Inventive step (no), obvious improvement, determination of the technical problem - burden and standard of proof, synergistic effect not relevant to the solution

Decisions cited: T 20/81, T 219/83, T 109/91, T 270/90, T 97/90, T 26/88, T 326/87, T 611/90

Catchwords

Oral evidence, need to avoid surprise (point 2.2.4).

Case Number : T 859/90 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 5 November 1992

Appellant :
(Opponent)

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Decision under appeal :

Interlocutory decision of the Opposition Division
of the European Patent Office of 19 June 1990,
posted on 29 August 1990, concerning maintenance
of European patent No. 0 130 639 in amended
form.

Composition of the Board :

Chairman : K. Jahn
Members : R. Spangenberg
J. Stephens-Ofner

Summary of Facts and Submissions

I. This appeal, which was filed on 7 November 1990 and for which the appropriate fee was paid at the same date, lies from the decision of the Opposition Division of the EPO of 19 June 1990, with written reasons delivered on 29 August 1990, concerning the maintenance of European patent No. 0 130 639 in amended form. This patent was granted in response to European patent application No. 84 200 873.2, which was filed on 18 June 1984, claiming priority of 30 June 1983 from an earlier application in the USA, and contained 11 claims. The decision under appeal was based on amended Claims 1 and 6. The other claims remained as granted. Amended Claim 1 read as follows:

"A detergent composition containing:

- (a) from 5% to 50 % by weight of an organic surfactant selected from the group consisting of anionic, nonionic, zwitterionic, ampholytic and cationic surfactants, and mixtures thereof;
- (b) from 5% to 80 % by weight of a non-phosphorous detergent builder;
- (c) a polymeric detergent ingredient, characterised in that the polymeric detergent ingredient is represented by from 1% to 20% by weight of the composition of a mixture of a polyethylene glycol and a polyacrylate, said mixture having a polyethylene glycol : polyacrylate weight ratio of from 1:10 to 10:1, said polyethylene glycol having a weight average molecular weight of from 1 000 to 50 000 and said polyacrylate containing at least 80% by weight of units derived from acrylic acid and having a weight average molecular weight of from 3 000 to 15 000."

The Opposition Division considered 11 documents, of which the following remained relevant during the appeal proceedings:

- (2) GB-A-1 402 403 and
- (9) Alco Technical Bulletin TB-3018 of 04.09.79 from Alco Chemical Corporation.

II. In the decision under appeal it was stated that document (2) represented the closest state of the art. The technical problem in respect of this state of the art was seen to be the improvement of clay soils removal from textiles, which was credibly achieved by incorporating into a detergent composition substantially as described in document (2) the polyacrylate specified in the present Claim 1 in the amounts indicated therein. Document (9) was considered irrelevant, since there was no evidence that the "Alcosperse" products mentioned therein were polyacrylates of the type identified in Claim 1 of the disputed patent. Although a person skilled in the art might have considered some compositions falling within the scope of Claim 1 as suitable alternatives to the compositions described in document (2), he would not have done so in the expectation of a synergistic effect of the combination of polyethylene glycols (PEGs) and polyacrylates (PAs).

III. A Statement of Grounds of Appeal was received on 4 January 1991. During the appeal proceedings, the Appellant (the Opponent) submitted three further technical bulletins, the most relevant being

(9b) Alcosperse TB-3015A, dated 3 May 1982,

and document

(12) GB-A-2 097 419

in order to clarify the chemical structure of the "Alcosperse" products referred to in document (9).

In the Statement of Grounds of Appeal, as well as in further written submissions, and during the oral proceedings on 5 November 1992, he argued that the technical problem which might have been solved by the claimed compositions was a certain improvement of the overall cleaning performance, including clay soil removal, rather than an improvement of the ability to remove clay, taken in isolation. He also submitted that document (9), on its proper construction in the light of document (12), provided an incentive to incorporate a PA of the type concerned in a composition according to document (2) in the expectation of an improved cleaning performance. Therefore, the claimed subject-matter lacked inventive step.

He further disputed the existence of any synergistic effect. Referring, inter alia, to Decision T 20/81 (OJ EPO 1982, 217) he submitted that the patent proprietor had the burden of proving, beyond the balance of probabilities, the presence of this effect if he wanted to rely on it as the basis for assessing inventive step. This burden, however, was not discharged by the test results in the patent specification, mainly because no evidence for the alleged linear correlation of concentration and cleaning index or Hunter whiteness for PEG and PA was available. He also made a number of observations and submissions relating to the nature of the evidence relied upon by the patent proprietor and the onus it placed, in certain circumstances, upon opponents who wished to contest it.

IV. The Respondent (the patent proprietor) submitted that the subject-matter of present Claim 1 was not "prima facie

obvious", in the sense that it provided an inventive alternative to the known solution of the relevant technical problem, which was clay soil removal and not just the avoidance of redeposition of removed clay, because the documents cited against the patent in suit did not disclose an activity of PA in respect of clay soil removal as such. Thus, so he argued, it was unnecessary for him to prove any technical benefit or effect over the prior art. In any case, the worked examples in the specification of the patent in suit were sufficient to show that there was, on the balance of probabilities, an unexpected improvement of clay soil removal. This effect was distinguishable from the antiredeposition effect of PAs addressed in document (9). Although in the worked examples of the patent specification a "cleaning index" (as defined therein) and the "Hunter whiteness" were measured, he submitted, based on oral evidence given by his technical expert, that these effects were very likely due to enhanced clay soil removal, and not merely to the avoidance of clay soil redeposition.

Document (9) related to PAs having a wide range of molecular weights, and listed 14 possible uses of these products. Among these uses the improvement of clay soil removal was not mentioned. Regarding the antiredeposition effect, it followed from document (9b) that higher molecular weights were envisaged than those used according to the present Claim 1. Document (12) only related to the problem of manufacturing free flowing base beads, useful in the manufacturing of detergent compositions, and was, therefore, not relevant. Thus, the selection of PAs of a narrow range of molecular weights from the broader range disclosed in document (9), with a view to further improving the clay soil removal of the detergent compositions of document (2), was inventive.

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

The Respondent requested that the appeal be dismissed.

At the end of oral proceedings the decision of the Board to revoke the patent was announced.

Reasons for the Decision

1. The appeal is admissible.
2. The sole matter to be considered in these appeal proceedings is that of inventive step.
 - 2.1 The Board agrees with the parties' submissions that document (2) represents the closest state of the art. According to this document, an improvement of cleaning performance, in particular in respect of clay soils removal from textiles (see page 1, lines 12 to 18), is achieved by a detergent composition containing from 0.5 to 15 % by weight of the composition of a PEG having a molecular weight from about 2000 to about 40000, from 40 to 90 % by weight of an anionic water-soluble surfactant and from 9.5 to 45% by weight of a specific ethoxylated alcohol, which may also include from 5 to 80% by weight of the detergent composition of a non-phosphate detergent builder (see page 2, line 76 to page 3, line 10, page 3, lines 67 to 76, and page 6, line 110 to page 7, line 95). Having regard to the fact that mixtures of anionic and nonionic surfactants are also covered by Claim 1 of the patent in suit (see also page 3, lines 42 to 45), this document discloses detergent compositions differing from those of Claim 1 of the disputed patent only insofar as

they do not contain a PA of the type indicated in Claim 1.

2.2 The main dispute between the parties related to the question which technical problem had been effectively solved by the compositions according to the present Claim 1 in respect of the above closest state of the art.

2.2.1 In this respect, the Appellant had submitted that the burden of proof of establishing the technical advantage claimed by the patent in suit rested on the Patentee's shoulders. As a consequence of this, so he argued, it was not up to him to prove the contrary case, i.e. that such advantage could not be obtained, for such proof, by its very nature, would require the expenditure of large amounts of money and effort. Furthermore, he argued, it was inequitable and unjust that the Patentee should have relied heavily on the evidence of an expert witness to prove such a technical advantage, and especially so since the Opponent had not been given any, let alone any timely notice, that oral evidence would be adduced during the appeal proceedings. The Patentee should, instead, have sought to prove his facts principally, if not solely, by written evidence or had given due notice to the Opponent that he wished to call an expert. Reliance on the evidence of such witnesses would, he submitted, reduce appeal proceedings under the EPC to the level of High Court proceedings in the UK for infringements of patents, which were exceedingly protracted, expensive, and full of surprises.

2.2.2 According to the consistent case law of the Boards of appeal the burden of proof on this issue rests on the party who relies on it, here the Patentee. The standard or degree of that proof is the same as is required to prove any fact alleged and relied upon in civil proceedings,

e.g. appeal proceedings under the EPC, namely the balance of probabilities (cf. Decisions T 219/83, OJ EPO 1986, 211, point 12 of the Reasons and T 109/91 of 15 January 1992, to be published in OJ EPO, point 2.10 of the reasons and T 270/90 of 21 March 1991, to be published in OJ EPO, for Headnote see OJ EPO 11/1992).

2.2.3 An Opponent must therefore deal with the case that has been presented at first instance, or the same or a similar case on appeal - see the Boards' jurisprudence on the nature of appeals, T 97/90 of 13 November 1991, to be published in OJ EPO, T 26/88, OJ EPO 1991, 30, T 326/87 of 28 August 1990, to be published in OJ EPO, for Headnote see OJ EPO 9/1991 and T 611/90 of 21 February 1991, to be published in OJ EPO, for Headnote see OJ EPO 3/92. He, and he alone, must judge and decide whether any relevant fact alleged by a patentee has been proved to the required standard. If he wishes to disprove it with a view to rebutting an allegation that depends upon it, e.g. that a technical problem has been solved, he must bring forward the best evidence he can command, or risk losing on the point at issue. The degree of effort and amount of money required to secure such evidence should, in the nature of things, be taken into account when deciding whether an opposition is to be filed, since oppositions should never, as they sometimes are, be lightly undertaken. The Board cannot accept that such disproof would involve what the Appellant here submitted, namely a "major research effort" within the financial framework of parties such as those involved in this appeal, i.e. major corporations.

2.2.4 As for the absence of notification by the Patentee of his intention to rely on expert oral evidence, whilst the Board has some understanding and even sympathy with the difficulty in which this might place an opponent, it is, once more, of the view that it is entirely up to the

parties in appeals to build and present their cases, subject always to the safeguards and sanctions against the submittal of late-filed evidence, where such matter comes as a surprise to the other party, and where its effect is to set up a case dissimilar to the one that had been the basis of the appealed decision. In the very nature of the issue here under discussion, i.e. whether or not the promised technical advantage was achievable, the Patentee's expert evidence cannot have come as a surprise, relating as it did to an aspect of the case already canvassed before and decided by the first instance. The Appellant could, had he judged it worth while, brought along an expert of his own. As it turned out, his decision not to do so -with its attendant risk, as mentioned before, proved to have been sound, having regard to the following assessment of the relevant facts of the case.

2.2.5 In respect of the statement in the patent specification on page 2, lines 50 to 54, that the PA/PEG mixtures according to Claim 1 provide a "surprising boost" to the removal of clay soil, the examples in the patent only demonstrate an increase in the cleaning index or in the Hunter whiteness which is just above the level of statistical significance (see Example 1, where the composition containing 2% PEG-8000 can be regarded as representing the state of the art according to document (2), and Example 2, where the composition containing 2.4% PEG-8000 serves the same purpose). The Respondent has alleged that the observed improvement can almost exclusively be attributed to the increase in the capability of clay soil removal, and that the possibility of redeposition can be neglected. However, this allegation was disputed by the Appellant and finds no basis in the available test results. In this respect, account has to be taken also of the fact that the detergent composition used in Example 2 of the patent contained an optical brightener which may have influenced

the observed differences in the Hunter whiteness, as submitted by the Appellant in the Notice of Opposition on the basis of experimental evidence, which was not challenged by adequate counter-evidence. In respect of the cleaning index defined and measured in Example 1 of the patent in suit, the Respondent has argued that this was only "likely" to be a measure for clay soil removal alone. However, there is no evidence that this test does unambiguously separate the effects of clay soil removal and the prevention of redeposition. Thus, the Board is not satisfied that the technical problem on which the Respondent relies has been credibly solved, so that it needs to be investigated, taking into account the available evidence, which technical problem has been solved instead.

2.2.6 In this respect, it is already stated in document (2), that the composition representing the closest state of the art was not only effective in clay soil removal but also in keeping the said particulate soil in suspension, i.e. in preventing redeposition (see page 2, lines 63 to 68). The solution of the problem addressed in this document, viz. the improvement of cleaning performance, therefore, did not only include clay soil removal but also the avoidance of soil redeposition. For this reason, the Appellant's submission that the demonstrated effect can only be seen in a slight improvement of the overall cleaning performance, including clay soil removal, is in agreement with all facts before the Board.

2.2.7 Thus, the Board sees the technical problem underlying the patent in suit vis-à-vis the closest state of the art in improving the overall cleaning performance, including clay soil removal.

- 2.3 The patent in suit proposes to solve this technical problem by replacing the PEG in the composition according to document (2) by 1 to 20% by weight of a PEG/PA-mixture having a PEG:PA weight ratio of from 1:10 to 10:1, said PEG having a weight average molecular weight of from 1000 to 50000 and said PA containing at least 80% by weight of units derived from acrylic acid and having a weight average molecular weight of from 3000 to 15000. For the reasons explained in the preceding paragraph the Board is satisfied that this technical problem is thereby solved.
- 2.4 It was not disputed by the Respondent that the cleaning performance of a detergent composition can be improved by an antiredeposition agent. This can also be inferred from document (2), page 2, lines 63 to 68, where it is stated that particulate soil should be kept suspended in the laundering solution. In this document it is further disclosed that an antiredeposition agent may be added to the compositions described therein (see page 8, lines 30 to 59, in particular line 39). However, document (2) is totally silent on the chemical nature of this additional antiredeposition agent. Therefore, the person skilled in the art would consider any chemical compound which is known to be useful for this purpose, including the PAs advertised in document (9). He would pay particular attention to the "Alcosperse" products to which the latter document relates because it specifically recommends the incorporation of these products as antiredeposition agents in detergent compositions, either alone or together with other antiredeposition agents, for obtaining improved antiredeposition effects on fabrics. Document (9) mentions a wide range of molecular weights (of from 1000 to 100000) and a number of 14 possible uses, all relating to detergent compositions, of the "Alcosperse" polycarboxylates (being PAs according to document (9b), first two lines, and document (12), page 3, lines 74 to

102). There is, however, no direct information in this document about which molecular weight range should be considered for any of these uses. Thus, this document does not specifically teach to select PAs having a weight average molecular weight of from 3000 to 15000 as antiredeposition agents. However, the Respondent's submission that a person skilled in the art would have chosen PAs of a molecular weight near the higher end of that range is not supported by the content of this document either, because it specifically discloses two "Alcosperse" products (Alcosperse 130 and 430) having a molecular weight of 15000. Nor does document (9b), which describes in more detail the product "Alcosperse 404", mentioned in document (9) among the products of "medium" molecular weight, and states that its molecular weight is approximately 60000, suggest such a selection, since it does not mention any particular use of this product. On the other hand, document (12) not only discloses that the PAs of low molecular weight in the range of 1000 to 5000 are useful as mixing aids helping to evenly distribute other additives in solid detergent compositions (page 3, line 103 to page 4, line 2), but also that compositions containing the above PAs additionally exhibit excellent anti-redeposition effects, helping to prevent dirtying of the laundry by redeposition of removed soil (see page 12, lines 117 to 121). On the basis of this evidence the Board is satisfied that PAs having molecular weights in the range indicated in the present Claim 1 were known to have an excellent antiredeposition effect and would, therefore, have been considered as further additives to the compositions according to document (2) with a view to improve the cleaning performance.

- 2.5 It is true that document (2) does not state that the addition of an antiredeposition agent should be accompanied by a simultaneous reduction of the amount of

PEG. This feature is, however, not an essential feature of the present Claim 1, since this claim does not require that a part of the amount of the PEG (expressed in % by weight) to be used according to the disclosure in document (2), is to be replaced by the same amount (expressed in % by weight) of the PA specified therein, as may be suggested by the worked examples. On the contrary, the weight range of PEG required by the present Claim 1 is substantially identical with that disclosed in document (2). In particular, the amounts of PEG used in the worked examples fall within the range disclosed in document (2) and are very close to the amount used in Example I of this document (see page 8, lines 102 to 112). However, only essential features, i.e. such features which are expressly or implicitly contained in the broadest claim, can be taken into account when assessing the inventive step.

For this reason alone the synergistic effect, relied upon by the Respondent in respect of the above feature, is not relevant. In addition, the Board is not satisfied that a synergistic effect in its normal meaning, i.e. an effect which exceeds the added effects of the single components of a mixture, has been demonstrated. No information is available from the patent specification or other document on file concerning the correlation between the concentrations and the effects on cleaning index or Hunter whiteness of PEG or PA. However, synergy could only be established if the above correlations were either known or if particular correlations could be fairly assumed to exist, e.g. on the basis of the common general knowledge, a possibility which does not apply here, as had been admitted by the Respondent during oral proceedings.

3. For the above reasons, the subject-matter of the present Claim 1 lacks inventive step and the patent cannot be maintained as requested by the Respondent. In the absence

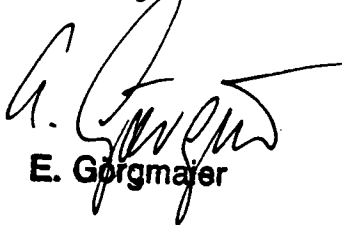
of any further request, dependent Claims 2 to 11 must fall together with Claim 1. Moreover, since they substantially relate to no more than narrower weight ranges and more specific definitions of the components indicated in Claim 1, the above reasons would have applied, mutatis mutandis, to the subject-matter of any one of these claims.

Order

For these reasons, it is decided that:

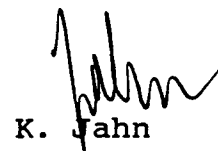
1. The appeal is allowed.
2. The patent is revoked.

The Registrar:



E. Gorgmaier

The Chairman:



K. Jahn