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D E C I S I O N
of 18 January 2006

Case Number: T 0035/04 - 3.3.06

Application Number: 96200939.5

Publication Number: 0737777

IPC: D21H 17/28

Language of the proceedings: EN

Title of invention:
Method for surface sizing paper, and paper thus obtained

Patentee:
Coöperatieve Verkoop- en Productievereniging van Aardappelmeel en Derivaten 'AVEBE' B.A.

Opponent:
Zuckerforschung Tulln GmbH

Headword:
Paper surface sizing/AVEBE

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Novelty - yes (all requests): No direct and unambiguous disclosure of the claimed subject-matter in the prior art"
"Inventive step - no (main and first auxiliary request): obvious alternative"
"Inventive step - yes (second auxiliary request): surprising technical effect"

Decisions cited:
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Catchword:
-

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Case Number: T 0035/04 - 3.3.06

D E C I S I O N
of the Technical Board of Appeal 3.3.06
of 18 January 2006

Appellant: (Proprietor of the patent)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 17 November 2003 revoking European patent No. 0737777 pursuant to Article 102(1) EPC.

Composition of the Board:

Chairman: G. Dischinger-Höppler
Members: P. Ammendola
U. Tronser

Summary of Facts and Submissions

I. This appeal is from the decision of the Opposition Division revoking European patent No. 0 737 777 concerning a method for surface sizing paper using a size based on amylopectin potato starch (hereinafter "APS") and the paper thus obtained.

II. The patent as granted contained six claims.

Claim 1 read:

"1. A method for surface sizing paper, ***characterised in that*** *an aqueous solution of a degraded amylopectin potato starch is applied to the paper and the sized paper is thereafter dried."*

Claims 2 to 5 defined preferred embodiments of the method of claim 1.

Claim 6 read:

"6. Surface-sized paper with the layer of size consisting entirely or substantially entirely of degraded amylopectin potato starch."

III. The patent had been opposed on the grounds of lack of novelty and inventive step (Article 100(a) in combination with Articles 52(1), 54 and 56 EPC). The following documents had been cited, *inter alia*, during the opposition proceedings:

E1 = US-A-3 931 422

E2 = C. P. Klass "Surface Sizing", in "Pulp And Paper Manufacture" (B. A. Thorp and M. J. Kocurek Ed.), 3rd ed., vol. 7, Canada, 1992, pp. 306-322

E3a = WO 92/11376

E3b = CA-A-2 061 443

E3c = EP-A-0 521 621

E4 = A. G. Heyer, Kartoffelbau, vol. 43, 1992, pp. 500-503

E5 = R. D. Isabell *et al.* "Research on the behaviour of papermaking additives", in "Paper Technology", vol. 4, 1963, pp. 135-141

E6 = C. T. Beals "Surface Applications", in "Dry Strength Additives" (W. F. Reynolds Ed.), Tappi Press, 1980, pp. 35-65.

IV. The Patent proprietor had filed during the opposition proceedings three sets of amended claims labelled as first to third auxiliary request.

Claim 1 of the first auxiliary request differed from granted claim 1 (see above point II) in that the wording "*paper, **characterised in that** an*" had been replaced by "*paper wherein amylopectin potato starch* which *is defined as potato starch granules isolated*

from potato tubers, having an amylopectin content of at least 95% by weight, based on dry substance, is degraded, and wherein an".

The remaining claims 2 to 6 of this request were as granted.

The second auxiliary request differed from the first auxiliary request only in that claim 6 had been deleted.

The then pending third auxiliary request is not relevant for the present decision.

V. The Opposition division considered that document E1 disclosed at column 3, lines 29 to 32 a list of degraded starches suitable as basis for surface sizes for paper (hereinafter "the list of E1"). This list comprised *inter alia* "*potato starch*", "*waxy corn starch*" and ended with the wording "*wheat starch and the amylopectin fraction therefrom.*". The Opposition division found that grammatical considerations were insufficient for establishing whether this last wording disclosed

"A" : wheat starch and its amylopectin fraction only

or

"B" : wheat starch and the amylopectin fraction of any of the preceding starches and, thus, also the ***"amylopectin fraction" of "potato starch"***, i.e. also the potato starch (containing about 90 wt% or more of amylopectin) obtained by conventional fractionation of the **native potato starch** (containing about 80 wt% of

amylopectin and 20 wt% of amylose) formed in the conventional varieties of potato plants.

This "*amylopectin fraction*" of "*potato starch*" is hereinafter indicated as "fractionated-APS", while "native-PS" indicates the conventional native potato starch.

However, according to the Opposition division the low practical importance of wheat starch for the paper industry and the straightforward worded list of E1, suggested that the correct meaning was that indicated above as "B". It considered also relevant the commercial availability at the time of publication of E1 of the "fractionated-APS".
Moreover, the Opposition division found that, even if the meaning "B" implied also the apparently unreasonable disclosure of an "*amylopectin fraction*" of "*waxy corn starch*", such unreasonable teaching would be disregarded by the person skilled in the art.

Therefore, in the decision under appeal the method for surface sizing paper disclosed in document E1 was found to encompass the use of a size based on fractionated-APS and, thus, to anticipate the subject-matter of claims 1 and 6 as granted and claim 6 of the first auxiliary request.

The Opposition division considered also that the method according to the second auxiliary request based on degraded APS isolated from mutant or genetically modified varieties of potato plants (hereinafter "native-APS") and containing more than about 95 wt% of amylopectin, provided an obvious alternative to the

prior art method based on fractionated-APS disclosed in document E1.

VI. The Patent Proprietor (hereinafter "Appellant") lodged an appeal against this decision, thereby filing also an auxiliary request for oral proceedings. It then submitted with the grounds of appeal an experimental report (hereinafter "the data of 2004") and retyped versions of the three sets of amended claims forming the first to third auxiliary requests already filed during the opposition proceedings.

VII. The Opponent (hereinafter "Respondent") replied to the grounds of appeal with a letter of 29 July 2004 also containing an auxiliary request for oral proceedings.

The Appellant filed under cover of a letter of 20 December 2004 a statement of its technical expert Thomas Wielema.

VIII. The Board summoned the parties to oral proceedings to be held on 18 January 2006.

IX. With a letter of 7 November 2005 the Respondent withdrew its opposition and informed the Board that it would not be represented at the scheduled hearing.

X. On 18 January 2006, the oral proceedings took place in the announced absence of the Respondent.

At the hearing the Appellant replaced the set of amended claims of the then pending second auxiliary request (see above point IV) by a new set of five claims that differed from the preceding one only in

that in claim 1 the wording "*starch which is defined as potato starch granules isolated from potato tubers, having an amylopectin content of at least 95% by weight, based on dry substance, is degraded*" had been replaced by "*starch granules isolated from potato tubers obtained from genetically modified potato plants which form said starch granules in the potato tubers, said starch granules comprising more than 95% by weight, based on dry substance, of amylopectin, are degraded*".

XI. The Appellant argued in writing and orally substantially as follows.

The unambiguous meaning of the list of E1 could be established on the basis of grammatical considerations, because, on the one side, the absence of a comma before "*and*" would indicate that the last element in that list formed a "whole" with the immediately preceding "*wheat starch*", thereby supporting the meaning identified above as "A" (see point V). Also the fact that the expression under consideration used the singular form "*fraction*" (rather than the plural "*fraction**s***") supported this interpretation.

On the other hand, the meaning identified above as "B" (see point V) would necessarily imply the technically unreasonable disclosure of an amylopectin fraction of "*waxy corn starch*", despite the fact that this starch already in its native form consisted substantially of amylopectin only.

Hence, the Opposition division had erred in concluding that document E1 disclosed the use of degraded fractionated-APS as sizing starch and, thus, in finding

that claims 1 and 6 of the patent as granted and claim 6 of the first auxiliary request violated Article 54 EPC.

Moreover, the subject-matter of the just-mentioned claims would provide a non-obvious alternative to the paper sizing method disclosed in E1, because none of the available citations suggested that degraded fractionated-APS could be suitable as starch size for paper surfaces.

The data of 2004 demonstrated that the method according to claim 1 of the second auxiliary request, wherein the used size is based on native-APS, produced surprisingly superior surface-sized paper in comparison to that treated with sizes based on native-PS, waxy corn starch or fractionated-APS.

Moreover, to replace any of the starch sizes disclosed in document E1 with native-APS size was also contrary to the generally accepted prejudice against the possibility of achieving efficient sizing by using amylose-free starches as expressed in document E2. Finally, none of the documents mentioning native-APS would disclose its use specifically for surface sizing paper.

At the oral proceedings before the Board, the Appellant maintained in particular that the results obtained from the samples based on native-APS, waxy corn starch (i.e. waxy maize starch) and native-PS **within** each of the tables in the data of 2004 could be reliably compared with each other, since the samples based on these three starches had been prepared by identical dilution of the

corresponding degraded starches having comparable viscosities at about the same brix concentration and, thus, also at comparable level of degradation.

The Appellant observed additionally that, as already mentioned in the written statement of Thomas Wielema, the fractionated-APS-based sample of Table 5 could at least be soundly compared with the samples based on the other starch sizes reported in Table 6. This comparison demonstrated, however, that the paper strength produced by fractionated-APS was worse than that obtained with native-PS.

XII. In the letter dated 29 July 2004 the Respondent has refuted the Appellant's arguments reported in the grounds of appeal, by arguing as follows:

The meaning of the last element of the list of E1 had been correctly interpreted by the Opposition Division to indicate the amylopectin fraction of any previously listed starch and, thus, included fractionated-APS. However, contrary to the finding in the decision under appeal, this meaning (i.e. that indicated as "B" at point V, see above) would not imply any technically unreasonable teaching, since the purified amylopectin fraction of waxy corn starch and the methods for its isolation had been known to the skilled person before the publication of E1.

On the other hand, document E1 contained several other lists wherein the two last elements were also not separated by any comma, even though these elements would not form a "whole". Hence, the absence of a comma preceding "*and*" in the list of E1 was not demonstrative

of the meaning "A", but rather of the meaning "B". Moreover, also the use of the singular "*fraction*" was perfectly consistent with this latter meaning.

Additionally, the subject-matter of the claims of the patent as granted as well as that of claim 6 of the first auxiliary request lacked novelty vis-à-vis the disclosure of documents E2, E3a, E3b and E3c, and lacked an inventive step vis-à-vis the combinations of documents E1/E4, E1/E5, E2/E4, E2/E5 and E6/E4.

In respect of the subject-matter of claim 1 of the then pending second auxiliary request (already aiming at restricting the claimed subject-matter to the surface sizing method with native-APS), the Respondent considered that the data of 2004 provided no reliable evidence of the alleged superior paper strength produced by native-APS vis-à-vis that obtained with sizes based on fractionated-APS, due to the significant differences in the level of degradation and in the starch concentration in the corresponding samples of similar viscosity.

On the other hand it remained obvious for the skilled person to replace the degraded fractionated-APS used in the prior art method disclosed in document E1 by the degradation product obtainable by the more economical native-APS disclosed in E4.

XIII. The Appellant requested that the decision under appeal be set aside and that the patent be maintained as granted or alternatively on the basis of the amended sets of claims according to the first auxiliary request submitted with the grounds of appeal or the second

auxiliary request submitted during the oral proceedings or the third auxiliary request submitted with the grounds of appeal.

Reasons for the Decision

Patent as granted (Appellant's Main request).

1. *Novelty (Articles 52(1) and 54 EPC)*

1.1 Claim 1 of the patent in suit (see above point II) relates to a method for surface sizing paper by using an aqueous solution of a degraded "*APS*".

The Board notes that in the absence of a specific definition of the term APS the skilled person would normally consider **any** potato starch richer in amylopectin than native-PS to be an amylopectin(-rich) potato starch, i.e. the APS mentioned in this claim. Accordingly, both fractionated-APS and native-APS are encompassed by the conventional meaning of APS as used in this claim.

The Opposition division has come to the same conclusion in the decision under appeal (see point 1.3) and the Appellant has not contested this finding in the appeal proceedings.

Hence, the Board concludes that granted claim 1 embraces *inter alia* surface sizing methods wherein the sizing starch is the degraded derivative of fractionated-APS.

1.2 The Appellant has contested the finding of the Opposition division that document E1 also disclosed the use of an aqueous solution of degraded fractionated-APS falling within the meaning of "B" (see above point V) as surface sizing agent, as well as the arguments submitted by the Respondent in support of this finding. In particular, the parties have disputed the interpretation of the list of E1, reading "*Suitable starch sizes can be based on corn starch, tapioca starch, waxy corn starch, potato starch, wheat starch and the amylopectin fraction therefrom.*", as disclosed at column 3, lines 29 to 55 of this citation, for the reasons already mentioned above at points XI and XII.

1.2.1 The Board notes instead that the ending of the list of E1 "*and the amylopectin fraction thereof*" is manifestly vague and that none of the arguments presented by the parties can be considered conclusive for deciding whether its meaning is "A" or "B" as indicated in point V above.

Indeed, it cannot be maintained that the disclosure of the amylopectin fraction of waxy corn starch (as implied in meaning "B") would necessarily amount to a technically unreasonable teaching since, as undisputed by the Appellant, the skilled reader of document E1 would be aware of the possibility to isolate further purified amylopectin from waxy corn starch.

Moreover, the Board considers that the absence of a comma preceding "*and*" and/or the use of the singular "*fraction*" have no univocal bearing on the meaning of the final "*and the amylopectin fraction therefrom*" in the list of E1. Nor can the Board find conclusive in

this respect the observations of the Respondent as to the absence of a comma preceding "*and*" in other lists of distinct alternatives disclosed in document E1, wherein the last two elements cannot possibly form a "whole".

Finally, also the other reasons mentioned in the decision under appeal for concluding that the correct meaning was "B" (i.e. the low practical importance of wheat starch for the paper industry, the fact that the wording used was a straightforward formulation and the commercial availability of fractionated-APS, see above point V) are not sufficient to the skilled reader of E1 for concluding with reasonable certainty that only one of these two possible meanings is technically sensible.

Hence, the Board concludes that the skilled reader of the vague wording "*and the amylopectin therefrom*" in the list of E1 cannot rule out with certainty any of the two possible meanings "A" or "B" indicated above.

1.2.2 The Board concludes therefore that document E1 does **not** disclose directly and unambiguously fractionated-APS or any other kind of APS.

1.3 Accordingly, the Board finds that the subject-matter of claim 1 as granted differs from the prior art method for surface sizing paper disclosed in document E1 in that the former requires the use of APS.

1.4 The Board notes also that none of documents E2, E3a, E3b and E3c discloses a method for **surface sizing paper** using a degraded APS in general, or specifically degraded fractionated-APS or native-APS.

Hence, the subject-matter of claim 1 of the patent as granted is found to be novel and, thus, to comply with the requirements of Article 54 EPC.

1.5 The same applies also to the surface sized paper of claim 6 (see above item II), which results from the method of claim 1.

2. *Inventive step (Articles 52(1) and 56 EPC)*

2.1 The Board observes that the patent in suit aims at obtaining surface sized paper with improved strength (see paragraphs 12, 28 and 30), in particular with improved IGT dry pick resistance, and that also document E1 mentions that surface sizing aims at increasing the paper strength (see column 1 lines 11 to 15). Hence the Board has no reason to depart from the finding in the decision under appeal that the prior art disclosed in this citation represents a reasonable starting point for the assessment of inventive step. This has not been disputed by the parties.

2.2 As conceded by the Appellant at the oral proceedings before the Board, the data of 2004 prove that the paper surface sized with fractionated-APS according to the method claimed displays worse IGT dry pick resistance than that sized with native-PS. Therefore, the Board must conclude that the embodiments of the claimed method based on degraded fractionated-APS do not result in the technical advantage stated in the patent in suit when compared with the prior art disclosed in document E1.

Under these circumstances the technical problem credibly solved by the method claimed vis-à-vis the prior art disclosed in document E1 boils down to that of providing another surface sizing method, i.e. an alternative to this prior art.

2.3 The Appellant has argued that fractionated-APS has never been disclosed to be suitable for surface sizing paper and, thus, that the skilled person would have no reasons for replacing the conventional starches used in the surface sizing method of document E1 by this APS.

2.4 The Board considers that, in view of the technical problem posed, the critical question is whether or not the skilled person would have replaced the conventional starches used in the surface sizing method of document E1 by fractionated-APS in the reasonable expectation that this modification would produce an acceptable surface-sized paper.

Since the list of E1 discloses several different starches as equally suitable for surface sizes, this citation teaches implicitly to the skilled reader that the surface-sized paper produced by using any of them must display acceptable properties. Hence, the skilled person would reasonably expect, in the absence of any reason to the contrary, that any other available starch similar to those mentioned in the list of E1 is basically also suitable for surface sizing paper, regardless as to whether e.g. the product label accompanying such a starch and/or the relevant publications in which it is disclosed contain an explicit reference specifically to such use.

For the person skilled in the art of paper production fractionated-APS is a conventional product. This fact has not been disputed by the Appellant. Moreover, it is expected to be similar to both the native-PS from which it is derived, and the "waxy" corn starch, another native starch but which is substantially free from amylose. Both these starches are explicitly mentioned in the list of E1. Hence, even in the absence of a document explicitly suggesting that degraded fractionated-APS is suitable for surface sizing, it required no inventive ingenuity for the skilled person to foresee that the amylopectin fraction of potato starch might also be used for surface sizing paper in the method of document E1.

2.4.1 The Board wishes also to stress here that the undisputed teaching disclosed in the textbook E2 (page 307, last full sentence in the left column) that amylose-free "waxy" starches had the advantage of being non-gelling but would be less efficient surface sizes than amylose-containing starches, credibly proves the existence of a generally accepted prejudice **against the possibility of maximizing** sizing efficiency by using any starch substantially made of amylopectin only. Nevertheless, this prejudice is not relevant in all those cases wherein maximising the sizing efficiency is not an issue, since it does imply that paper surface-sized by amylose-free starches (such as the fractionated-APS) would necessarily display **unacceptable** properties.

On the contrary, the very fact that the list of E1 already explicitly encompasses a "waxy" starch (i.e. the "*waxy corn starch*", see also above point 1.2.1)

indicates to the skilled reader that paper surface-sized with amylose-free starches, although possibly less efficiently sized than paper surface-sized with an amylose-containing starch, such as e.g. the native-PS, was still acceptable.

2.4.2 Hence, the Board finds that the skilled person would consider it obvious to replace the starches mentioned in the list of E1 with fractionated-APS, in the expectation of a surface-sized paper with acceptable properties.

2.5 The Board comes, therefore, to the conclusion that the subject-matter of process claim 1 of the main request does not involve an inventive step and, hence, that this request is not allowable because it does not comply with the requirements of Articles 52(1) and 56 EPC. The same applies to the subject-matter of claim 6 relating to the product obtained from the process of claim 1.

First auxiliary request

3. As claim 6 of this request is identical to claim 6 as granted (see above points II and IV) and, thus, encompasses paper surface sized with degraded fractionated-APS, it lacks of an inventive step for the same reasons which render obvious the method for its production (see above points 2 to 2.5).

Hence, also this request is not allowable because it does not comply with the requirements of Articles 52(1) and 56 EPC.

Second auxiliary request

4. Admissibility of the amended claims in view of Articles 84 and 123 and of Rule 57a EPC.

4.1 This request has been filed by the Appellants at the oral proceedings before the Board in order to overcome formal objections raised and discussed for the first time at the hearing.

4.2 The Board notes that claim 1 of this request differs from claim 1 as granted in that the aqueous solution of degraded APS to be used as size has been limited to that prepared from degraded granules of native-APS from genetically modified potato plants.

The wording used to amend this claim is found unambiguous and supported by the disclosure at page 3, lines 4 to 10, page 4, lines 11 to 17, and page 5, lines 26 to 34, of the patent application as filed.

The remaining claims 2 to 5 of this request are identical to the corresponding granted claims.

4.3 Accordingly, the Board finds that the claims 1 to 5 of this request comply with the requirements of Articles 84 and 123(2) and (3) EPC as well as with Rule 57a EPC.

5. *Novelty (Articles 52(1) and 54 EPC)*

As the subject-matter of claim 1 of this request is more restricted than that of claim 1 as granted, this request complies with the requirement of Article 54 EPC for substantially the same reasons indicated above (see

points 1 to 1.4) for the method claim of the patent in suit.

6. *Inventive step (Articles 52(1) and 56 EPC)*

6.1 The Respondent has contested the patentability of the then pending second auxiliary request, which is substantially equivalent to the final second auxiliary request under consideration, only in view of its obviousness vis-à-vis the prior art method disclosed in document E1 in combination with the disclosure in document E4 that native-APS was an increasingly important ingredient for the production of paper.

6.2 The Board notes that claim 1 of the present request requires the use of an aqueous solution of degraded granules of native-APS, a starch that is undisputedly not disclosed in document E1.

6.3 The Board finds convincing the submission of the Appellant at the oral proceedings that the data of 2004 credibly demonstrate that the feature distinguishing the method according to claim 1 from the relevant prior art disclosed in document E1, actually results in the superior strength stated in paragraph 12 of the patent in suit. This is evident when considering, in particular, that the IGT dry pick resistance values reported for the native-APS-based samples in Tables 4 to 6 are superior to those for the waxy corn starch-based and for the native-PS-based samples respectively reported in each of these tables, i.e. the two sizes explicitly disclosed in the list of E1 having the closest structural proximity to the size of the invention.

The objections to the data of 2004 submitted by the Respondent aim only at demonstrating that no meaningful comparison can be made between the native-APS-based samples representative of the prior art and the fractionated-APS-based samples.

The Board notes, however, that these latter are representative neither of the presently claimed subject-matter nor of the prior art. Indeed, it has already been established (see above points 1.2.2 and 1.4) that methods for surface sizing paper based on fractionated-APS have not been disclosed in the available citations.

Moreover, the Respondent has provided no reply to the arguments in the written statement of Thomas Wielema filed with the letter of 24 December 2004 maintaining that at least the fractionated-APS-based sample of Table 5 could be soundly compared with the sample based on native-APS reported in Table 6 and, thus, that this comparison would actually demonstrate the superior properties of the paper surface-sized with native-APS.

Finally, the considerations of the Respondent have no bearing on the credibility of the comparisons within each of Tables 4 to 6 between, on the one side, the waxy corn starch-based samples and the native-PS-based samples representative of the prior art and, on the other side, the native-APS-based samples representative of the presently claimed method.

Hence, the Board has no reason for disbelieving the Appellant's submission in respect of these latter comparisons.

6.4 The Board concludes therefore that the subject-matter of claim 1 of the second auxiliary request has credibly solved in view of the prior art disclosed in document E1 as most suitable starting point, the technical problem of **providing surface sized paper with strength superior to that obtainable by the use of the prior art starch sizes.**

6.5 Hence, the assessment of inventive step boils down to establishing whether or not the skilled person would have replaced the starch sizes used in the method of E1 for surface sizing paper by a similar size obtained from native-APS, in the expectation that this modification would increase the strength of the obtained surface sized paper.

6.6 The Board observes that E4 and the other citations considered by the Respondent as relevant for the assessment of inventive step do not mention at all that native-APS might be suitable for **surface sizing** paper. Hence, the same citations cannot possibly suggest that this starch may actually provide surface sized paper with superior strength.

On the contrary, the skilled person would rather expect, in view the general prejudice reported in the textbook E2 (see above point 2.4.1), that any amylose-free starch, i.e. any starch made substantially only of amylopectin, **cannot** possibly provide a paper strength **superior** to that already achieved in the prior art by

using conventional amylose-containing starches such as, e.g. native-PS.

No statement to the contrary is present in the other cited documents referring to paper sizing (i.e. E1 or E6). On the contrary, the Board observes that the soundness of this prejudice is also indirectly confirmed in the same data of 2004, showing that both starches made substantially of amylopectin only but different from native-APS, i.e. the fractionated-APS and the waxy corn starch, produce IGT dry pick resistance values lower than those achieved by the native-PS-based samples richer in amylose.

6.7 The Board concludes, therefore, that the skilled person would have expected that the desired superior strength of the surface sized paper could **not** be achieved by using any APS consisting substantially of amylopectin only and, thus, that also the native-APS disclosed e.g. in document E4 would not be suitable for obtaining the desired effect. Hence, the combination of the disclosure in documents E1 and E4 does not render predictable the superior strength of the surface-sized paper obtained with the method of present claim 1.

6.8 The Board finds also that the subject-matter of claim 1 is not rendered obvious by any of the other combinations of documents E1/E5, E2/E4, E2/E5 and E6/E4 mentioned by the Respondent in the opposition proceedings.

In particular, document E5 only discloses that fractionated-APS was a conventional ingredient for the paper industry, but does not mention either native-APS

or paper surface sizing. Hence its combination with the surface sizing method of document E1 cannot possibly render it obvious to solve the above identified technical problem.

E2 expresses the above identified teaching that APS would decrease sizing efficiency, thereby leading away from the invention, and no statement to the contrary is present in any of E4 or E5.

Finally, the prior art disclosed in document E6 is even more remote from the invention than that of document E1, since it discloses no "waxy" starches among the conventional starches preferably used for surface sizing paper (see page 36, lines 19 to 21), thereby rendering even less likely for the skilled person starting from this citation to consider replacing the starches disclosed therein by any amylose-free starches. Moreover, the above-discussed general prejudice expressed in document E2 against the use of APS if sizing efficiency is at issue renders it also non-obvious to replace the amylose-containing starches disclosed in E6 by any starch consisting essentially of amylopectin in order to achieve superior strength of the surface-sized paper.

6.9 The Board comes therefore to the conclusion that the subject-matter of claim 1 of the second auxiliary request involves an inventive step and, hence, complies with the requirements of Article 56 EPC.

7. Claims 2 to 5 refer to preferred embodiments of the method of claim 1 on which they depend and, hence, the

Board finds that their subject-matter is based on an inventive step for the same reasons indicated above.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of the first instance with the order to maintain the patent on the basis of claims 1 to 5 of the second auxiliary request submitted during the oral proceedings and the description to be adapted thereto.

The Registrar: The Chairman:

G. Rauh G. Dischinger-Höppler