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**Datasheet for the decision
of 23 January 2013**

Case Number: T 2284/09 - 3.3.03

Application Number: 99913253.3

Publication Number: 1062263

IPC: C08G 65/30

Language of the proceedings: EN

Title of invention:

Process for the preparation of odour-lean polyether polyols

Patent Proprietor:

Shell Internationale Research Maatschappij B.V.

Opponent:

Huntsman International LLC

Headword:

-

Relevant legal provisions:

EPC Art. 69(1), 123(2), 123(3)

Keyword:

"Amendments - added subject-matter - (yes) - main request,
first auxiliary request"

"Amendments - broadening of claim - (yes) - second auxiliary
request"

Decisions cited:

G 0001/93, T 0108/91

Catchword:

-



Case Number: T 2284/09 - 3.3.03

D E C I S I O N
of the Technical Board of Appeal 3.3.03
of 23 January 2013

Appellant: Shell Internationale Research Maatschappij B.V.
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Respondent: Huntsman International LLC
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Representative: Held, Stephan
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office dated 24 September 2009
and posted 20 October 2009 revoking European
patent No. 1062263 pursuant to Article
101(3) (b) EPC.

Composition of the Board:

Chairman: B. ter Laan
Members: M. C. Gordon
C.-P. Brandt

Summary of Facts and Submissions

I. The appeal by the patent proprietor lies from the decision of the opposition division announced on 24 September 2009 and posted on 20 October 2009 revoking European patent number EP-B1-1 062 263 (granted on European patent application number 99913253.3, derived from international application number PCT/EP1999/01628, published under the number WO 1999/047582).

II. Claim 1 of the application as filed read as follows:

"Process for the preparation of an odour-lean polyether polyol from a polyether polyol starting product which is obtained by reacting a starting compound having a plurality of active hydrogen atoms with one or more alkylene oxides, which process comprises the steps of:

- (a) contacting the neutralised or unneutralised polyether polyol product with an excess of an acid having a pKa of less than 5, preferably less than 3, under hydrolysis conditions,
- (b) contacting the reaction mixture with water under hydrolysis conditions, and
- (c) recovering the odour-lean polyether polyol."

Claims 2-6 were dependent on claim 1.

III. The patent was granted with a set of 6 claims, whereby claim 1 read as follows, additions compared to claim 1 of the application as filed being indicated in **bold**, deletions in ~~striketrough~~:

"Process for the preparation of an odour-lean polyether polyol from an **unneutralised** polyether polyol starting product which is obtained by reacting a starting compound having a plurality of active hydrogen atoms with one or more alkylene oxides, which process ~~comprises~~ **consists of** the steps of:

- (a) contacting the ~~neutralised or~~ unneutralised polyether polyol product with ~~an excess an acid having~~ **between 0.001 and 0.5 mole of free acid per kg of polyether polyol which acid has** a pKa of less than 5, ~~preferably of less than 3~~ **at a temperature of 80 to 130°C** ~~under hydrolysis conditions,~~
- (b) contacting the reaction mixture with water **at a temperature of 80 to 130°C** ~~under hydrolysis conditions,~~ and
- (c) recovering the odour-lean polyether polyol."

Claims 2-6 were dependent on claim 1.

IV. Notices of opposition against the patent were filed on 20 June 2005 (Opponent 01) and 21 June 2005 (Opponent 02).

Opponent 01 invoked the grounds of opposition pursuant to Art. 100(a) EPC (lack of novelty, lack of inventive step).

Opponent 02 invoked the grounds of opposition pursuant to Art. 100(a) (lack of novelty, lack of inventive step) and Art. 100(c) EPC.

V. The decision of the opposition division was based on the claims of the patent as granted as the main request

and three sets of claims as auxiliary requests filed with a letter dated 22 September 2009.

Claim 1 of the first auxiliary request differed from claim 1 of the main request by amendments to parts (a) and (b) of the claim, the insertions being indicated below in **bold**:

- "(a) contacting the unneutralised polyether polyol product with between 0.001 and 0.5 mole of free acid per kg of polyether polyol which acid has a pKa of less than 5, **under hydrolysis conditions** at a temperature of 80 to 130°C,
- (b) contacting the reaction mixture **of step (a)** with water **under hydrolysis conditions** at a temperature of 80 to 130°C, **wherein such amount of water is added that a two-phase system can be formed**, and".

Claim 1 of the second auxiliary request also differed from claim 1 of the main request by amendments to parts (a) and (b). Insertions are indicated in **bold**, deletions in ~~strikethrough~~:

- "(a) contacting the unneutralised polyether polyol product with **such amount of acid that the amount of free acid will be** between 0.001 and 0.5 mole ~~of~~ ~~free~~ acid per kg of polyether polyol which acid has a pKa of less than 5, at a temperature of 80 to 130°C,
- (b) contacting the reaction mixture **of step (a)** with water at a temperature of 80 to 130°C, **wherein such amount of water is added that a two-phase system can be formed**, and".

The wording of the third auxiliary request is not relevant to the present decision.

The opposition division held that claim 1 of the main request did not meet the requirements of Art. 123(2) EPC. According to the application as filed, the process involved the addition of an excess of acid, i.e. the sum of a certain amount of acid in order to neutralise the unneutralised polyether polyol and an additional amount that would be present as free acid. The term "free acid" as employed in the original application referred to the acid which had not reacted with any compound in the reaction medium and which was present along with the neutralised polyether polyol in an amount of 0.001 to 0.5 mol/kg. The expression "contacting the unneutralised polyether polyol product with between 0.001 and 0.5 mole of free acid per kg of polyether polyol" in claim 1 as granted could only be interpreted as the addition of 0.001 to 0.5 mole of free acid which had not yet reacted with any component in the reaction medium to the unneutralised polyether polyol. The application as filed however did not disclose any such process meaning that the claim did not meet the requirements of Art. 123(2) EPC.

With respect to the first auxiliary request the division held that the added feature "under hydrolysis conditions" did not introduce any limitations to the subject matter compared to the main request. The phrase "contacting the unneutralised....0.001 and 0.5 mole of free acid..." would still be interpreted in the same manner as for the main request, with the further limitation that the amount of acid added was sufficient to neutralise the unneutralised polyether polyol and

result in an excess of acid. The excess of acid so remaining was however not defined. Consequently the first auxiliary request also did not meet the requirements of Art. 123(2) EPC.

The second auxiliary request met the requirements of Art. 123(2) EPC. Regarding the difference between claim 1 of the second auxiliary request and claim 1 of the patent as granted the opposition division held that claim 1 of the second auxiliary request defined the addition of an excess of acid such that the amount of free acid would be within the defined ranges. Thus claim 1 of the second auxiliary request defined, compared to claim 1 of the patent as granted, a further amount of acid added to the reaction medium, corresponding to the amount necessary to neutralise the unneutralised polyether polyol. Consequently claim 1 of the second auxiliary request did not lead to the same, or a restricted scope of protection as compared to the patent as granted, meaning the requirements of Art. 123(3) EPC were not satisfied.

The same conclusion applied to the third auxiliary request, the details of which are however not of relevance for the present decision.

Accordingly the patent was revoked.

VI. On 25 November 2009 the patent proprietor lodged an appeal against the decision, the prescribed fee being paid on the same date.

The statement of grounds of appeal was received on 23 February 2010. The requests underlying the decision

under appeal (main request and first-third auxiliary request) were maintained.

- VII. Opponent 02 - now the respondent - replied to the appeal with a letter dated 17 June 2010.

By letter of 6 August 2010 Opponent 01 withdrew its opposition.

- VIII. On 2 November 2012 the Board issued a summons to attend oral proceedings. In a communication dated 13 November 2012 the Board set out its preliminary assessment of the case.

- IX. The appellant made a further written submission with a letter dated 21 December 2012 in which retyped copies of the requests (main and first to third auxiliary requests) were submitted.

- X. Oral proceedings were held before the Board on 23 January 2013. Following the discussion at the oral proceedings the appellant withdrew the third auxiliary request.

- XI. The arguments of the appellant can be summarised as follows:

Main request:

The interpretation of "excess acid" employed in the appealed decision, i.e. as relating to the sum of the amount of acid required for neutralisation plus an extra portion, was wrong and there was no basis for any such interpretation in the application or in the

patent. The term "free acid" in claim 1 as granted related to the amount of acid remaining after neutralisation, i.e. the "excess". Thus the terms "excess acid" and "free acid" meant the same thing and correspondingly were used interchangeably throughout the original application and the patent.

If, in contrast the term "free acid" was considered not to correspond to "excess acid" then there would be an inconsistency in the disclosure of the patent since throughout the description it was indicated that an excess of acid was required.

Thus according to the application as filed, contacting the unneutralised polyether polyol with "excess" acid was the same as contacting it with "free" acid.

Furthermore, pursuant to Art. 69(1) EPC the skilled person would refer to the description to establish the correct interpretation of the claim. The correct interpretation also emerged from and was consequently confirmed by the examples of the patent in suit.

First auxiliary request:

The requirement that the contacting steps (a) and (b) were carried out under "hydrolysis conditions" imposed the additional restriction that the acid had to be used in such quantities as to allow the hydrolysis reaction to proceed. The introduction of this wording assisted the skilled reader in interpreting the term "free acid" and thus confirmed what was in fact to be understood by the claim. The feature "two phase system" had a clear basis in the application as filed.

Second auxiliary request

The feature relating to the amount of acid had to be interpreted in identical manner to the main request meaning there was no extension of the scope of protection.

If the term "free acid" was considered not to correspond to "excess acid", then amounts of acid within claim 1 as granted would not result in an excess of acid meaning that the term "free acid" would be inconsistent with the remainder of the disclosure. Under such circumstances the skilled person would conclude that what was stated in claim 1 as granted was not that which was intended, and that the intended meaning was in fact that which was defined in claim 1 of the second auxiliary request. It was allowable to replace an inaccurate technical statement with an accurate statement of the technical feature involved (following T 108/91, 17 September 1992).

XII. The arguments of the respondent can be summarised as follows.

Main request

There was no disclosure of the exact wording of claim 1 in the application as filed. The essential question relating to "excess acid" was what was the minimum amount of acid to add for neutralisation, beyond which any further amount became "excess". According to the original application, after the polyether polyol had been neutralised by the addition of the corresponding

amount of acid, any further acid added would remain present as free acid, which has not reacted with any component present in the reaction mixture. The term "excess" was defined with reference to the term "free acid". However the converse was not true, i.e. there was no definition of "free" with respect to "excess" and there was no reference to "excess" in granted claim 1.

Thus from the application as filed the skilled person understood to contact the polyol with an excess of 0.001 to 0.5 mole of acid, said amount being in addition to the amount required to neutralise the polyol. In contrast claim 1 of the patent as granted could only mean to contact the unneutralised polyol with 0.001 to 0.5 mole of free acid per kg of polyether. Thus the application as filed and claim 1 of the granted patent related to contacting the polyetherpolyol with different amounts of acid.

First auxiliary request

The amendment made compared to the main request was not allowable pursuant to R. 80 EPC since it did not address a ground of opposition.

The additional features of the claim were not disclosed in combination and their introduction gave rise to further objections with respect to Art. 123(2) EPC.

Second auxiliary request

According to claim 1 of the second auxiliary request the amount of acid to be added had been changed since it had been increased by the amount needed to neutralise the unneutralised polyether polyol. Thus the scope of protection of claim 1 of the second auxiliary request was broader than that of claim 1 of the patent as granted, contrary to the requirements of Art. 123(3) EPC.

Unlike the situation underlying T 108/91 the claims of the patent as granted were not manifestly inconsistent with the disclosure of the patent, in particular the examples. Thus there was no obvious error in the claims and hence no reason to consult the description to establish what the claims "should have" defined. Furthermore since T 108/91 predated G 1/93 it was questionable whether the findings of T 108/91 were still applicable.

XIII. The appellant (patent proprietor) requested that the decision under appeal be set aside and the patent be remitted to the first instance for further prosecution on the basis of the main request as granted, or one of the first and second auxiliary requests, both submitted with the letter of 21 December 2012.

The respondent (opponent) requested that the appeal be dismissed. In the case that at least one of the sets of claims was found to comply with the requirements of Article 123(2) and Article 123(3) EPC remittal to the first instance for further prosecution was requested.

Reasons for the Decision

1. The appeal is admissible.

Main Request

2. Art. 123(2) EPC

- 2.1 Claim 1 as granted specifies in step (a) contacting the unneutralised polyether polyol with a defined, fixed amount of free acid, namely between 0.001 and 0.5 mole/kg of polyether polyol.

Claim 1 of the application as filed specifies in part (a) contacting the neutralised or unneutralised polyether polyol with an excess of acid. No numeric quantities of acid are given in any of the claims of the application as filed.

According to page 4 lines 10-30, in particular lines 16-23 of the application as filed with respect to the term "excess" it is stated:

"In practice the term "excess" in relation to the acid added in step (a) refers to such amount of acid that the amount of free acid will be between 0.001 and 0.5 mole acid per kg polyether polyol, preferably between 0.005 and 0.2 mole acid per kg polyether polyol. The expression "free acid" as used herein refers to the acid which has not reacted with any component present in the reaction medium".

The indicated passage continues to explain that in the case of unneutralised polyether polyol, i.e. that which is defined in claim 1 of the main request, the acid added would initially react with the potassium ions from the initiator present in the polymer. Only after these potassium ions were neutralised would any acid added remain present as "free acid".

Thus from the indicated passage of the application as filed it emerges that the term "excess acid" is employed to denote the total amount of acid added whereby the definition of said amount is a combination of two quantities defined in different terms:

- an amount necessary to neutralise the unneutralised polyether polyol and
- an extra amount so that the amount of acid remaining after neutralisation is from 0.001 to 0.5 moles of acid per kg of polymer.

The first amount of acid is thus defined in functional or relative terms, namely the amount of acid needed to neutralise the potassium ions remaining from the initiator. The second amount of acid is defined in absolute or quantitative terms and is the amount of acid above (in excess of) the amount required for neutralisation, i.e. the further amount required in order to yield a given acid content ("free acid") in the neutralised polyether polyol. The amount of "free acid" - which is between 0.001 and 0.5 mole/kg - is thus the amount over and above the quantity of acid necessary to effect neutralisation of the potassium.

From the above it emerges that, contrary to the arguments of the appellant, the terms "excess" and "free acid" as employed in the original application are neither synonymous nor interchangeable.

- 2.2 In contrast to the disclosure and definition of the application as filed as discussed in the preceding section, claim 1 of the patent as granted requires the addition to the unneutralised polyether polyol of a defined, fixed amount of "free" acid i.e. between 0.001 and 0.5 mole/kg independently of any functional or relative terms i.e. regardless of whether neutralisation is effected or whether the maximum amount of acid permitted is sufficient to accomplish neutralisation of the polyether polyol.

In the light of the considerations set out in section 2.1 above, with respect to the amount of acid to be added, as denoted in the application as filed by the differing meanings of the terms "free" and "excess" acid, it emerges that there is no disclosure in the application as filed of a process whereby a single, numerically fixed amount of acid is added to the unneutralised polyether polyol. From the difference in wording of claim 1 of the main request as compared to the disclosure of the application as originally filed it emerges that the absence of the functional or relative limitation of the application as filed from the definition of the amount of acid to be added has the consequence that claim 1 of the main request defines a fundamentally different process from that specified in the application as originally filed.

2.3 The arguments of the appellant that the skilled person would consult the description in order to ascertain what the claim is intended to specify presupposes that there is a reason to consult the description, e.g. some *prima facie* unclarity or inconsistency in the claim. This is however not the case. On the contrary, the claim of the patent as granted provides a coherent, cogent technical teaching and does not as it stands present the reader with any aspect that would indicate a need for interpretation or clarification. Nor has the appellant explained in what manner the wording of the claim would be deficient and therefore in need of interpretation.

2.4 The conclusion is that claim 1 of the main request does not meet the requirements of Art. 123(2) EPC.

The main request is refused.

First Auxiliary Request

3. Art. 123(2) EPC

Claim 1 of the first auxiliary request differs from claim 1 of the main request by specifying in parts (a) and (b) that the contacting is carried out under "hydrolysis conditions" and in part (b) further that such amount of water is added that a two-phase system can be formed. Originally filed claim 1 specified that the contacting was carried out under "hydrolysis conditions". The addition of an amount of water to result in a two-phase system is disclosed at page 5 commencing at line 18 of the application as filed. There it is stated that such amount of water is that

which exceeds the solubility of water in the particular polyol to be treated under the process conditions applied (page 5 lines 18-23).

However neither of these amendments has any influence on the feature of the amount of acid added. On the contrary, according to page 4 line 31 and following of the application as filed, the conditions under which hydrolysis is to be carried out can vary over wide limits, the only feature that is specified as mandatory being the temperature range. It is disclosed that the time required "may" vary depending on the amount of excess acid. However there is no quantification of this variation nor of any particular amount of acid.

Thus the definition of "under hydrolysis conditions" does not impose any constraint on the amount of acid employed and therefore does not provide any modification of the subject-matter compared to that of the main request in respect of feature (a) of claim 1.

Consequently claim 1 of the first auxiliary request extends beyond the content of the application as filed for the same reason as claim 1 of the main request. The first auxiliary request accordingly does not meet the requirements of Art. 123(2) EPC.

The first auxiliary request is refused.

Second Auxiliary Request

4. Art. 123(2) EPC

Claim 1 employs the wording of page 4 lines 10-30 of the application as filed with respect to the definition of the amount of acid. Consequently the requirements of Art. 123(2) EPC are satisfied.

5. Art. 123(3) EPC

5.1 As explained with respect to the main request (section 2.1, above), according to the patent as granted it was required to add a defined, absolute, amount of free acid, namely between 0.001 and 0.5 moles of acid per kg of polyether polyol.

According to claim 1 of the second auxiliary request however, and as explained in section 2.1 above, the amount of acid to be added is made up of two quantities, namely that required to effect neutralisation and an extra amount (defined in absolute terms) in order to provide the amount of acid remaining in the polyether polyol after neutralisation. Thus the amount of acid which claim 1 of the second auxiliary request requires is increased, compared to the amount of acid required by granted claim 1, by the amount needed to effect neutralisation.

Consequently claim 1 of the second auxiliary request confers protection on a process involving addition of a different, greater amount of acid than the claim of the patent as granted. The effect of this amendment of the wording of part (a) of claim 1 is therefore, to enlarge the scope of protection conferred by the claim as compared to the patent as granted. This contravenes Art. 123(3) EPC.

5.2 The appellant has relied upon decision T 108/91 according to which, in the case of inconsistency between the claim and the totality of the disclosure it is permissible to refer to the description and, pursuant to Art. 69(1) EPC, to rely on the disclosure of the description to amend the claim.

The findings of T 108/91 however are not applicable in the present case since, as explained with respect to the main request, there is no inconsistency between the claim of the granted patent and the description. In particular the examples of the patent fall within the scope of the claim as granted whereas in the case underlying T 108/91 all the examples were outside the scope of the claim. Furthermore Decision G 1/93 of the Enlarged Board of Appeal, which decision refers *inter alia* to T 108/91, ruled that in the case of a non-disclosed limitation being introduced during examination proceedings (as is the case here), it is not permissible to remove it when so doing would extend the scope of protection. In G 1/93 the role of Art. 69(1) EPC is also considered and it is concluded that the description is to be used for assessing in particular sufficiency of disclosure and in determining the scope of protection conferred by the claims. However there is no finding in G 1/93 that supports the position of the appellant that the description may be used as a repository from which amendments to the claims can be derived even if such amendments would contravene Art. 123(3) EPC.

Accordingly there is no basis in the EPC or in the case law of the Enlarged Board to support the position and approach of the appellant in relying on the description

in order to render permissible an amendment to the claims of the patent as granted that results in change of the scope of protection.

The second auxiliary request is refused.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar

The Chairman

A. Counillon

B. ter Laan