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D E C I S I O N
of 13 May 1997

Case Number: T 0459/94 - 3.3.3

Application Number: 85305772.7

Publication Number: 0172723

IPC: C08F 246/00

Language of the proceedings: EN

Title of invention:
Water soluble polymers

Patentee:
ALLIED COLLOIDS LIMITED

Opponent:
Röhm GmbH
S.N.F. S.A.

Headword:
-

Relevant legal provisions:
EPC Art. 56, 114(2)

Keyword:
"Inventive step (yes); late filed documents
(excluded) - unnecessary amendments (refused) "

Decisions cited:
T 0406/86, T 1002/92, T 0039/93

Catchword:
-



Case Number: T 0459/94 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 13 May 1997

Other party:
(Opponent)

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Decision under appeal:

Interlocutory decision of the Opposition Division
of the European Patent Office dated
20 December 1993, issued in writing on
26 April 1994 concerning maintenance of European
patent No. 0 172 723 in amended form.

Composition of the Board:

Chairman: C. Gérardin
Members: R. Young
A. C. G. Lindqvist

Summary of Facts and Submissions

- I. The mention of the grant of European patent No. 0 172 723, in respect of European patent application No. 85 305 772.7, filed on 14 August 1985 and claiming GB priorities of 15 August 1984 (GB 8420693; GB 8420694 and GB 8420695) and 12 August 1985 (GB 8520218) was announced on 24 July 1991 (Bulletin 91/30).
- II. Two Notices of Opposition were filed, on 21 April 1992 (Opponent 01) on the grounds of lack of novelty and inventive step, and on 24 April 1992 (Opponent 02) on the ground only of lack of inventive step. The oppositions were supported, inter alia, by the document:
- D7: EP-A-0 063 018.
- III. By a decision which was given at the end of oral proceedings held on 20 December 1993 and issued in writing on 26 April 1994, the Opposition Division found that the patent could be maintained in amended form. According to page 2 of the interlocutory decision, the documents for the patent as amended included Claims 1 to 17 filed on 23 December 1993 with letter of 21 December 1993. Claim 1 of this set reads as follows:

"A process in which a suspension is flocculated using, as flocculant, a water soluble substantially linear polymer having a single point intrinsic viscosity above 3 and that is a copolymer of at least one water soluble ethylenically unsaturated monomer (b) and at least 0.5% by weight, of monomer (a) carrying a pendant hydrophobic group and which is either ethylenically unsaturated monomer including a group $-B_nA_mR$ where A is propoxy or butoxy, B is ethoxy, n is an integer of 5

to 100 and m is zero or an integer less than n, and R is a hydrophobic group of at least 8 carbon atoms or a monomer of formula $CH_2=C(R^2)QR$ where Q is either $COOR^5N^+(R^3)_2X^-$ or $CON(R^4)R^5N^+(R^3)_2X^-$ where each R^3 is C_{1-8} alkyl, R^2 and R^4 are each H or CH_3 , R^5 is C_{1-8} alkylene, X^- is an anion and R is C_{8-30} alkyl or aralkyl."

Claims 2 to 8 are dependent claims directed to elaborations of the process according to Claim 1.

Claim 9, an independent claim, reads as follows:

"A water soluble substantially linear polymer having a single point intrinsic viscosity greater than 3 and that is a cationic copolymer of at least one water soluble ethylenically unsaturated monomer (b) and at least 0.5% by weight of monomer (a) carrying a pendant hydrophobic group and which is either ethylenically unsaturated monomer including a group $-B_nA_mR$ where A is propoxy or butoxy, B is ethoxy, n is an integer of 5 to 100 and m is zero or an integer less than n, and R is a hydrophobic group of at least 8 carbon atoms or a monomer of formula $CH_2=C(R^2)QR$ where Q is either $COOR^5N^+(R^3)_2X^-$ or $CON(R^4)R^5N^+(R^3)_2X^-$ where each R^3 is C_{1-8} alkyl, R^2 and R^4 are each H or CH_3 , R^5 is C_{1-8} alkylene, X^- is an anion and R is C_{8-30} alkyl or aralkyl."

Claims 10 to 16 are dependent claims directed to elaborations of the polymer according to Claim 9.

Claim 17 reads as follows:

"A process according to any of Claims 1 to 8 or a polymer according to any of Claims 9 to 15 wherein m is zero."

According to the decision, the claimed subject-matter was novel. As to inventive step, even though there was an affirmation in D7, which was the closest state of the art document and quoted copolymers of acrylamide and a N-derivative thereof comprising a hydrophobic group, that the copolymers might be used as flocculants, its teaching was to use the copolymers as thickening agents. There was no evidence of their use as flocculants, but on the contrary flocculation was presented as disadvantageous. Furthermore, the molecular weights indicated were too low for the purposes of the patent in suit. Finally, there was no suggestion in any of the documents cited to obtain the specific high molecular weight C₁₋₈ hydrophobe containing N-quaternised salt of Claim 9. Consequently, the subject-matter of Claims 1 and 9 was not obvious.

IV. On 30 May 1994 a Notice of Appeal against the above decision was filed by Opponent 02 (the Appellant), together with payment of the prescribed fee.

In the Statement of Grounds of Appeal filed on 25 August 1994, the Appellant referred to the following documents for the first time:

D15: GB-A-1 391 142; and

D16: GB-A-1 373 034.

In a subsequent submission, filed on 13 September 1995, the Appellant referred for the first time to the following further documents:

D17: JP-A-49 087 584 (with translation into German);

D18: GB-A-1 482 515; and

D19: Römpps Chemie-Lexikon, 8th edition, page 4532.

Whilst the principal part of the argumentation related to the contents of the above documents D15 to D19, arguments were also presented in relation to D7.

According to the latter, D7 was directed to water-soluble copolymers of (a) acrylamide and (b) an N-substituted acrylamide carrying a hydrocarbyl group of at least 6 to 36 carbon atoms, which could be attached to the nitrogen atom via a polyoxyalkylene chain, and thus corresponded to the ethylenically unsaturated monomers (a) and (b) respectively of the first alternative of Claim 1 of the patent in suit. These copolymers, which could have a molecular weight up to 2 million, were useful as flocculants to clarify aqueous solutions of inorganic materials. Bearing in mind that the intrinsic viscosity depended on the molecular weight, it was obvious for a skilled person that the flocculants disclosed in D7 could be adjusted to an intrinsic viscosity of above 3 without affecting the flocculating properties in any but an advantageous manner. Furthermore, the use of cationic copolymers according to the first alternative of Claims 1 and 9 was obvious because D7 disclosed that the cationic monomers could be prepared by common methods disclosed in the art and that especially cationic acrylamide copolymers led to flocculation (Statement of Grounds of Appeal, pages 6 and 7).

Hence, the claimed subject-matter lacked an inventive step.

- V. The Respondent (Patentee), whilst disagreeing, in a submission filed on 13 March 1995, with the arguments of the Appellant, nevertheless filed a new, restricted set of Claims 1 to 17 forming the main request, as well as further sets of claims forming second and third auxiliary requests, respectively. The first auxiliary request corresponded to the amended form of the patent in suit underlying the decision under appeal (Section III., above).

The Respondent expressed the view, in relation in particular to D7, that the reference to flocculants was speculative and generic and no-one concerned with improving flocculation processes would place any weight on such a disclosure, which said that a particular polymer could be a flocculant or a dispersant; since, in practice, the two functions were in competition with each other. The only potentially relevant exemplified polymer was Example 12, but this was a non-ionic polymer of extremely low molecular weight, as indicated by the solution viscosity.

- VI. The Appellant requested that the patent in suit be revoked in its entirety.

The Respondent requested that the patent be maintained in amended form on the basis of the main request, or, failing this, on the basis of the first auxiliary request, or the second or third auxiliary request, subject to the proviso that oral proceedings were requested before any other decision than maintenance of the patent on the basis of the main or first auxiliary request was taken.

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Reasons for the Decision

1. The appeal is admissible.
2. *Late-filed documents*

The Appellant's case in appeal is based principally, though not exclusively, on documents D15 to D19, which had not previously been referred to in the proceedings (Section IV., above). These documents, together with the accompanying submissions of the Appellant, comprise facts and related arguments which go beyond the "indication of facts, evidence and arguments" presented in the Notice of Opposition pursuant to Rule 55(c) EPC in support of the grounds of opposition on which the opposition was based. They thus do not automatically form part of the proceedings and it is necessary for the Board first to consider whether, in the exercise of its discretion, any or all of them should be taken into consideration in the appeal.

- 2.1 The criteria to be taken into account in such cases have been reviewed by this Board in its decision T 0039/93 of 14 February 1996 (to be published in OJ EPO), which made special reference to the decision T 1002/92 (OJ EPO 1995, 605) in this connection (Reasons for the decision, point 3.1.2). According to the latter, "new facts, evidence and arguments which go beyond the 'indication of facts, evidence and arguments' presented in the notice of opposition pursuant to Rule 55(c) EPC should only very exceptionally be admitted into the proceedings in the appropriate exercise of the Board's discretion, if such

material is prima facie highly relevant in the sense that it can reasonably be expected to change the eventual result and is thus highly likely to prejudice the maintenance of the European patent;" (Reasons for the decision, point 3.4).

2.2 The Board, having considered the disclosures of documents D15, D16, D17, D18 and D19 has reached the conclusion that the extent of their relevance does not fulfil this criterion. These documents are therefore excluded from the proceedings pursuant to Article 114(2) EPC.

2.3 One consequence of the exclusion of D15 to D19 is that the arguments based specifically on them are also necessarily excluded. The Appellant's case in appeal is thus restricted, in effect, to the submissions made in relation to the residual state of the art document D7, together with any remarks which may be considered to relate to the general knowledge of the skilled person.

3. *Admissibility of amendments; main request*

Claim 1 differs from the version referred to in Section III., above by the restriction, in the definition of the comonomer $\text{CON}(\text{R}^4)\text{R}^5\text{N}^+(\text{R}^3)_2\text{X}^-$, of R^3 to methyl, instead of C_{1-8} alkyl.

3.1 This amendment, which was introduced by the sentence "Nevertheless, in order to provide a clearer distinction between the claimed subject-matter and the disclosure in D15 and D16 the patentee is willing to restrict the scope of the definition of the substituted

acrylamide derivatives." was evidently made without prejudice to the Respondent's own position that D15 and D16 were not relevant. Consequently, the Respondent's implicit position was that the amendment was not necessary to meet a ground of opposition which might have arisen from either or both of these documents.

- 3.2 Since, furthermore, the documents referred to do not form part of the proceedings (Section 2.2, above), no valid ground of opposition can arise from them. Consequently, there is a fortiori no reason for assuming that the amendment was necessary.
- 3.3 Finally, as no other reason has been offered for making the amendment, and none is apparent to the Board, it must be concluded that the amendment was in fact unnecessary and, therefore, superfluous.
- 3.4 Quite apart from the above, the allowability of the amendment itself has been contested by the Appellant (submission filed on 13 September 1995, page 4).
- 3.5 Without it being necessary finally to decide whether the amendment is in fact allowable in the sense of Article 123 EPC, the Board takes the view that such an amendment, which is both superfluous in its substance and has also been objected to by an opposing party, is unlikely to be an appropriate amendment.
- 3.6 Following the principles set out in decision T 0406/86 (OJ EPO 1989, 302), according to which the Board may, exercising due discretion, decide not to allow proposed amendments which it regards as inappropriate or unnecessary (Reasons for the decision, point 3.1.9), the Board decides not to allow the proposed amendment. The main request is thus refused.

4. *First auxiliary request*

According to the submission of the Respondent filed on 13 March 1995, this corresponds to the amended form of the patent as maintained by the Opposition Division.

4.1 Closer examination of the decision under appeal reveals, however, that Claims 1 to 17 of the "Documents for the maintenance of the patent", referred to on page 2 of the interlocutory decision (Section III., above), are not identical with Claims 1 to 17 referred to in the Facts and Submissions of the same decision, which are stated to be "as amended at 01.12.92" (Facts and Submissions, foot of page 1). The version "as amended at 01.12.92" (i.e. with the letter dated 1 December 1992, filed on 7 December 1992) evidently corresponds to the version of Claims 1 to 17 considered during the oral proceedings before the Opposition Division on 20 December 1993. An explanation of the discrepancy is to be found in a letter of the Respondent filed on 23 December 1993, i.e. three days after the oral proceedings, which notes that it had been decided that the patent could be maintained on the basis of the main request but that minor amendments were necessary in the wording of the main request to make the description of the monomers (a) and (b) more consistent. This letter (dated 21 December 1993) refers to "pages 2, 3, 4, 10 and 11 of the patent showing the amendments that...satisfactorily implement the decision of the Opposition Division". This in turn corresponds to the version of the "Documents for the maintenance of the patent", referred to on page 2 of the interlocutory decision (Section III., above).

4.2 Whilst such an ambiguity could, in principle, have led to an objection under Article 113(1) EPC, that the decision under appeal, as issued in writing on 26 April 1994, was not based on a text on which the

parties concerned had had an opportunity to comment, and/or to an objection under Article 113(2) EPC, that this text was not the one submitted or agreed to by the proprietor on the date the decision was taken, namely on 20 December 1993 at the oral proceedings before the Opposition Division, nevertheless no such objection has been raised by any of the parties. On the contrary, the references made by the Appellant in the Statement of Grounds of Appeal to "monomer (a)" and "monomer (b)", which appears in the version of the claims filed on 23 December 1993 (letter of 21 December 1993), but not in that filed on 7 December 1992 (letter of 1 December 1992), indicate that it is the version of the claims filed on 23 December 1993 to which reference is made.

Furthermore, the latter version of the claims is the most recent version submitted by the Respondent in connection with the opposition proceedings.

4.3 Consequently, it is evident that **the text of the first auxiliary request of the Respondent (Section V., above) corresponds to the patent in suit as granted, subject to the amendments shown on pages 2, 3, 4, 10 and 11 of the printed specification received on 23 December 1993, with the letter dated 21 December 1993.** In this connection, the retyped version of Claims 1 to 17 also accompanying this letter corresponds to the amended version of Claims 1 to 17 shown on the amended pages of the patent specification referred to above, subject to correction of two typing errors, namely the misspelling of the word "integer" ("interger" in two occurrences: Claim 1, ninth line, and Claim 9, eighth line) and of the word "pendant" ("pendatn": Claim 9, fifth line).

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4.4 The Board has examined the wording of the two texts referred to (section 4.1, above), and finds that the differences between them are not such as to change the subject-matter claimed. Nevertheless, the ambiguity as to the text underlying the decision under appeal means that the decision is defective in this respect and must be set aside.

4.5 As to the text of the first auxiliary request (section 4.3, first sentence, above), the amendments it contains are not such as to give rise to an objection under Article 123(2) or (3) EPC. Nor has such an objection been raised by the Appellant.

Consequently, the amendments corresponding to the first auxiliary request are admissible.

4.6 The substantive case against the patent in suit

The Appellant's arguments, as far as they relate specifically to D7 (section 2.3, above), do not go beyond the points already raised during the opposition proceedings. These points have, however, been adequately dealt with, in the Board's view, in the decision under appeal, in connection with the same claimed subject-matter.

4.7 As far as the submissions relate to the general knowledge of the skilled person, the argument of the Appellant, that the question of whether a polymer can in fact function as a dispersant or a flocculant "depends only on the molecular weight and, even more so, the actual application conditions....." (submission filed on 13 September 1995, page 15) is itself illogical. Clearly, if a function depends "only" on the molecular weight, it cannot depend "even more" on something else.

4.8 Nevertheless, this general submission of the Appellant does, in the Board's view, contain an indication of the true state of affairs to the extent that it illustrates the quandary in which the skilled person would find himself in attempting to solve the problem of providing improved flocculating performance. It is clear from the above that such performance depends on a number of factors, none of which have been shown to be quantifiable in advance by the skilled person. Consequently it is not obvious what effect any particular modification will, in practice, have.

4.9 Hence, the Board sees no reason to differ from the relevant finding of the decision under appeal. In other words, Claims 1 to 17 meet the requirements of the EPC.

5. In view of the above finding, the patent in suit must be maintained in amended form on the basis of the first auxiliary request.

5.1 Consequently, there is no need for the Board to appoint oral proceedings, since these were requested by neither party in such a case.

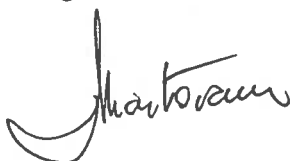
5.2 Nor, in view of the above conclusion, is it necessary for the Board to consider the second and third auxiliary requests of the Respondent.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is referred back to the first instance with the order to maintain the patent in amended form in accordance with the first auxiliary request of the Respondent, that is, on the basis of the patent in suit as granted, subject to the amendments shown on pages 2, 3, 4, 10 and 11 of the printed specification received on 23 December 1993 with the letter dated 21 December 1993 (section 4.3, first sentence, above).

The Registrar:



P. Martorana

The Chairman:



C. Gérardin



