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D E C I S I O N
of 7 August 2000

Case Number: T 0778/98 - 3.3.3

Application Number: 92925091.8

Publication Number: 0705292

IPC: C08G 63/06

Language of the proceedings: EN

Title of invention:
Polymers from hydroxycarboxylic acids and polycarboxylic acids

Applicant:
Southern Research Institute

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 113(1)

Keyword:
"Basis of decisions - opportunity to comment (no)"
"Reimbursement of the appeal fee (yes)"

Decisions cited:
T 0568/89, T 0951/92, J 0007/82

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0778/98 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 7 August 2000

Appellant: Southern Research Institute
2000 Ninth Avenue South
Birmingham
Alabama 35205 (US)

Representative: Pellegri, Alberto
c/o Società Italiana Brevetti S.p.A.
Piazza Repubblica, 5
IT-21100 Varese (IT)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 18 February 1998 refusing European patent application No. 92 925 091.8 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: C. Gérardin
Members: P. Kitzmantel
A. Lindqvist

Summary of Facts and Submissions

I. This appeal, which was filed on 21 April 1998, lies against the decision of the Examining Division dated 18 February 1998, refusing European patent application No. 92 925 091.8 filed on 5 November 1992 as International patent application No. PCT/US92/09527 in the name of SOUTHERN RESEARCH INSTITUTE, and published under No. WO 93/10169 (EP-A-0 705 292). The appeal fee was paid on 10 April 1998 and the Statement of Grounds of Appeal was filed on 16 June 1998.

II. The decision under appeal was based on a set of 39 claims filed with the submission dated 25 July 1997, Claims 1, 22, 23, 27 and 28 reading as follows:

"1. A biosorbable copolymer from a hydroxycarboxylic acid and polycarboxylic component selected from the group consisting of polycarboxylic acid, activated derivative thereof, and mixtures thereof, wherein the amount of said hydroxycarboxylic acid is 99.95 mole % to 90 mole % based upon the total moles of said hydroxycarboxylic acid and the reactive carboxylic moieties of the polycarboxylic component; and amounts of the recited acids add up to 100 mol% based upon the total of said hydroxyalkanoic acid and carboxylic moieties of said polycarboxylic component is 0.05 mole % to 10 mole % based upon the total of said hydroxycarboxylic acid and said reactive moieties of the polycarboxylic component."

"22. A fertilizer composition containing the copolymer of claim 1 and urea."

"23. A fiber obtained from the copolymer of claim 1."

"27. A process for producing a biosorbable copolymer which comprises:

a) subjecting a hydroxycarboxylic acid to polycondensation,

b) adding polycarboxylic component prior to or during said polycondensation,

c) causing said polycarboxylic component and hydroxycarboxylic acid to form a polymer; wherein said polycarboxylic component is selected from the group consisting of polycarboxylic acid, activated derivative thereof, and mixtures thereof, and wherein the relative amount of said hydroxycarboxylic acid and polycarboxylic component is such that said copolymer has a maximum melting point of 180°C."

"28. The process of claim 27 which further comprise reacting a metallic compound with said polymer."

Claims 2 to 21, 25 and 26 are dependent on Claim 1; Claim 24 is dependent on Claim 23; Claims 30 to 35 are dependent on Claim 27; Claims 29 and 36 to 39 are dependent on Claim 28.

III. The decision under appeal held that the amended claims complied with the requirements of Articles 123(2) and 84 EPC but that their subject-matter, though being novel, did not involve an inventive step over a combination of the documents

(1) US-A-4 273 920 and

(2) US-A-4 139 525.

This conclusion was *inter alia* founded on the following statements comprised by point 5 of the Reasons for the Decision:

(i) The subject-matter of Claims 1 to 15, 25 and 26 differed from the closest prior art according to (1) "mainly in that the polymers are modified by small amounts (up to 10 mol.-%) of a polycarboxylic compound."

(ii) The technical problem underlying the application "can objectively only be defined as being to provide a class of polyhydroxyalkanoate polymers which can be melt-processed under 180°C."

(iii) "The solution proposed to this problem is to modify the (co)polymers of the closest prior art by copolymerizing the hydroxyalkanoic acid with small amounts of a polycarboxylic compound."

(iv) "US-A-4139525 (2) describes terpolymers of glycolic acid, dicarboxylic acids and dihydroxyalkanes in which the diacid and the diol are preferably used in equimolecular amounts."

(v) "The terpolymers are flexible and have a melting point which is lower than that of the corresponding glycolic acid homopolymer (cf. (2),column 1, lines 46 to 51). Examples 1 to 3 in Table I describe three of these terpolymers which comprise copolymerized amounts of dicarboxylic acid (expressed as reactive carboxylic moiety based upon the total of hydroxycarboxylic acid and reactive carboxylic

moieties) of 9.5 mol.-%."

(vi) "These terpolymers have melting points under 180°C."

(vii) "The skilled person thus finds in (2) a clear teaching to modify polyglycolic acid with small amounts of a polycarboxylic compound in order to prepare a derivative which melts under 180°C."

(viii) "The Applicant has argued that (2) does not mention that the melting point depression is due to the presence in the terpolymer of the polycarboxylic acid moieties and that it could equally be due to the effect of the dihydroxyalkanoate or of both compounds in combination."

(ix) "It is clear from (2),column 1, lines 46 to 51, that the melting point depression is due to the modification with both the dicarboxylic acid and the dihydroxyalkanoate."

(x) "However, the skilled person knows that the high melting point of polyglycolic acid is a direct consequence of its rigid and high ordered molecular structure and that it can thus be depressed by flexibilizing that structure."

(xi) "Document (2) teaches one way of achieving that flexibilization, but the skilled person would immediately recognize that the same effect can be achieved using only one of the two modifiers proposed in (2)."

(xii) "If (2) uses a mixture of diacid and diol it is just because polymers of low acid number are sought (cf. column 3, lines 24 to 30)."

IV. The Appellant's arguments may be summarized as follows:

(i) The immediate refusal of the application after only one communication was unjustified in the light of the Applicant's comprehensive response to this communication; it was also not in agreement with the Guidelines Part C-VI, 4.3;

(ii) the conclusion of lack of inventive step was based on hindsight, because the contention was totally unfounded that the skilled person would immediately recognize from (2) that, in disregard of the requirement according to (2) of the additional presence of dihydroxyalkane moieties in substantial amounts, better flexibility and a lower melt processing temperature of polyglycolic acid could also be achieved by using polycarboxylic acids as the only comonomers; (2) did not contain any hint that the melting point reduction achieved could be attributed to the presence of dicarboxylic acid moieties; and

(iii) the decision failed to take account of the fact that the application contained evidence not only for the melt processability below 180°C of the claimed hydroxycarboxylic copolymers, but also for a number of further advantageous characteristics.

V. The Appellant requested that the decision under appeal

be set aside.

Reasons for the Decision

1. The appeal is admissible.

2. *Prior art*

2.1 Document (1)

Claim 1 of this document relates to a copolymer derived from the polymerisation of about 60 to about 95 weight percent of lactic acid and about 40 to about 5 weight percent of glycolic acid having a molecular weight of about 6000 to 35000.

(1) is silent about the additional presence of polycarboxylic acid moieties in the glycolic acid/ lactic acid copolymer.

2.2 Document (2)

Claim 1 of this document relates to a polymer having a molecular weight between about 2,000 and 70,000 produced by heating a mixture of glycolic acid, its homopolymers, its low molecular weight esters, or mixtures thereof, with a dihydroxyalkane and a dibasic acid, the dibasic acid being present in an amount from about 1% to about 40% by weight of the polymer, and the dihydroxyalkane being present in an amount from about equimolar with, up to a 10 mol% excess over, the dibasic acid.

Preferably, the diacid and the dihydroxyalkane are used

in equimolar quantities (column 3, lines 20 to 26).

3. *Article 113 EPC*

Paragraph (1) of this article requires that the decisions of the European Patent Office may only be based on grounds or evidence on which the parties concerned have had an opportunity to present their comments.

According to the established jurisprudence of the boards of appeal the term "grounds" in Article 113(1) EPC refers to the essential reasoning, both legal and factual, which leads to refusal of an application. In other words, before a decision is issued an applicant must be informed of the case which he has to meet, and must have an opportunity of meeting it (cf. Reasons 3 (v), second paragraph of T 951/92, OJ EPO 1996, 53).

Since this "right to be heard" is an obligation of utmost importance its observation by the decision under appeal has to be examined by the Board under Article 114(1) EPC even when the violation of this principle was not censured by the Appellant.

4. The objection of lack of inventive step raised in the decision under appeal is essentially based on the argument that it was obvious to modify the glycolic acid/lactic acid copolymer disclosed in (1) with small amounts of polycarboxylic moieties, because

(i) it was known from (2) that terpolymers of glycolic acid, dibasic acid and dihydroxyalkane are

(i-1) flexible and

(i-2) have a melting point below that of a glycolic acid homopolymer,

and because

(ii) the skilled person would immediately recognize that the same effect could be achieved using only one of the two modifiers proposed in (2), thus,

(iii) providing a clear teaching to modify polyglycolic acid with small amounts of a polycarboxylic compound in order to prepare a derivative which melts under 180°C (cf. particularly points III (i), (iii), (vii), (x) and (xi) supra).

5. The statement summarized in point III (ii) supra is the key argument in the logical chain established by the Examining Division in order to substantiate the conclusion of obviousness drawn according to point III (vii), (x) and (xi) supra.

6. However, as may be concluded from the following analysis of the examination proceedings, this argument was presented to the Appellant for the first time in the decision under appeal.

6.1 The relevant content of section 2 of the single communication of 7 April 1997 preceding the decision of refusal reads as follows:

(i) "The closest prior art is considered to be

represented by homopolymers and copolymers of the hydroxyalkanoic acids .... described in US-A-4273920 (1)."

(ii) "The subject-matter of the application differs from this closest prior art in that the polymers are modified by small amounts (up to 10 mol.-%) of a polycarboxylic compound."

(iii) "... For these reasons, the technical problem underlying the application can objectively only be defined as being to provide a class of hydroxyalkanoate polymers which can be melt-processed under 180°C."

"The solution proposed to this problem is to modify these polymers by copolymerizing the hydroxyalkanoic acid with small amounts of a polycarboxylic compound."

(iv) "US-A-4139525 (2) describes terpolymers of glycolic acid, dicarboxylic acids and dihydroxyalkanes. The diacid and the diol are used preferably in equimolecular amounts, although a slight excess of diol is possible. Copolymerized amounts of dicarboxylic acid as low as 9.5 mol.-% ... lead to a marked melting point depression. The terpolymers melt under 180°C ..."

(v) "It appears thus obvious from (2) to modify the polymers of a hydroxyalkanoic acid with a dicarboxylic acid compound in order to provide for polymers of reduced melting point. The subject-matter of the application does not

involve an inventive step (Article 56 EPC)."

6.2 In response to this obviousness objection the Applicant in its submission dated 25 July 1997 made the following observations:

(i) "Document (2) does not overcome the deficiencies of [in] document (1) with respect to rendering obvious the finding of the inventors of the present application."

(ii) "In particular, document (2) does not teach that significantly lower melting points would be achieved by adding the bicarboxylic acid. Although terpolymers disclosed in document (2) have melting points below 180°C, nothing in the description attributes the particular melting point to the bicarboxylic acid. Indeed, the melting point of the terpolymers described in document (2) could be just as likely due to the dihydroxy alkane, mixtures or [of] it with the bicarboxylic acid, or specific amounts in the examples."

6.3 From the exchange of arguments referred to in points 6.1 and 6.2 supra the following may be concluded:

6.3.1 That the obviousness objection raised by the Examining Division in its communication (cf. point 6.1 (v) supra) lacks a reasoning, namely to indicate **why** a modification of the hydroxyalkanoic acid polymers according to document (1) with dicarboxylic acid compounds would have been obvious in the light of document (2), which relates to hydroxyalkanoic acid polymers modified by dicarboxylic acid compounds **and**

dihydroxyalkanes and does not foresee the possibility to omit the dihydroxyalkane moieties.

6.3.2 That the Applicant in its response to the Examining Division's communication pointed at this lacuna in the chain of arguments presented in that communication and identified the information which was missing in document (2), but which would be required in order to satisfy the obviousness objection raised by the Examining Division (cf. point 6.2 (ii) supra).

6.3.3 That only in the decision of refusal the Examining Division supplemented its reasoning with respect to the afore-mentioned lacuna by the statement quoted in points III (x) and (xi) supra, i.e. by alleging that "the skilled person knows" that in order to obtain the desired depression of the melt-processing temperature he could use any one of the two modifying moieties dibasic acid or dihydroxyalkane employed according to (2).

7. This conduct of the Examining Division deprived the Applicant of its legitimate right according to Article 113(1) EPC to comment on the most decisive issue at stake in this case before being confronted with the decision of refusal.

8. The Examining Division's failure to give the Applicant an opportunity to comment on the crucial argument of its reasoning of obviousness (cf. points III (x) and (xi), 3 (iii) and 5.2 (ii) supra) cannot be explained by assuming that the **conclusion** drawn therefrom, i.e. that the introduction of polycarboxylic moieties into the polymers according to (1) was obvious, was already implicitly contained in the Examining Division's

communication (cf. point 5.1 (v) supra). Rather, a conclusion **without any reasoning** is *per se* inconclusive and cannot form the basis of a valid decision.

9. It can also not be validly argued that the obviousness conclusion raised in the Examining Division's communication (cf. point 6.1 supra) was "self-explanatory" or that the reasoning supplemented in the decision under appeal (cf. point III (x) and (xi)) was "trivial" and that, therefore, said decision would not contravene Article 113(1) EPC, because neither is the supplemented reasoning foreshadowed in said communication, nor does it belong to generally accepted and uncontestable chemical principles.

10. Nor can the later supplementing of a reasoning be considered to be within the realm of a "matter of judgement" (cf. T 568/89 of 10 January 1990, not published in the OJ EPO, Reasons point 5), because a missing reasoning cannot be equated with a wrong judgment.

11. The decision under appeal, therefore, contravenes the requirement of Article 113(1) EPC. This amounts to a substantial procedural violation and requires the reimbursement of the appeal fee pursuant to Rule 67 EPC, although this was not requested by the Appellant (J 7/82, OJ EPO 1982, 391).

The Board notes that this finding is not motivated by the fact that the decision of refusal was preceded by only one communication, but rather by the incomplete reasoning therein and the presentation of a proper reasoning only with the decision of refusal.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The reimbursement of the appeal fee is ordered.

3. The case is remitted to the Examining Division for further prosecution.

The Registrar: The Chairman:

E. Görgmaier C. Gérardin