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**Datasheet for the decision
of 15 September 2016**

Case Number: T 1717/12 - 3.3.03

Application Number: 07718062.8

Publication Number: 1971640

IPC: C08K5/06, C08K5/07, C08K5/21,
C08K5/357, C09J129/04,
B27N3/00, C08L97/02, C09J103/04

Language of the proceedings: EN

Title of invention:

POLYMER-ALDEHYDE BINDING SYSTEM FOR MANUFACTURE OF WOOD
PRODUCTS

Applicant:

Dynea Austria GmbH

Headword:

Relevant legal provisions:

EPC Art. 123(2)
EPC R. 103

Keyword:

Amendments - allowable (no)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
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Case Number: T 1717/12 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 15 September 2016

Appellant: Dynea Austria GmbH
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Representative: Schwarz, Albin
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted on 5 April 2012 refusing European patent application No. 07718062.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman F. Rousseau
Members: M. C. Gordon
C. Brandt

Summary of Facts and Submissions

- I. The appeal lies from the decision of the examining division posted on 5 April 2012 refusing European patent application number 07718062.8 (publication number EP-A-1 971 640), derived from international application number PCT/US2007/000655, published under the number WO 2007/084307.
- II. The application as filed had 19 claims. Claims 1, 2, 3 and 7 read as follows:
- "1. A curable aqueous composition for bonding lignocellulosic material comprising:
- (a) a hydroxy-containing polymer;
 - (b) a multi-functional crosslinking agent which is at least one selected from the group consisting of a multifunctional aldehyde and a derivative thereof, and optionally
 - (c) a catalyst;
- wherein the weight ratio of (a):(b) is from 95:5 to about 10:90.
2. The curable aqueous composition of claim 1, wherein said hydroxy-containing polymer is polyvinyl alcohol.
3. The curable aqueous composition of claim 2, wherein the polyvinyl alcohol is formed by hydrolyzing polyvinyl acetate or a copolymer of ethanol and vinyl acetate, wherein the final polymer is 70 mole % to 98 mole % hydrolyzed.
7. The curable aqueous composition of claim 6, wherein the multifunctional aldehyde is blocked by reaction with a blocking agent before adding to the curable aqueous composition".

III. The decision of the examining division was based on an amended set of 11 claims as filed with letter of 12 March 2012 wherein claim 1 read as follows:
"A curable aqueous composition for bonding lignocellulosic material comprising:
(a) a polyvinyl alcohol;
(b) a multi-functional crosslinking agent which is a blocked glyoxal, and optionally,
(c) a catalyst;
wherein the weight ratio of (a):(b) is from 95:5 to 10:90;
wherein the blocked glyoxal is a glyoxal blocked with at least one selected from the group consisting of urea and dimethyl urea; and
wherein the polyvinyl alcohol is 70 mole % to 98 mole % hydrolyzed and is in a concentration of 35 wt% to 65 wt%, wherein the wt% is based on the weight of the solids content in the curable aqueous composition."

According to the decision the amended claims met the requirements of Art. 123(2) EPC. The subject matter of claim 1 was based on the features of originally filed claims 1 and 2 (hydroxy containing polymer is polyvinyl alcohol), claim 7 (blocked glyoxal), paragraph [0027] (blocking agent urea or dimethyl urea), claim 3 (extent of hydrolysis of polyvinyl alcohol) and paragraph [0021] (concentration of polyvinyl alcohol). The combination of subject-matter of claims 1-3 was directly and unambiguously disclosed. However in the application as originally filed the subject-matter of claim 7 was a preferred embodiment of the subject matter of claim 6 which itself depended from original claim 2. The operative claim 1 thus combined the preferred crosslinking agent, i.e. the blocked glyoxal of claim 7 with the preferred hydroxy-containing polymer of claim 3. Doubt was expressed as to whether

the application as originally filed disclosed a composition comprising the PVOH of original claim 3 and glyoxal blocked with dimethyl urea. However this matter was immaterial to the grounds on which the decision was based and no conclusion in this respect was given. Claim 1 was held to lack clarity. The details of this objection are not relevant for the present decision. Novelty was acknowledged.

An inventive step was denied.

The details of these conclusions are however not relevant for the present decision.

Consequently the application was refused.

IV. The applicant filed an appeal.

In the notice of appeal *inter alia* reimbursement of the appeal fee was requested.

Together with the statement of grounds of appeal submitted with letter of 17 July 2012 an amended set of claims constituting the sole request was filed.

Claim 1 read as follows:

"A curable aqueous composition for bonding lignocellulosic material comprising:

(a) a polyvinyl alcohol;

(b) a multi-functional crosslinking agent which is a blocked glyoxal, and

(c) a catalyst;

wherein the weight ratio of (a):(b) is from 95:5 to 10:90;

wherein the blocked glyoxal is a glyoxal blocked with at least one selected from the group consisting of urea and dimethyl urea;

wherein the polyvinyl alcohol is 70 mole % to 98 mole % hydrolyzed, and

wherein the catalyst is selected from a group consisting of ammonium chloride, ammonium sulphate, phosphoric acid, p-toluenesulfonic acid, aluminum nitrate and mixtures thereof.

The request for reimbursement of the appeal fee was not addressed in the statement of grounds of appeal.

- V. The board issued on 22 December 2015 a summons to attend oral proceedings and on 22 July 2016 a communication in which it was explained why the application was considered not to meet the requirements of Art. 123(2) EPC and Art. 56 EPC. In particular concerns were expressed regarding the allowability *inter alia* of claim 1 pursuant to Art. 123(2) EPC.
- VI. With letter of 16 August 2016 the appellant/applicant stated that it would not attend the oral proceedings.
- VII. Oral proceedings were held on 15 September 2016. As announced, the appellant did not attend.
- VIII. The arguments of the appellant can be summarised as follows:
- (a) Art. 123(2) EPC
- Claim 1 was based on a combination of features taken from claims 1, 2, 3 and 7 as well as paragraphs [0027] and [0036] of the application as originally filed. The appellant did not address the comments expressed in the decision under appeal with respect to claim 1 or the similar concerns expressed by the board in the communication with respect to the allowability of the corresponding claim 1 as filed with the statement of grounds of appeal.

(b) Art. 56 EPC

Closest prior art was D1 which taught a polyvinylacetate (PVAc) based resin and not a polyvinyl alcohol (PVOH) based resin as claimed. PVOH was employed in the composition of D1 only as a protective colloid for the polymerisation of vinyl acetate monomer to PVAc.

IX. The appellant/applicant requests that the decision under appeal be set aside and that a patent be granted on the basis of the main request as filed with the statement of grounds of appeal submitted with letter of 17 July 2012.

Reasons for the Decision

1. The appeal is admissible.

The appellant was summoned to oral proceedings but did not attend, as announced in writing. Pursuant to Art. 15(3) RPBA the board is not obliged to delay any step in the proceedings including reaching a decision by reason of the absence from oral proceedings of a duly summoned party. In such circumstances the party is treated as relying on the written submissions.

2. Art. 123(2) EPC

2.1 Operative claim 1 is based in general on features of original claim 1 (curable composition for bonding, hydroxy-containing polymer (a), multifunctional crosslinking agent consisting of multifunctional aldehyde and derivative thereof (b), the weight ratio of components (a) and (b) and a catalyst (c) which last feature is now mandatory rather than optional).

- 2.2 The feature "polyvinyl alcohol" is disclosed in original claim 2 which is dependent on claim 1.
- 2.3 For the requirement of feature (b) that the multifunctional crosslinking agent is a blocked glyoxal basis can be found in claims 6 and 7. Claim 6 defines that the multifunctional crosslinking agent can be selected from the group consisting of glyoxal or glutaraldehyde or their mixture and claim 7, which is dependent on claim 6, specifies that the multifunctional aldehyde is blocked by reaction with a blocking agent.
- 2.4 For the feature that the glyoxal is blocked with at least one selected from the group consisting of urea and dimethyl urea, the question arises whether the application as filed discloses that glyoxal is blocked with dimethyl urea. A passage of the application as filed explicitly disclosing glyoxal blocked with dimethyl urea was not indicated.
- 2.4.1 Dimethyl urea is disclosed only in paragraph [0027] of the application as originally filed in a long list of suitable blocking agents capable of forming an adduct with multifunctional aldehydes, i.e. not in connection specifically with glyoxal.
- 2.4.2 Thus the definition of dimethylurea requires a two-fold selection from the disclosure of the application as originally filed. Firstly, it is necessary, from the disclosure of paragraph [0026], relating to the usable multifunctional aldehydes, to select glyoxal from a long list of multifunctional aldehydes or even from the list of preferred multifunctional (non polymeric) aldehydes comprising also two additional compounds, namely glutaraldehyde and dialdehyde-starch. Secondly,

it is necessary to select as the compound capable of blocking a multifunctional aldehyde dimethylurea from the long list of such compounds disclosed in paragraph [0027], no preference being expressed for dimethyl urea.

- 2.4.3 In accordance with the Case Law (Case Law of the Boards of Appeal of the EPO, Eighth Edition, 2016, I.C. 6.2.1.b) such a double selection does not emerge directly and unambiguously from the disclosure of the application as originally filed, contrary to the requirements of Art. 123(2) EPC.

Additionally in this connection it is noted that claim 1 defines this cross-linking agent in association with a specific hydroxy functional polymer, namely polyvinyl alcohol of a defined degree of hydrolysis which definition itself is a selection compared to the disclosure of original claim 1 or the corresponding part of the description (paragraph [0016]). This restriction of the nature of the hydroxy-containing polymer represents a further selection within the disclosure of the application as originally filed, giving rise to a further deficiency pursuant to Art. 123(2) EPC in respect of claim 1.

- 2.5 Regarding the feature of the degree of hydrolysis of polyvinyl alcohol (70-98 mole%), the claimed range is disclosed in claim 3 and in paragraph [0025] of the application as originally filed. The indicated parts of the application as originally filed however also contain a definition of the manner in which the polyvinylalcohol was formed. The matter of whether these "product by process" type features impose some limitation on the nature of the product and hence whether these are to be included in the claim was one

of the matters which was indicated in the communication of the board as being for discussion at the oral proceedings, which were not attended by the appellant. This matter was also not addressed in the written submission of 16 August 2016.

However in view of the above findings in respect of the nature of the blocking agent it is not necessary, for the purposes of assessment of the compliance of claim 1 with the requirements of Art. 123(2) EPC, for the board to reach a conclusion on the allowability of the specified degree of hydrolysis of the PVOH.

2.6 Consequently Claim 1 of the sole request does not meet the requirements of Art. 123(2) EPC.

3. Under these circumstances it is not necessary to address the further requirements of the EPC, in particular Art. 56 EPC.

However for the sake of completeness, the board would like to note that the arguments advanced by the appellant in respect of inventive step relied on an interpretation of the claims which was not commensurate with the wording thereof.

Essentially, the appellant argued that the distinction between the subject matter claimed and that of D1 was that the adhesive compositions were "based on" different resins, namely polyvinyl acetate in the case of D1 and polyvinyl alcohol of defined degree of hydrolysis in the case of the application in suit. Operative claim 1 however employs an open wording which does not exclude polyvinyl acetate either as the principal or as any other component of the composition. Similarly the wording of the claim does not impose any role or function on the polyvinyl alcohol meaning that this being present as a protective colloid, as in the case of D1, is not excluded by the wording of operative

claim 1.

Consequently the distinction on which the appellant bases the arguments in support of inventive step does not in fact exist, as was explained in the communication of the board.

4. Request for reimbursement of the appeal fee

Since the appeal is to be dismissed, the conditions for reimbursement of the appeal are not met (R. 103(1)(a) EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



B. ter Heijden

F. Rousseau

Decision electronically authenticated