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**Datasheet for the decision
of 27 September 2012**

Case Number: T 0544/09 - 3.3.03
Application Number: 97933667.4
Publication Number: 912625
IPC: C08G 65/26, C08G 65/10
Language of the proceedings: EN

Title of invention:

Continuous preparation of low unsaturation polyoxyalkylene polyether polyols with continuous addition or starter

Patentee:

BAYER ANTWERPEN N.V.

Opponents:

Repsol, S.A.
THE DOW CHEMICAL COMPANY

Headword:

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Relevant legal provisions:

EPC Art. 54, 114(2)
RPBA Art. 12(4), 13(3)

Keyword:

"Novelty- (no) - (main request, second auxiliary request)
"Late submitted requests - not clearly allowable - admitted -
(no) - (first auxiliary request, third auxiliary request)
"Late submitted request - divergent - admitted - (no) -
(fourth auxiliary request)"

Decisions cited:

-

Catchword:

-



Case Number: T 0544/09 - 3.3.03

D E C I S I O N
of the Technical Board of Appeal 3.3.03
of 27 September 2012

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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office dated
9 December 2008 and posted 4 February 2009
concerning maintenance of European patent
No. 912625 in amended form.

Composition of the Board:

Chairman: B. ter Laan
Members: M. C. Gordon
C. Vallet

Summary of Facts and Submissions

- I. The appeals lie from the interlocutory decision of the opposition division announced on 9 December 2008 and posted on 4 February 2009 according to which it was held that European patent number 0 912 625 (granted on European application number 97933667.4, derived from international application number PCT/EP1997/003727, published under the number WO1998/003571) could be maintained in amended form on the basis of the third auxiliary request.
- II. The patent was granted with a set of 30 claims, five of which were independent, namely claims 1, 14, 24, 29 and 30.

Claim 24 as granted read as follows:

"A continuous process for the DMC catalyzed preparation of polyoxyalkylene polyethers, comprising:

- a) introducing into a continuous reactor an effective polyoxyalkylation catalyzing amount of at least one DMC catalyst;
- b) continuously introducing into said reactor one or more alkylene oxides;
- c) continuously introducing into said reactor further DMC catalyst;
- d) continuously introducing into said reactor one or more continuously added starter molecules, said continuously added starter molecules having an average molecular weight of from 18 Da to 45,000 Da, such that a concentration of continuously added starter molecules is maintained for a

substantial portion of the average residence time of said reactor;

e) continuously withdrawing a polyoxyalkylene polyether product having an equivalent weight in excess of 1000 Da."

This claim differed from claim 24 of the application as originally filed solely in the deletion of the word "about" before the molecular weight range in part (d).

III. Notices of opposition against the patent were filed on 28 April 2006 (opponent 1) and 21 November 2006 (opponent 2). Both opponents invoked the grounds of opposition pursuant to Art. 100(a) EPC (lack of novelty, lack of inventive step), Art. 100(b) EPC and Art. 100(c) EPC.

Inter alia DD 203 735 (D1) was cited in support of the oppositions.

By letter of 12 July 2007 opponent 2 withdrew its opposition. Consequently in the following references to "the opponent" denote opponent 1.

IV. The decision of the opposition division was based on a main request and three auxiliary requests filed with a letter dated 7 November 2008.

The main and the first and second auxiliary requests all contained a claim 24 based on claim 24 as granted, with a restriction of the average molecular weight of the starter molecule to 18 to 300 Da. The opposition division held that the claims according to the main request did not meet the requirements of Article 123(2)

EPC) and that the first and second auxiliary request did not meet the requirements of Art. 84 EPC. The claims according to the third auxiliary request - which did not contain a claim based on claim 24 as granted - were however held to satisfy the requirements of the EPC.

- V. A notice of appeal against the decision was filed by the patent proprietor on 4 March 2009 with simultaneous payment of the prescribed fee. The statement of grounds of appeal was filed on 4 June 2009, accompanied by four sets of claims forming a main request and first to third auxiliary requests. Further written submissions were made with a letter dated 16 October 2009.

A notice of appeal against the decision of the opposition division was also filed by the remaining opponent on 30 March 2009. The statement of grounds of appeal of the opponent was filed on 9 June 2009.

- VI. On 5 June 2012 the Board issued a summons to attend oral proceedings. In a communication dated 18 July 2012 the Board set out its preliminary view of the case.

- VII. By letter of 27 July 2012 the opponent made a further written submission.

- VIII. By letter of 24 August 2012 the patent proprietor submitted four sets of claims forming a main and three auxiliary requests. The main request consisted of 10 claims whereby claim 10 of the main request corresponded to claim 24 of the patent as granted with the difference that in section (d) of the claim the molecular weight of the starter had been amended to

read "from 18 Da to 300 Da",

Auxiliary request 1 consisted also of 10 claims. Claim 10 of this request corresponded to claim 24 as granted, step d) however reading as follows (additions compared to claim 24 as granted being indicated in **bold**, deletions in ~~strikethrough~~):

"d) continuously introducing into said reactor ~~one~~
~~or~~ more **than one** continuously added starter molecules, said continuously added starter molecules having an average molecular weight of from 18 Da to **300** ~~45,000~~ Da, such that a concentration of continuously added starter molecules is maintained for ~~a substantial portion~~ **at least 70%** of the average residence time of said reactor;"

The second and third auxiliary requests each consisted of a single claim corresponding to claim 10 of the main and first auxiliary requests respectively.

IX. Oral proceedings before the Board were held on 27 September 2012.

At the end of the oral proceedings, after the Board had informed the parties of its conclusions with respect to the main and first to third auxiliary requests, the patent proprietor submitted a further request, namely that the patent be maintained in the form as upheld by the opposition division.

X. The arguments of the patent proprietor can be summarised as follows:

(a) Main request:

Claim 10 of the main request corresponded to originally filed claim 24, however restricted to the molecular weight of the starter molecule as disclosed in originally filed claim 28.

Claim 10 required that steps a) and c) were separated in space, i.e. corresponded to different inlet ports on the reactor as demonstrated in figure 1a and figure 2 of the patent in suit and so excluded that the starter of feature c) was introduced via the same entry port as the starter/catalyst mixture of step a). This introduction of starter at multiple points of the reactor was not disclosed in D1.

Claim 10 further required that the concentration of continuously added starter be maintained for a substantial portion of the average residence time of the reactor. This requirement was not satisfied by D1 since there the concentration of starter in the reactor rapidly sank as a result of the reaction with alkylene oxide.

In contrast to D1 the process as claimed was continuous in two senses. Not only was there continuous addition of starter, catalyst and alkylene oxide, but low molecular weight starter was also continuously added throughout the reaction and along the reactor meaning that the reaction was continually being initiated

throughout the reactor rather than only at the initial part. This continuous addition of new starter at multiple points was the distinguishing feature over D1.

(b) First auxiliary request

In claim 10 of the first auxiliary request compared to the main request in step d) "more than one" continuously added starter molecule was now mentioned and a definition was given for the average residence time for which the concentration of continuously added starter molecules was maintained. Those amendments had been made in order to establish a distinction over the teaching of D1.

The amendment to "more than one", thus deleting the alternative "one", was disclosed at page 22, lines 23-31, of the application as filed. This part of the description contained two different statements. The first sentence, referring to figure 2, related to one form of the reactor. This passage had to be seen as a general disclosure relating to the process of the invention which was merely illustrated by but not limited to the particular embodiment. The invention involved a particular series of process steps but was neither directed nor limited to a particular apparatus. The second statement related to the starters and disclosed that "two or more" could be used. This disclosure, which was the basis for the amendment of claim 1 was independent from the discussion of the apparatus.

Original claim 28, disclosing the molecular weight range of 18 Da to 300 Da, applied to both variants of original claim 24, i.e. "one or more".

The amendment of the residence time was disclosed at page 18, lines 30-34, of the application as filed.

(c) Second and third auxiliary requests

The arguments regarding the first and second auxiliary requests corresponded to those for the main and first auxiliary requests respectively.

(d) Fourth auxiliary request

If none of the other requests were allowable, it should be possible to return to the patent in amended form which had been found by the opposition division to meet the requirements of the EPC. The opponent could not be surprised because in their statement of grounds of the appeal they had given their arguments regarding that amended form which now constituted the fourth auxiliary request.

XI. The arguments of the opponent can be summarised as follows.

(a) Main request

The subject matter of claim 10 was anticipated by the example of D1. D1 disclosed a tubular reactor that was one of the configurations explicitly considered by the patent.

Step c) of claim 10 did not require that the starter be different to that of step a). Furthermore there was no requirement in the claim that the introduction of starter according to features a) and c) be in some way separated in space, e.g. via different ports. On the contrary, it was consistent with the claim for all components of the reaction system to be added via the same port. Claim 10 contained no features which limited the process to any of the particular configurations shown in the figures of the patent in suit.

Furthermore the requirement of feature d) of claim 10 that a concentration of starter molecules should be maintained, did not provide a distinction over D1 since of the concentration and the time during which the concentration had to persist were not specified. The patent in suit did not contain any information regarding in which portion of the reactor the concentration was to be determined or even how the concentration was to be measured. Different methods could yield different values for the concentration. In any case, when a reaction was ongoing there was always a concentration of reactants, reagents and products even if the concentration of one of these was low.

(b) First auxiliary request

The amendment to claim 10 of the first auxiliary request did not meet the requirements of Art. 123(2) EPC since there was no specific disclosure of the combination of more than one continuously added starter with the specified molecular weight range. Page 22 of the application as filed disclosed two or more starters from a defined group but did not provide a generic

disclosure for starters of the specified molecular weight range. The currently claimed combination of features was not derivable from the application as filed.

(c) Second and third auxiliary requests

The arguments given for the main and first auxiliary request were also valid for the second and third auxiliary requests, respectively.

(d) Fourth auxiliary request

The sudden return by the proprietor to the amended form of the patent which had been found by the first instance to meet the requirements of the EPC caught the opponent by surprise as the proprietor had at no moment during the appeal proceedings defended that position. That request at an extremely late stage of the proceedings and after the Board had announced its negative opinion regarding the requests that the proprietor had until then consistently defended, should not be admitted to the proceedings.

XII. The appellant I (patent proprietor) requested that the decision under appeal be set aside and the patent be maintained on the basis of the main request or alternatively one of the first to third auxiliary requests as filed with a letter dated 24 August 2012, or in the form as upheld by the opposition division.

The appellant II (opponent) requested that the decision under appeal be set aside and that the European patent no. 912625 be revoked.

Reasons for the Decision

1. The appeal is admissible.
2. *Main request*
 - 2.1 Admissibility
 - 2.1.1 The set of claims forming the main request was filed with a letter dated and received on 24 August 2012, i.e. just over a month before the oral proceedings. In view of the late stage at which the request was filed, its admissibility is at issue.
 - 2.1.2 Compared to claim 24 of the patent as granted, claim 10 differed in the specification of the average molecular weight range of the starter (18 Da to 300 Da).
 - 2.1.3 The amendment of the molecular weight of the starter had been present in the claims considered by the opposition division and had also been present from the outset of the appeal procedure.
 - 2.1.4 Accordingly to this extent, the main request does not contain any modifications compared to the claims hitherto pursued in the appeal procedure.
 - 2.1.5 The main request is therefore admitted to the procedure.
 - 2.2 Art. 123(2) EPC

Claim 10 of the main request corresponds to claim 24 of the application as filed. The molecular weight range for the starter is disclosed in claim 28 which claim

was directly and solely dependent on claim 24. Accordingly claim 10 of the main request meets the requirements of Art. 123(2) EPC.

2.3 Art. 54 EPC

2.3.1 Claim 10 has two features relating to the addition of DMC catalyst, namely in step (a) introducing an effective polyoxyalkylation catalyzing amount of at least one DMC catalyst and in step (c) introduction of further DMC catalyst (see point VIII above). The claim however imposes no restrictions concerning either the temporal or the spatial relationship between these steps and no requirement that these be separated. Thus the claim encompasses processes in which there is but a single entry port on the reaction apparatus through which the catalyst and all other reaction participants are simultaneously, continuously introduced and so become mixed upon entry to the apparatus. Therefore, although claim 10 does encompass the configuration pleaded by the patent proprietor with entry ports for the various reagents being spatially separated, as indicated in figure 1(a) of the patent in suit, there is no feature or requirement which restricts the claim to such a configuration.

The feature that the concentration of continuously added starter molecule be maintained for a "substantial portion of the average residence time of said reactor" applies to the whole reactor. Since starter is continuously added thereto, it is inevitable that the concentration thereof will be maintained for a "substantial portion" of the residence time, notwithstanding the inherent vagueness and

impreciseness of the wording "substantial portion".

Accordingly, the terms of claim 10 are satisfied by a process whereby catalyst, alkylene oxide and starter of the defined molecular weight are continuously introduced into a reactor of any configuration and a product of the specified molecular weight is retrieved.

2.3.2 D1 discloses a process for the preparation of polyetheralcohols. In the sole example (page 5) a process is described employing a coiled tube reactor. An entry port is located at the upper end. Two further entry points are located at intermediate points along the reactor. Product is retrieved at the lower end of the coiled tube. A starter mix of propylene oxide, zinc hexacyanocobaltate-ethyleneglycoldimethylether and dipropylene glycol are continuously introduced via the entry port. Further propylene oxide is introduced via the intermediately located entry ports. A product having a molecular weight of 2200 is obtained.

In the process of D1 a DMC catalyst and starter are continuously introduced, as is alkylene oxide, thus satisfying features a), b) and c) of present claim 10. Due to the continuous introduction of starter it will continuously be replenished meaning that a concentration is maintained during the operation of the reactor. The starter (dipropylene glycol) has a molecular weight of 134 which is within the range of 18-300 Da as required by feature d) of claim 10. Therefore, feature d) of the claim is satisfied.

The product has a molecular weight of 2200 Da which is in excess of 1000 Da as required by feature e) of the

claim.

Accordingly the process of D1 exhibits all the features specified by claim 10 of the main request with the consequence that this subject matter is not novel.

The main request is therefore refused.

3. *First auxiliary request.*

3.1 Admissibility

3.1.1 The set of claims forming the first auxiliary request was filed with a letter dated and received on 24 August 2012, i.e. just over a month before the oral proceedings. In view of the late stage at which the request was filed, its admissibility is at issue (Rule 12(2) RPBA).

3.1.2 Claim 10 of the first auxiliary request differs from claim 24 as originally filed and as granted by the following features:

- The molecular weight of starter is specified as 18-300 Da (original: "about 18 Da to 45,000 Da"; granted: "18 Da to 45,000 Da").
- The claim requires "more than one" starter instead of "one or more".
- The feature "for a substantial portion of the average residence time" has been replaced by "at least 70% of the average residence time".

3.1.3 The amendment of the molecular weight of the starter does not give rise to objections, as explained for the

main request (see section 2.1, above).

3.1.4 The amendment to "more than one" starter was introduced with the sets of claims filed as second and third auxiliary requests together with the statement of grounds of appeal. According to the patent proprietor the basis for this feature is to be found at page 22, lines 23-31, of the application as originally filed. This passage commences with defining a limited number of starters and further defines certain modes of adding the starter. The passage discloses that "...two or more" starters can be employed (lines 27/28). Although this statement is in its technical meaning coterminous with "more than one", it is disclosed in the context of a number of other features which have not been introduced into the claim. Accordingly the passage on page 22, lines 23-31, cannot provide a basis for the feature "more than one" starter.

3.1.5 The amendment to quantify the portion of residence time ("at least 70%") had been introduced for the first time in the entire opposition and appeal proceedings with the letter of 24 August 2012. As basis for the feature relating to the residence time the patent proprietor drew attention to page 18, lines 30-34, of the application as filed. According to the passage in question "... low molecular weight starter should be present for a substantial proportion of oxyalkylation, preferably for about 50% of oxyalkylation, more preferably about 70% or more." The terminology employed in this part of the description is different to that in the claim, since the claim specifies "residence time", not "oxyalkylation". The patent proprietor was not able to identify a passage equating oxyalkylation with

residence time.

- 3.1.6 A further aspect is that claim 10 of the first auxiliary request contains a combination of three restrictions taken from different parts of the application as filed and not disclosed in combination.
- 3.1.7 The conclusion is that there are severe doubts concerning the basis for the amendments to claim 10, both individually as well as with respect to their combination, so that the first auxiliary request is not clearly allowable.
- 3.2 Accordingly in exercise of the discretion permitted pursuant to Art. 114(2) EPC and Art. 12(4) RPBA the first auxiliary request is not admitted to the proceedings.

4. *Second auxiliary request*

Claim 1 of the second auxiliary request is identical to claim 10 of the main request. The conclusions reached for the main request therefore also apply to the second auxiliary request.

The second auxiliary request is refused (Art. 54 EPC).

5. *Third auxiliary request*

Claim 1 of the third auxiliary request is identical to claim 10 of the first auxiliary request. The same considerations apply with the consequence that the third auxiliary request is not admitted to the

proceedings.

6. *Fourth auxiliary request*

6.1 The fourth auxiliary request was filed not only after oral proceedings had been convened but in fact at the very end of the oral proceedings and after the Board had indicated its opinion on the requests then on file.

6.2 During the whole of the appeal procedure, in all the requests filed, the patent proprietor aimed at obtaining a claim directed to the subject matter of a restricted version of claim 24 as granted (claim 10 of the main and first auxiliary requests, the only claim of the second and third auxiliary requests). The set of claims as upheld by the opposition division consisted of nine claims, corresponding essentially to claims 1-9 of the present main request. There was no claim corresponding to claim 10 of the main request in the set of claims as maintained.

6.3 The attempt by the patent proprietor, at the last possible minute, to reinstate the set of claims as upheld by the opposition division therefore represents a structure of requests which was divergent from that followed in the entirety of the appeal procedure.

6.4 This auxiliary request is not only divergent from the other requests pursued during the appeal procedure but also constitutes an abuse of procedure which cannot be tolerated. By reverting to the set of claims as upheld by the opposition division, the appellant/patent proprietor in fact withdrew its appeal. Whilst a party cannot be denied the right to withdraw

its appeal at any stage of the second instance proceedings, the use of this right becomes an abuse when, as in the present case, the patent proprietor chooses to wait until the moment the Board indicates its conclusions, or otherwise gives an indication of the tenor of the decision that will be taken, just prior to closure of the oral proceedings, thus placing the Board and the other party in such a position that the proceedings would have to be resumed from the beginning on an unexpected basis.

The consequence of the acceptance of such a way to proceed would be that it would be possible to file a conditional appeal which was maintained only in the case that the outcome of the appeal proceedings was satisfactory or withdrawn in the case of a "negative" outcome. As a matter of principle, conditional procedural acts are not admissible.

6.5 Moreover, neither the opponent nor the Board had had any reason to expect that this set of claims would be introduced as a further auxiliary request. The opponent explicitly stated to be completely surprised by this action. This represents the second reason for the Board's finding of an abuse of procedure.

6.6 The third reason for refusing this set of claims is to be found in Art. 13(3) RPBA. Neither the other party nor the Board were in a position to deal with this new set of claims during the appeal proceedings.

6.7 In view of the above considerations, the fourth auxiliary request is not admitted into the proceedings.

Order

For these reasons it is decided that:

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

The Registrar

The Chairman

E. Goergmaier

B. ter Laan