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**Datasheet for the decision
of 9 November 2007**

Case Number: T 0286/06 - 3.3.06

Application Number: 96911356.2

Publication Number: 0821750

IPC: D21H 27/40

Language of the proceedings: EN

Title of invention:
Soft creped tissue paper

Patentee:
THE PROCTER & GAMBLE COMPANY

Opponent:
GEORGIA-PACIFIC FRANCE

Headword:
Soft creped tissue paper/PROCTER & GAMBLE

Relevant legal provisions:
EPC Art. 56
EPC Art. 84

Keyword:
"Clarity of disclaimer (main request and auxiliary requests 1 and 3 to 5 for all designated states except Finland): no - skilled person unable to understand which quaternary ammonium compounds are excluded by means of the disclaimer - taking into account of the teaching of the novelty destroying document not allowable"
"Inventive step (all other requests): no - no evidence that the addition of a cationic starch would bring about a technical advantage"

Decisions cited:

T 0728/98, T 0337/95, T 0550/91, T 0227/88, G 0009/91,
G 0001/03

Catchword:

-



Case Number: T 0286/06 - 3.3.06

D E C I S I O N
of the Technical Board of Appeal 3.3.06
of 9 November 2007

Appellants:
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Decision under appeal:

Interlocutory decision of the Opposition
Division of the European Patent Office posted
5 January 2006 concerning maintenance of
European patent No. 0821750 in amended form.

Composition of the Board:

Chairman: P.-P. Bracke
Members: L. Li Voti
U. Tronser

Summary of Facts and Submissions

I. The present appeal is from the interlocutory decision of the Opposition Division to maintain in amended form European patent no. 0 821 750, concerning soft creped tissue paper.

II. In its notice of opposition the Opponent sought revocation of the patent *inter alia* on the grounds of Article 100(a) EPC, because of lack of novelty and inventive step of the claimed subject-matter, and of Article 100(c) EPC.

The opposition was supported in the written proceedings *inter alia* on the following documents (the numbering used hereinafter being that proposed by the Patent Proprietor during appeal with letter of 26 September 2007):

(1): WO-A-96/17128;

(2): Applied and Environmental Microbiology, vol. 38, no. 6, December 1979, pages 1153 to 1161, "Estimation of biodegradation potential of xenobiotic organic chemicals", by Larson R.J.; and

(3): US-A-5397435.

III. In its decision, the Opposition Division found *inter alia* that the claims according to the main request for the first group of designated states and according to the first auxiliary request for the second group of designated states complied with the requirements of the EPC.

In particular, it found that

- the disclaimer which had been introduced into the wording of claim 1 according to the first auxiliary request for the second group of designated states in order to restore novelty over the disclosure of document (1), which disclaimer read "provided that said bonding inhibitor is not a biodegradable quaternary ammonium compound", was clear; in fact, the skilled person would have been able to estimate the biodegradability of a quaternary ammonium compound by using the method indicated in document (1), i.e. that described in document (2); a reference to document (1) and to the method of document (2) had also been incorporated into the description of the patent in suit;
- the claims according to the main request for the first group of designated states and according to the first auxiliary request for the second group of designated states were novel over the cited prior art;
- document (3), representing the closest prior art, did not suggest to use cationic starch in combination with carboxymethylcellulose (CMC) as dry strength binder material and taught away from using cationic starches since they were more expensive than unmodified starches;
- the claimed invention, by using a crepe facilitating composition comprising a combination of CMC and cationic starch, brought about an unexpected improvement of the creped tissue product of document (3) by reducing the percent crepe with respect to that disclosed, e.g., in example 3 of document (3);

- the claimed subject-matter thus involved an inventive step.

IV. Appeals were filed against this decision by the Patent Proprietor and by the Opponent.

Following the Board's communication of 26 October 2007, the Appellant/Patent Proprietor amended with the fax of 2 November 2007 the requests submitted with the statement of the grounds of appeal and submitted four sets of claims for Finland only as designated state and nine sets of claims for all other designated states except Finland, respectively.

Oral proceedings were held before the Board on 9 November 2007.

In the oral proceedings the Appellant/Patent Proprietor submitted three newly amended sets of claims to be considered as auxiliary requests 1 to 3 for Finland as designated state in replacement of the respective auxiliary requests 1 to 3 filed on 2 November 2007.

V. The set of 13 claims according to the **main request for all designated states except Finland** comprises independent claims 1 and 13 reading as follows:

"1. A soft creped tissue paper comprising:

a) papermaking fibers; and

b) a crepe facilitating composition comprising:

i) from 0.02% to 1.0% by weight, of a bonding inhibitor, based on the dry weight of the papermaking fibers, wherein said bonding inhibitor is a quaternary ammonium

compound, provided that said bonding inhibitor is not a biodegradable quaternary ammonium compound;
ii) from 0.02% to 0.5% by weight, of a water soluble carboxymethyl cellulose, based on the dry weight of the papermaking fibers; and
iii) from 0.05% to 3.0% by weight, of a cationic starch based on the dry weight of the papermaking fibers."

"13. A process for making soft creped tissue paper according to any of the previous claims, comprising the steps of:

- a) forming an aqueous slurry of paper making fibers;
- b) adding a crepe facilitating composition comprising:
 - i) from about 0.02% to about 1.0% by weight, of a bonding inhibitor, based on the dry weight of the papermaking fibers, provided that said bonding inhibitor is not a biodegradable quaternary ammonium compound;
 - ii) from about 0.02% to about 0.5% by weight, of a watersoluble carboxymethyl cellulose, based on the dry weight of the papermaking fibers; and
 - iii) from about 0.05% to about 3.0% by weight, of a cationic starch, based on the dry weight of the papermaking fibers;

wherein said bonding inhibitor is present in a ratio relative to the carboxymethyl cellulose of about 1:5 to about 5:1;

- c) depositing the papermaking fibers on a foraminous surface so that the excess water used to form the dispersion is removed forming an embryonic web;
- d) transferring the embryonic web to a carrier surface upon which the water removal continues forming a semi-dry web, said carrier surface being selected from the

group consisting of papermaking felts and forming fabrics;

- e) transferring the semi-dry web to the surface of a Yankee dryer upon which the drying is continued until the web reaches a substantially dry condition;
- f) removal of the dried web from the Yankee dryer by means of a creping blade; and
- g) winding the creped web on a reel."

Dependent claims 2 to 12 relate to specific embodiments of the subject-matter of the soft creped tissue paper claimed.

The set of claims according to the **auxiliary request 1 for all designated states except Finland** differs from that according to the respective main request only insofar as *the wording "crepe facilitating composition comprising" in both claims 1 and 13 is replaced with the wording "crepe facilitating composition consisting of"*.

The set of claims according to the **auxiliary request 2 for all designated states except Finland** differs from that according to the respective main request insofar as it does not contain claims 8 and 9, *both independent claims 1 and 11 (corresponding to claim 13 of the main request) do not contain the disclaimer reading "provided that said bonding inhibitor is not a biodegradable quaternary ammonium compound" and require instead that the bonding inhibitor is a quaternary ammonium compound which is a dialkyldimethylammonium salt.*

The set of claims according to the **auxiliary request 3 for all designated states except Finland** differs from that according to the respective main request insofar as *claim 1 corresponds to the process claim 13 of said request with the additional requirement that the bonding inhibitor is a quaternary ammonium compound*; dependent claims 2 to 12 thus relate to particular embodiments of the claimed process.

The set of claims according to the **auxiliary request 4 for all designated states except Finland** differs from that according to the auxiliary request 3 insofar as claim 1 requires additionally that *the constituents of the crepe facilitating composition are added separately to the papermaking slurry while in dilute suspension before the fibers are deposited, and the bonding inhibitor is added before the cationic starch.*

The set of claims according to the **auxiliary request 5 for all designated states except Finland** differs from that according to the auxiliary request 3 insofar as claim 1 requires additionally that *the constituents of the crepe facilitating composition are added separately as aqueous dispersions to the aqueous slurry of papermaking fibers prior to depositing the fibers on said foraminous surface, the carboxymethyl cellulose is added to the aqueous slurry before the quaternary ammonium bonding inhibitor and the quaternary ammonium bonding inhibitor is added prior to the cationic starch.*

The sets of claims according to the **auxiliary requests 6, 7 and 8 for all designated states except Finland** differ from those according to the auxiliary requests 3, 4 and 5, respectively, insofar as *each claim 1 does not*

contain the disclaimer reading "provided that said bonding inhibitor is not a biodegradable quaternary ammonium compound" and requires instead that the bonding inhibitor is a quaternary ammonium compound which is a dialkyldimethylammonium salt.

The set of claims according to the **main request for Finland only** contains independent claims 1 and 13 reading as follows:

"1. A soft creped tissue paper comprising:

a) papermaking fibers; and

b) a crepe facilitating composition comprising:

i) from 0.02% to 1.0% by weight, of a bonding inhibitor, based on the dry weight of the papermaking fibers, wherein said bonding inhibitor is a quaternary ammonium compound;

ii) from 0.02% to 0.5% by weight, of a water soluble carboxymethyl cellulose, based on the dry weight of the papermaking fibers; and

iii) from 0.05% to 3.0% by weight, of a cationic starch based on the dry weight of the papermaking fibers."

"13. A process for making soft creped tissue paper according to any of the previous claims, comprising the steps of:

a) forming an aqueous slurry of paper making fibers;

b) adding a crepe facilitating composition comprising:

i) from about 0.02% to about 1.0% by weight, of a bonding inhibitor, based on the dry weight of the papermaking fibers;

ii) from about 0.02% to about 0.5% by weight, of a watersoluble carboxymethyl cellulose, based on the dry weight of the papermaking fibers; and

- iii) from about 0.05% to about 3.0% by weight, of a cationic starch, based on the dry weight of the papermaking fibers;
- wherein said bonding inhibitor is present in a ratio relative to the carboxymethyl cellulose of about 1:5 to about 5:1;
- c) depositing the papermaking fibers on a foraminous surface so that the excess water used to form the dispersion is removed forming an embryonic web;
- d) transferring the embryonic web to a carrier surface upon which the water removal continues forming a semi-dry web, said carrier surface being selected from the group consisting of papermaking felts and forming fabrics;
- e) transferring the semi-dry web to the surface of a Yankee dryer upon which the drying is continued until the web reaches a substantially dry condition;
- f) removal of the dried web from the Yankee dryer by means of a creping blade; and
- g) winding the creped web on a reel."

These claims differ from claim 1 and 11, respectively, according to the main request for all designated states except Finland insofar as *claims 1 and 13 do not require that the quaternary ammonium compound used as bonding inhibitor is a dialkyldimethylammonium salt.*

The sets of claims according to the **auxiliary request 1 for Finland only** differs from that according to the respective main request insofar as *claim 1 corresponds to the process claim 13 of said request with the additional requirement that the bonding inhibitor is a quaternary ammonium compound; dependent claims 2 to 12*

thus relate to particular embodiments of the claimed process.

The set of claims according to the **auxiliary request 2 for Finland only** differs from that according to the respective auxiliary request 1 insofar as claim 1 requires additionally that *the constituents of the crepe facilitating composition are added separately to the papermaking slurry while in dilute suspension before the fibers are deposited, and the bonding inhibitor is added before the cationic starch.*

The set of claims according to the **auxiliary request 3 for Finland only** differs from that according to the respective auxiliary request 1 insofar as claim 1 requires additionally that *the constituents of the crepe facilitating composition are added separately as aqueous dispersions to the aqueous slurry of papermaking fibers prior to depositing the fibers on said foraminous surface, the carboxymethyl cellulose is added to the aqueous slurry before the quaternary ammonium bonding inhibitor and the quaternary ammonium bonding inhibitor is added prior to the cationic starch.*

VI. The Appellant/Opponent submitted in writing and orally "inter alia" that

- the requests submitted during oral proceedings and some of those filed with the fax of 2 November 2007 were belated and inadmissible;

- each claim 1 according to the main request and to the auxiliary requests 1, 3, 4 and 5 for all designated states except Finland lacked clarity since the

disclaimer contained in the wording of these claims excluded the use of biodegradable quaternary ammonium compounds as bonding inhibitors without specifying how their biodegradability had to be measured; therefore, it was not clear which quaternary ammonium compounds were excluded and which were encompassed by the wording of the claims;

- document (3) had already solved the same technical problem as the patent in suit and suggested to use a combination of either unmodified starch or cationic starch with CMC as dry strength binders;

- no evidence had been submitted that the use of cationic starch would bring about an unexpected technical advantage;

- therefore, the claimed subject-matter lacked an inventive step in the light of the teaching of document (3).

VII. The Appellant/Patent Proprietor submitted in writing and orally *inter alia* that

- all the requests submitted with the fax of 2 November 2007 and during the oral proceedings before the Board were admissible since they had been filed as a response to the Board's communication of 26 October 2007;

- each claim 1 containing a disclaimer excluding the use of biodegradable quaternary ammonium compounds as bonding inhibitors complied with the requirements of Article 84 EPC since the term "biodegradable" was clear to the skilled person and document (1), i.e. the

document against which the disclaimer had been drafted, explained which classes of quaternary ammonium compounds had to be considered biodegradable and which had not to be considered biodegradable and referred to document (2) as a disclosure of a method suitable for measuring the biodegradability of quaternary ammonium compounds.

As regards inventive step it submitted that

- document (3) taught away from using cationic starches as dry strength binders;

- the claimed invention brought about an improvement of the processability of the paper by reducing the percent crepe over that achieved by the process disclosed in example 3 of document (3) wherein no cationic starch had been used;

- moreover, as explained in paragraph 104 of the patent in suit, the use of carboxymethyl cellulose in combination with cationic starch resulted in rebuilding in alternate form the fibre to fibre bonds inhibited by the quaternary ammonium compound and, consequently, in a web with lower stiffness as a function of its ultimate strength, which property allowed to reduce the percent crepe in the process;

- therefore, the claimed subject-matter involved an inventive step.

VIII. The Appellant/Opponent requests that the decision under appeal be set aside and the patent be revoked.

IX. The Appellant/Patent Proprietor requests that the decision under appeal be set aside and that the patent be maintained, as regards Finland as designated state, on the basis of claims 1 to 13 according to the main request for Finland submitted with the fax of 2 November 2007 or, in the alternative, on the basis of any of the sets of claims according to the auxiliary requests 1 to 3 for Finland as submitted during oral proceedings; and, as regards all designated states except Finland, on the basis of claims 1 to 13 (main request) for all designated states except Finland or, in the alternative, on the basis of any of the sets of claims according to the auxiliary requests 1 to 8 for all designated states except Finland, submitted with the fax of 2 November 2007.

Reasons for the Decision

1. *Formal issues*

The Board finds that all requests submitted with fax of 2 November 2007 and those submitted during oral proceedings were filed as a response to the Board's communication of 26 October 2007 or for bringing the wording of the two different series of claims for Finland only as designated state and for all designated states except Finland, respectively, into agreement with each other.

Moreover, they did not modify the main point of discussion defined by the decision under appeal and by the statement of the grounds of appeal, and could be easily dealt with by the other party and by the Board.

Therefore, the Board concludes that all these requests are admissible under the circumstances of the case.

2. *Main request for all designated states except Finland*

2.1 Clarity

2.1.1 It is established jurisprudence of the Boards of Appeal of the EPO that, in order to ensure legal certainty, a claim must clearly define the subject-matter for which protection is sought (see T 728/98, OJ EPO 2001, 319, point 3.1 of the reasons as well as T 337/95, OJ EPO 1996, 628, points 2.2 to 2.5 of the reasons).

Since non-compliance with the requirements of Article 84 EPC is not a ground for opposition under Article 100 EPC, an objection under Article 84 EPC can be considered during opposition proceedings only if it arises from amendments of the patent as granted (see T 550/91, point 3.1 of the reasons).

In fact, amendments to a granted claim must comply with all the requirements of the EPC, *inter alia* with the requirements of Article 84 EPC (T 227/88, OJ EPO 1990, 292, point 3 of the reasons and G 9/91, OJ EPO 1993, 408, point 19 of the reasons).

2.1.2 The wording of claim 1 according to the main request for all designated states except Finland requires that the crepe facilitating composition comprises specified amounts of a bonding inhibitor which is a quaternary ammonium compound and contains a disclaimer reading: "provided that said bonding inhibitor is not a

biodegradable quaternary ammonium compound" (see point V above).

Said disclaimer was not contained in the claims as granted and had been introduced during opposition proceedings in order to restore novelty over the disclosure of document (1) (see point III above).

Therefore, it has to be evaluated if this disclaimer and the claim containing it comply with the requirements of clarity according to Article 84 EPC (see G 1/03, OJ EPO 2004, 413, point 2.4 of the order). In particular, it has to be evaluated if the skilled person, by reading the disclaimer, would have understood what is excluded by its wording, i.e., in the present case, if he would have understood which quaternary ammonium compounds were excluded by the wording of the disclaimer and which quaternary ammonium compounds were still encompassed by the wording of claim 1.

2.1.3 The Board finds that the original documents of the application upon which the patent in suit is based do not contain any citation relating to biodegradability or to the possible interpretation of which quaternary ammonium compounds have to be considered "biodegradable".

Moreover, it derives from the purpose of Article 84 EPC to ensure legal certainty, that the wording of a claim cannot be interpreted by taking into consideration the teaching of further publications not referred to explicitly in the original documents of the application

as being relevant for the interpretation of some terms used in the description or in the claims.

This applies also in the case of a disclaimer as the only justification for its introduction in a claim is to exclude a novelty-destroying disclosure and it does not represent an opportunity for the Applicant or Patent Proprietor to reshape its claims arbitrarily (see G 1/03, points 2.6.5 and 3 of the reasons).

Therefore, the Board cannot accept the argument submitted by the Appellant/Patent Proprietor that the skilled person, by reading the claim, would have understood that the proviso contained in its wording was a disclaimer against the disclosure of document (1) and that he would have interpreted it in the light of the teaching of that document.

Furthermore, the fact that the description had been amended during opposition proceedings by introducing a reference to document (1) and to a method for measuring biodegradability, i.e. that of document (2) cited in document (1), has also to be disregarded since these references were not contained in the original documents of the application.

Therefore, the clarity of claim 1 has to be evaluated in the present case considering what the skilled person would have understood **in reading the claim only**, taking into consideration common general knowledge.

- 2.1.4 The Board finds that it was known to the skilled person that the term "biodegradable" indicated the potentiality of organic chemicals of being biologically

degraded by micro-organisms and that there existed different methods, often not comparable with each other, for measuring the rate and extent of the biodegradation in terms of the removal of dissolved organic carbon (DOC) and of the evolution of CO₂ (see document (2), page 1153, summary, left column, lines 1 to 7; left column, last six lines to right column, line 10).

Therefore, in the absence of further restrictions, the term "biodegradable" had not for the skilled person, in the Board's judgement, an absolute meaning but only a relative one and indicated only the potentiality of a compound to be biologically degraded, the rate and extent of the degradation being different from compound to compound.

Moreover, it has not been provided any evidence by the Appellant/Patent Proprietor that the wording "biodegradable quaternary ammonium compounds" belonged to common general knowledge at the priority date of the patent in suit and indicated a precise class of compounds which could be readily identified by the skilled person.

In fact, even though document (1) indicates that conventional quaternary ammonium compounds such as the dialkyl dimethyl ammonium salts are not biodegradable (page 5, lines 3 to 8) or biodegrade less rapidly than some derivatives thereof to which the invention of document (1) is directed in particular (page 10, line 8 to 12), this disclosure of a patent specification published after the priority date of the patent in suit cannot be considered to have belonged to the common general knowledge of the skilled person.

The Board thus finds that the skilled person would have found the relative term "biodegradable" in claim 1, in the absence of further specific limitations of the term used, as being not sufficient for identifying the class of quaternary ammonium compounds excluded by means of the disclaimer.

Therefore, the Board concludes that the wording "biodegradable quaternary ammonium compounds" in claim 1 does not identify clearly a specific class of quaternary ammonium compounds and the disclaimer containing it does not identify clearly which quaternary ammonium compounds should be considered to be excluded from the wording of claim 1.

The Board concludes that the wording of claim 1 is unclear and does not comply with the requirements of Article 84 EPC.

2.2 Since the main request for all designated states except Finland fails already on these grounds there is no need to discuss the other claims or the other objections raised by the Appellant/Opponent.

3. *Auxiliary requests 1 and 3 to 5 for all designated states except Finland*

Since each claim 1 according to the auxiliary requests 1 and 3 to 5 for all designated states except Finland contains the same disclaimer "provided that said bonding inhibitor is not a biodegradable quaternary ammonium compound" contained in claim 1 according to the respective main request (see point V

above), these claims do not comply *mutatis mutandis* with the requirements of Article 84 EPC.

4. *Auxiliary request 2 for all designated states except Finland*

4.1 Articles 54, 84 and 123(2) EPC

The set of claims according to the auxiliary request 2 for all designated states except Finland differs from that according to the respective main request insofar as it does not contain claims 8 and 9 and *both independent claims 1 and 11 (corresponding to claim 13 in the main request) do not contain the disclaimer reading "provided that said bonding inhibitor is not a biodegradable quaternary ammonium compound" and require instead that the bonding inhibitor is a quaternary ammonium compound which is a dialkyldimethylammonium salt* (see point V above).

The Board is satisfied that the claims according to this request comply with the requirements of Articles 84 and 123(2) EPC and are novel over the cited prior art.

Since this request fails on other grounds no further details are necessary.

4.2 Inventive step

4.2.1 The present invention relates to soft creped tissue paper and to a process for its preparation. More particularly, it relates to creped tissue paper made by the dry creped process wherein an embryonic web is

formed on a Fourdrinier, freed of excess water, adhesively secured while in a semi-dry condition to a Yankee dryer, and creped from the Yankee after reaching an essentially dry condition. The creped tissue paper can be used for strong, soft paper products such as toilet tissue and facial tissue products (see paragraph 1 of the patent in suit as published to which is referred to hereinafter).

As explained in the description, it was known to use strength resins in order to enhance the strength of a paper web and that certain chemical additives, known as debonding agents or bonding inhibitors, interfered with the natural fiber-to-fiber bonding that occurs during sheet formation in paper making processes, resulting in a softer, or less harsh, sheet of paper. Moreover, it was also known to add strength resins in conjunction with debonding agents to off-set possible undesirable effects of the bonding inhibitors (paragraphs 18, 22 and 27).

However, the addition of strength resins to counteract the deleterious effects of bonding inhibitors did not necessarily overcome other side effects on the papermaking process, most notably a decrease in adhesion to the Yankee dryer which causes operational difficulties (paragraphs 28 and 29), e.g. low tension in the paper sheet causing weaving and fluttering and making it difficult to wind a wrinkle-free roll neatly enough to be utilized in subsequent operations needed to convert the product into its finished form (paragraph 11).

On the other hand, the addition of adhesion aids was found not effective in improving the operating efficiency of the papermaking process in terms of percent crepe (paragraph 16).

In fact, it was desirable to reduce the percent crepe, i.e. the difference in speed between the Yankee dryer and the wind-up reel as a percentage of the Yankee speed in a creped papermaking process or in other words, the net percentage by which the travelling web is foreshortened relative to its length while on the Yankee dryer, since this allows the basis weight of the web travelling through the process up to the creping blade to be increased without increasing the basis weight of the final product and, therefore, to increase the efficiency of the process (paragraphs 5, 8 and 53).

The patent in suit thus defines the technical problem underlying the invention as the provision of a papermaking composition capable of being converted into creped paper products that are both strong and soft and which improves the operating efficiency of the dry creping process (paragraphs 31 and 32).

- 4.2.2 The Board finds that document (3), as submitted by both parties, is the best starting point for the evaluation of inventive step, since it relates to the provision of a papermaking composition capable of being converted into creped paper products that are both strong and soft, i.e. it relates at least partly to an identical technical problem as the patent in suit (see column 2, line 39 to column 3, line 5 and column 3, lines 37 to 41).

As accepted by both parties, document (3) discloses in example 3 a dry creping process for the preparation of a soft tissue paper involving the use of a paper making composition comprising a quaternary ammonium bonding inhibitor and CMC, which paper making composition and process differ from the subject-matters of claims 1 and 11, respectively, only insofar as the papermaking composition does not contain a cationic starch.

- 4.2.3 The comparative example contained in the patent in suit relates to a process not involving the use of a paper making composition comprising a bonding inhibitor and CMC and thus to a paper making composition and process which are far more remote from the claimed subject-matters than the paper making composition and process known from document (3).

Therefore, it cannot be taken as evidence that the selection of the papermaking composition of claim 1 and used in the process of claim 11 would solve the underlying technical problem mentioned in point 4.2.1 above.

- 4.2.4 According to the patent in suit, the alleged advantages realised through the practice of the invention include a reduction of the percent crepe without producing operational difficulties or degradation of the web softness and without expense of losing strength of the web or adhesion to the Yankee drier (paragraph 103).

As discussed in the decision under appeal and submitted by the Appellant/Opponent, the percent crepe of the process of example 3 of document (3) is 15% and, consequently, higher than that of the process of

example 1 of the patent in suit, which is of the order of 12%.

However, the Board notes that the process of example 3 of document (3) and, in particular, the creping step of this process, are not comparable with the process of example 1 of the patent in suit since, apart from some differences in the type and quantities of the additives used, it involves different process conditions, for example, a pre-drying of the patterned web to a fibre consistency of 65% by weight before adhering it to the surface of the Yankee drier with a sprayed adhesive comprising a 0.25% aqueous solution of polyvinyl alcohol (PVA) (column 22, lines 3 to 8) and the preparation of a two-layer, two-ply tissue paper (column 22, lines 17 to 18) whilst the process of example 1 of the patent in suit involves a pre-drying of the patterned web to a fibre consistency of only 62% by weight before adhering it to the surface of the Yankee drier with a sprayed adhesive comprising only a 0.125% aqueous solution of PVA (paragraphs 137 and 138) and the preparation of a three-layer, single-ply tissue paper (paragraph 142).

Moreover, as taught in document (3), the invention described therein leads to increased softener retention, i.e. to improved softness of the tissue paper prepared, with little or no additional tensile loss, thereby maximizing the softening capabilities with minimal additional negative impacts on the product and process (column 3, lines 19 to 36).

Therefore, the difference in crepe percent between the process of example 3 of document (3) and that of

example 1 of the patent in suit cannot be considered to be evidence that the addition of a cationic starch to the paper making composition used in example 3 of document (3) would bring about an improvement of the operating efficiency of the dry creping process.

- 4.2.5 The patent in suit teaches also that it was believed that the bonding inhibitors prevent the formation of relatively rigid hydrogen bonds and that the ionic character of the CMC and cationic starch rebuilds the bonding in an alternate form, the result being in a web with lower stiffness as a function of ultimate strength, which would permit to operate the process with a lower percent crepe (paragraph 104).

The Board finds that the paragraph mentioned above only tries to explain the reason for the effect realized by means of the additives used during the process, the effect being, however, not different from that achieved by the process disclosed in document (3), according to which, as explained above, the softness of the tissue paper prepared was improved with little or no additional tensile loss thereby maximizing the softening capabilities with minimal additional negative impacts on the product and process.

In fact, no convincing evidence was submitted by the Appellant/Patent Proprietor that the addition of a cationic starch to a paper making composition as used in example 3 of document (3) would bring about any technical advantage over that already mentioned in the prior art document.

Therefore, the Board finds that it has not been convincingly established that the addition of such a cationic starch leads to an improvement of the operating efficiency of the dry creping process disclosed in document (3).

- 4.2.6 Starting from the teaching of document (3), the technical problem underlying the invention thus can only be defined as the provision of an alternative paper making composition capable of being converted into creped paper products that are being both strong and soft without loss in operating efficiency of the dry creping process.

The Board is convinced that the underlying technical problem has been solved by means of a composition having the features of claim 1 according to the auxiliary request 2 for all designated states except Finland.

- 4.2.7 Document (3) suggests explicitly that combinations of dry strength binders including CMC and starch can be used in the creping process described therein (column 11, lines 23 to 35 read in combination with claim 15).

Moreover, beside unmodified starches (column 11, lines 37 to 38 and 44 to 51), document (3) reports explicitly cationic starches and, in particular, Redibond 5320[®] as an example of starch which can be used as suitable dry strength binder (column 4, lines 39 to 49; column 11, lines 29 to 31; column 12, lines 1 to 6), Redibond 5320[®] being a type of cationic starch also used

in the patent in suit (see paragraph 75 of the patent in suit).

Therefore, it would have been obvious for the skilled person to try a starch and, in particular a cationic starch, in combination with CMC also in a process as disclosed in example 3 of document (3) without expecting a negative impact on the product and process described therein.

Moreover, even though unmodified starches are indicated as being preferred in document (3) (see column 11, lines 35 to 38 and column 12, lines 8 to 11), the reason for this preference was not a technical one but only an economic one since the cationic starches were considered to be more expensive than unmodified ones (column 12, lines 8 to 11). However, in the Board's view, this reason would not have been sufficient to lead away the skilled person from trying the cationic starches if costs saving were not crucial.

On the contrary, the overall teaching of document (3) confirm that cationic starches, such as the explicitly identified Redibond 5320[®], were considered suitable for realizing the invention described therein.

Since the amount of dry strength binders suitable for the process described in document (3) is from 0.01 to 3% by weight based on the dry weight of the papermaking fibers (column 11, lines 23 to 26), the amount of cationic starch which the skilled person could add to the process of example 3 of document (3) by following the teaching of this document would fall necessarily within the range of 0.05 to 3% by weight based on the

dry weight of the papermaking fibers indicated in claim 1 according to the auxiliary request 2.

The Board concludes that the skilled person would have tried cationic starches such as those explicitly indicated in document (3), e.g. Redibond 5320[®], in the attempt of optimizing the paper making composition and the process described in example 3.

Therefore, the subject-matters of claims 1 and 11 lack an inventive step.

5. *Auxiliary request 6 for all designated states except Finland*

Claim 1 according to this request is identical to claim 11 according to the auxiliary request 2 for all designated states except Finland.

Therefore, the subject-matter of claim 1 according to this request lacks *mutatis mutandis* an inventive step (see point 4.2.7).

6. *Auxiliary request 7 for all designated states except Finland*

This request differs from auxiliary request 6 for all designated states except Finland insofar as claim 1 requires additionally that *the constituents of the crepe facilitating composition are added separately to the papermaking slurry while in dilute suspension, before the fibers are deposited, and the bonding inhibitor is added before the cationic starch.*

The Board notes that, according to the process of example 3 of document (3), the quaternary ammonium compound used as bonding inhibitor and the wet and dry strength binders are added separately from each other to the papermaking slurry while in dilute suspension before the fibers are deposited (column 21, lines 41 to 49).

Moreover, document (3) teaches that the dry strength binders can be added prior or after the addition of the quaternary ammonium compound (column 12, lines 15 to 18).

Therefore, it would have been obvious for the skilled person to add all these additives separately and to try also a different order of addition in the attempt to optimizing the results.

Moreover, the Appellant/Patent Proprietor did not bring any evidence that a particular order of the bonding inhibitor and of the dry strength binders would bring about any technical advantage which would have not been achieved with a different order of addition.

The Board concludes that the subject-matter of claim 1 according to auxiliary request 7 for all designated states except Finland does not involve an inventive step.

7. *Auxiliary request 8 for all designated states except Finland*

This request differs from auxiliary request 6 for all designated states except Finland insofar as the process

of claim 1 requires additionally that *the constituents of the crepe facilitating composition are added separately as aqueous dispersions to the aqueous slurry of papermaking fibers prior to depositing the fibers on said foraminous surface, the carboxymethyl cellulose is added to the aqueous slurry before the quaternary ammonium bonding inhibitor and the quaternary ammonium bonding inhibitor is added prior to the cationic starch.*

The Board finds that the subject-matter of claim 1 according to this request lacks an inventive step for the same reasons put forward above (see point 7).

8. *Main request for Finland only*

Claims 1 and 13 according to the main request for Finland only differ from claim 1 and 11, respectively, according to the auxiliary request 2 for all designated states except Finland insofar as they do not require that the quaternary ammonium compound used as bonding inhibitor is a dialkyldimethylammonium salt (see point V above).

Therefore, these claims are broader in scope than claims 1 and 11, respectively, according to said auxiliary request 2.

Therefore, the subject-matters of such claims 1 and 13 lack *mutatis mutandis* an inventive step (see point 4.2 above).

9. *Auxiliary request 1 for Finland only*

The sets of claims according to the auxiliary request 1 for Finland only differs from that according to the respective main request insofar as claim 1 corresponds to the process claim 13 of said request with the additional requirement that the bonding inhibitor is a quaternary ammonium compound.

Therefore, the subject-matter of claim 1 according to this request lacks *mutatis mutandis* an inventive step for the reasons put forward in point 5 above.

10. *Auxiliary request 2 for Finland only*

The set of claims according to the auxiliary request 2 for Finland only differs from that according to the respective auxiliary request 1 insofar as claim 1 requires additionally that *the constituents of the crepe facilitating composition are added separately to the papermaking slurry while in dilute suspension before the fibers are deposited, and the bonding inhibitor is added before the cationic starch.*

Therefore, the subject-matter of claim 1 according to this request lacks *mutatis mutandis* an inventive step for the reasons put forward in point 6 above.

11. *Auxiliary requests 3 for Finland only*

The set of claims according to the auxiliary request 3 for Finland only differs from that according to the respective auxiliary request 1 insofar as claim 1 requires additionally that *the constituents of the*

crepe facilitating composition are added separately as aqueous dispersions to the aqueous slurry of papermaking fibers prior to depositing the fibers on said foraminous surface, the carboxymethyl cellulose is added to the aqueous slurry before the quaternary ammonium bonding inhibitor and the quaternary ammonium bonding inhibitor is added prior to the cationic starch.

Therefore, the subject-matter of claim 1 according to this request lacks *mutatis mutandis* an inventive step for the reasons put forward in point 7 above.

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:

G. Rauh

P.-P. Bracke