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Datasheet for the decision of 28 September 2016

Case Number: T 0289/14 - 3.3.06

Application Number: 99918016.9

Publication Number: 1090183

IPC: D21H17/25

Language of the proceedings: EN

Title of invention:
A method for producing a fiber product

Patent Proprietor:
M-real Oyj

Opponent:
SCA Hygiene Products AB

Headword:
Bonded carboxymethylcellulose / M-REAL OYJ

Relevant legal provisions:
EPC Art. 52(1), 56, 123(2)

Keyword:
Added matter (main request) : yes
Inventive step (auxiliary requests 1 and 2) : no - obvious alternative
Added matter (auxiliary requests 3 to 5) : yes

Decisions cited:

Catchword:

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Case Number: T 0289/14 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 28 September 2016

Appellant 01: (Opponent)	SCA Hygiene Products AB 405 03 Göteborg (SE)
Representative:	Zacco Sweden AB P.O. Box 5581 114 85 Stockholm (SE)
Appellant 02: (Patent Proprietor)	M-real Oyj Revontulentie 6 02100 Espoo (FI)
Representative:	Seppo Laine Oy Itämerenkatu 3 B 00180 Helsinki (FI)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 10 December 2013 concerning maintenance of the European Patent No. 1090183 in amended form.**

Composition of the Board:

Chairman	P. Ammendola
Members:	L. Li Voti
	C. Heath

Summary of Facts and Submissions

I. The present appeals by the Patent Proprietor and by the Opponent are from the decision of the Opposition Division concerning the maintenance of European patent no. 1 090 183 in amended form.

II. The European patent had been granted with a set of 16 claims, independent claims 1 and 16 thereof reading as follows:

"*1. A method of producing a modified fiber product, according to which method*

- cellulosic raw material is formed into a fiber suspension,
- components modifying the properties of fibers are added to the fiber suspension and
- the fiber material is dried,

characterized in that

- an alkyl derivative of cellulose, selected from alkali soluble carboxymethyl cellulose, which has a degree of substitution (DS) of 0.1 to 0.4 and a degree of polymerization (DP) of 600 to 5000, which is water-soluble in mainly alkaline conditions, is mixed into the fiber suspension in alkaline conditions, the derivative being at least partly dissolved in water, and
- the derivative is allowed to be bonded to the fibrous raw material prior to drying the fibrous material so that the bonded cellulose derivative cannot be washed off with water."

"*16. A modified fiber product, characterized in that it contains at least 0.1% of CMC by (dry) weight of the fibres bonded to the fibres, the DP of the CMC being about 600 - 5000 and the DS about 0.1 - 0.4.*"

III. Opposition against this patent had been filed on the grounds of lack of novelty and lack of inventive step (Article 100(a) EPC), insufficiency of disclosure (Article 100(b) EPC) and inadmissible extension beyond the content of the original application (Article 100 (c) EPC).

The documents relied upon by the parties during opposition proceedings include the following:

D2: EP 0 802 282 A1; and
D4: US 5 061 346 A.

IV. In its interlocutory decision the Opposition Division decided *inter alia* that the claims according to the then pending auxiliary request 1 complied with all the requirements of the EPC.

As regards claim 1 as granted the Opposition Division remarked (point 1.1, pages 3 and 4 of the decision under appeal) that "...*CMC having DS of 0.1-0.4 and DP of 600-5000 in combination is not specifically disclosed in the application as filed for use in the method...the DS range 0.1-0.4 is mentioned only in relation to a fibre product and not in relation to the method...Therefore, the OD considers that the parameters of the CMC mentioned in Claim 1, as granted, i.e. the DS 0.1-0.4 and the DP 600-5000, are not disclosed in combination in the application as filed...It is doubtful that DS and DP of the CMC in the obtained product is the same as DS and DP of the CMC*

added to the fiber suspension...Thus claim 1 of the patent in suit does not fulfil the requirements of Article 123(2) EPC."

V. In its statement of grounds the Appellant 01 (Opponent) submitted that the subject-matter of claim 1 according to the auxiliary request 1, found allowable by the Opposition Division, lacked an inventive step. In support of its arguments it cited *inter alia* documents D2 and D4.

The Appellant 02 (Patent Proprietor) submitted instead in its statement of grounds that claim 1 as granted complied with the requirements of Article 123(2) EPC and also with all other requirements of the EPC.

VI. In their respective replies to the statements of grounds of the other party, the Appellants rebutted all the other party's arguments.

Moreover, Appellant 02 with its letter of 24 August 2014 filed five sets of claims to be considered as auxiliary requests 1 to 5 and corresponding to those already filed before the Opposition Division.

VII. The respective claims 1 of Appellant 02' auxiliary requests 1 to 5 differ from claim 1 according to the main request, i.e. claim 1 as granted (see II, *supra*), only as indicated in the following:

- claim 1 according to **auxiliary request 1** requires that the used carboxymethyl cellulose has a **DS of 0.2 to 0.4** and a **DP of 600 to 4000;**
- Claim 1 according to **auxiliary request 2** requires that the used carboxymethyl cellulose has a **DS of 0.2 to 0.3;**

- Claim 1 according to **auxiliary request 3** contains between the wordings "*...in alkaline conditions,*" and "*the derivative being at least partly dissolved...*" the additional feature **"at a pH value of 7-12,";**
- Claim 1 according to **auxiliary request 4** reads, after the wording "*...prior to drying the fibrous material*", as follows: **"so that at least 10% of the carboxymethyl cellulose is bonded to fibres, whereby the bonded cellulose derivative cannot be washed off with water.";**
- Claim 1 according to **auxiliary request 5** reads after the wording "*cannot be washed off with water*" as follows: **"whereby the remaining amount of cellulose derivative that can be washed away is about 10%, at the most, at a temperature of 25°C and neutral pH conditions."**

The granted product claim 16 remained unamended in all requests apart from its renumbering as claim 15 in the set of claims according to auxiliary request 5.

VIII. In its communication issued in preparation for the oral proceedings the Board expressed *inter alia* (point 4.2.1) its preliminary opinion that "*As regards claim 1 as granted (main request) the Board provisionally does not find the Patent Proprietor's arguments submitted with its statement of grounds of 10 April 2014 convincing. Therefore, the Board provisionally agrees with the decision of the Opposition Division (point 1.1) that the original application documents do not contain any support for a method as claimed including the use of a CMC having a DS of 0.1 to 0.4 and a DP of 600 to 5000. Thus claim 1 at issue appears not to comply with the requirements of Article 123(2) EPC as reiterated by the Opponent in its letter of 4 August 2014.*

Since this same feature is contained in each claim 1 according to the auxiliary requests 3 to 5, also these claims appear to contravene the requirements of Article 123(2) EPC."

IX. With the letter of 4 August 2016 Appellant 02 announced that it would not attend oral proceedings.

X. With a further letter dated 10 August 2016 Appellant 01 contested *inter alia* inventive step of the claims according to the auxiliary requests 2 to 5 for the same reasons given with respect to auxiliary request 1 and stated that claim 1 according to the auxiliary requests 3 to 5 did not comply with the requirements of Article 123(2) EPC.

XI. Oral proceedings before the Board were held on 28 September 2016 in the absence of the duly summoned Appellant 02.

Appellant 01 (Opponent) requested that the decision under appeal be set aside and the patent be revoked.

Appellant 02 (Patent Proprietor) had requested in writing that the decision under appeal be set aside and the patent be maintained as granted or on the basis of auxiliary requests 1 to 5, all filed with letter dated 24 August 2014.

XII. As regards the compliance of claim 1 as granted with the requirements of Article 123(2) EPC, Appellant 01 submitted in writing that a CMC having a DS in the range of 0.1 to 0.4 was disclosed in the passage on page 3, lines 14 to 16 of the application as originally filed, which concerned, however, only a fibre product and not the claimed method; therefore, claim 1 as

granted as well as claim 1 according to auxiliary requests 3 to 5 did not comply with the requirements of Article 123(2) EPC.

As regards inventive step of claim 1 according to auxiliary requests 1 and 2, Appellant 01 submitted during oral proceedings in essence that

- example 1(3) of D2 represented the closest prior art;

- since a DS of 0.43 could be approximated to 0.4, corresponding to the upper limit of the DS range of the CMCs used according to claim 1 at issue, the method disclosed in example 1(3) of D2 differed from that of claim 1 at issue only insofar as the DP of the used CMC was not disclosed;

- since this known method provided a dispersible cellulose paper sheet having improved tensile strength, the closest prior art had already solved the technical problem indicated in paragraph [0012] of the patent in suit, i.e. that of providing a method for bonding carboxymethyl cellulose (CMC) to the fibres of a cellulose pulp without need of a retention enhancer so that CMC cannot be washed off;

- moreover, the alleged advantage obtained by using a CMC having a low molecular weight, indicated in paragraph [0033] of the patent in suit, could not be considered to have been achieved throughout the whole ambit of claim 1, which encompassed the use of CMCs having a DP of up to 4000 (auxiliary request 1) or even up to 5000 (auxiliary request 2), i.e. the use of CMCs having a high molecular weight, a DP of 5000 corresponding to a molecular weight of about 1,000,000;

- furthermore, no evidence was present in the patent in suit that the alleged advantage mentioned in this paragraph was achieved throughout the scope of claim 1;

- therefore, the technical problem solved by the claimed invention amounted simply to the provision of an alternative method for providing a water dispersible cellulose paper sheet having good tensile strength;

- even considering the DS of 0.43 of the CMC used in the example 1(3) of D2 to be a distinguishing feature, it was obvious for the skilled person, in the light of the explicit teaching of D2 that a CMC having a DS in the range of 0.3 to 0.6 could be used for the purpose of that invention, to use alternatively a CMC having a DS of 0.3, i.e. a CMC having a DS within the limits of claim 1 at issue;

- moreover, since document D2 did not require the use of a CMC having a particular molecular weight, it would have been obvious for the skilled person to try any CMC having a DS of 0.3 commercially available at the priority date of the patent in suit;

- that CMCs having a DS of 0.3 and a DP within the range of 600 to 4000 or 5000 were commercially available at the priority date of the patent in suit was evident, for example, from document D4 reporting a broad range of CMCs, suitable for the use onto cellulose pulp; such CMCs could have a DS as low as 0.3 and molecular weights in the range from 10,000 to 1,000,000, corresponding to a DP of about 50 to 5000, or, preferably, molecular weights in the range from 90,000 to 700,000, corresponding to an even more limited range of DPs; therefore, the range of DPs of

the CMCs disclosed in D4 greatly overlapped with that required by claim 1 at issue;

- moreover, also the patent in suit indicated in paragraph [0035] that commercially available grades of CMC could be used for carrying out the invention;

- therefore, to arrive at the subject-matter of the claims at issue the skilled person would have had simply to choose, without need of inventive skill, a suitable commercially available CMC having a DS of 0.3;

- claim 1 according to auxiliary requests 1 and 2 thus lacked an inventive step.

XIII. The Appellant 02's arguments of relevance here, submitted in writing, can be summarised as follows:

- the passage on page 3, lines 14-16, of the description of the application as filed constituted a support for a CMC having a DS from 0.1 to 0.4 not only in the claimed fibre product but also in the claimed method;

- in fact, it has not been demonstrated, clearly and unambiguously, that there might be a difference between the DS value of the CMC before binding and the DS value of the CMC after binding;

- therefore, claim 1 as granted did not violate Article 123(2) EPC;

- document D2 did not suggest the use of a CMC having a DP as required in the patent in suit;
- as stated in paragraphs [0030] and [0034] of the patent in suit, a CMC having the chosen combination of

DP and DS provided such a strong binding to the fibrous material that it could not be washed off;

- the skilled person would have had no reason for consulting D4, concerning the use of CMC only in combination with cationic retention enhancers and disclosing in its examples only CMCs having a DS of at least 0.7;

- furthermore, the range of molecular weights of CMC generically indicated in D4 corresponded to a range of DPs which was broader than that of claim 1 at issue;

- therefore, it would have not been obvious for the skilled person to try a CMC having the combination of DS and DP required by claim 1 at issue in the method disclosed in document D2 in order to improve the strength properties of the treated fibrous material;

- claim 1 at issue thus was based on an inventive step.

Reasons for the Decision

Appellant 02's main request (patent as granted)

1. Compliance with the requirements of Article 123(2) EPC - claim 1

1.1 Claim 1 at issue (see point II, *supra*) concerns a method of producing a modified fiber product wherein the carboxymethyl cellulose (CMC) mixed into the fiber suspension has a degree of substitution (DS) of 0.1 to 0.4 and a degree of polymerization (DP) of 600 to 5000.

1.2 It is undisputed that the passage of the description of the application as originally filed referring explicitly to a method involving mixing a CMC into a fibre suspension does not disclose the use of a CMC having a DS as low as 0.1, the lowest DS disclosed being 0.2 (see page 6, lines 11 and 14). A similar disclosure is present in original claim 10.

1.2.1 It is also undisputed that the only disclosure of a CMC with a DS of 0.1 can be found on page 3, lines 14 to 16 of the description, reading : "*When using CMC as the cellulose derivative, the modified fiber product according to the invention will contain at least 0.1% of bonded CMC by (dry) weight of the fibers, the DP of which is about 100 - 5000 and DS about 0.1 to 0.4.*" A similar wording is contained in original claim 21 concerning a modified fiber product, corresponding to claim 16 as granted (see II, *supra*).

However, for the Board, the above mentioned passage of the description relates undoubtedly to the characteristics of the CMC **bonded** to the fibres and it does not concern, at least explicitly, the CMC **mixed into** the fibre suspension. The Board thus cannot agree in this respect with the Appellant 02's argument that the above mentioned passage of the description, being introduced by the wording "*When using CMC as the cellulose derivative*", should be interpreted as disclosing also the characteristics of the CMC used in the method of preparation before bonding.

1.2.2 Moreover, the Board agrees with the decision under appeal (point 1.1, page 4) that "*...when adding a CMC having an average DS below 0.5 to the fiber suspension, the CMC molecules having the lowest DS (i.e. the more water-insoluble ones) will bond more efficiently to the*

fibers, which would lead to a different and lower average DS in the obtained product."

The Appellant 02's simple statement that this CMC behaviour has not been demonstrated clearly and unambiguously (see XIII, *supra*) has not been corroborated by additional facts or reasons and is, for the Board, not convincing. In fact, the description of the original application also reads (page 5, lines 28 to 32): "*When performing the invention, an essential portion of the CMC...is being subject to bonding so that at least 10% by weight ...of the CMC is bonded from the solution to the fibres.*"

Therefore, even the description indicates that not all the CMC mixed into the fibre suspension is bonded to the fibres. Hence, the average degree of substitution (DS) of the CMC bonded to the fibres has not to be necessarily the same as that of the CMC product added initially to the fibre suspension.

1.3 The Board has thus no reason to depart from its preliminary opinion expressed in its communication issued in preparation for the oral proceedings (point VIII, *supra*) that claim 1 at issue, already for these reasons, does not comply with the requirements of Article 123(2) EPC.

1.4 The main request is thus not allowable.

Appellant 02's auxiliary request 1

2. Compliance with the requirements of Article 123(2) EPC - claim 1

2.1 Claim 1 according to auxiliary request 1 differs from claim 1 according to the main request insofar as the CMC mixed into the fiber suspension has a DS of **0.2 to 0.4** and a DP of **600 to 4000.**

2.1.1 No objections under Article 123(2) EPC were raised against such an amended claim.

The Board is also of the opinion that this claim complies with the requirements of Article 123(2) EPC. Since this request fails on other grounds further details are unnecessary.

3. Inventive step - claim 1

3.1 The invention

3.1.1 The present invention concerns a method for producing a cellulosic fiber product (see claim 1 and paragraph [0001] of the patent in suit).

As explained in the description of the patent in suit (paragraph [0004]) it was known "*that the properties of the cellulose fibers used for producing paper can be modified by adding polymers to the fiber suspension (pulp) prior to wire forming*".
The aim of the invention thus concerns (paragraph [0012]) "*...a method of removing the drawbacks associated with the prior art and to achieve a totally novel solution for modifying the properties of cellulose fibers. The invention especially relates to a method of bonding the carboxymethyl cellulose, to the fibers of the cellulose pulp even without any retention enhancers so that the cellulose derivative can not be washed off.*"

3.2 Closest prior art

3.2.1 Appellant 01 cited document D2 and, in particular, example 1(3) of this document, as representative of the closest prior art.

The Board accepts that document D2 represents a suitable starting point for the evaluation of inventive step, since it concerns a similar technical problem as that addressed to in the patent in suit and discloses a method having most characteristics in common with that of claim 1 at issue.

3.2.2 In particular, document D2 considers the problems encountered in the use of carboxymethyl cellulose and/or salt thereof as binder for paper making (page 2, lines 27 to 31) and defines as its principal object (page 2, lines 37 to 40) the provision of "*an improved manufacturing process for making a disintegrable sheet for wet wipes or the like...wherein a good quantity of carboxymethyl cellulose and/or salt thereof can be efficiently deposited on the sheet*". In such a process CMC is bonded to the cellulose fibres (see 3.3.1, *infra*).

3.2.3 Moreover, the method of example 1(3) of D2 differs from that of claim 1 at issue only insofar as the DS of the used CMC is slightly higher than the upper limit of the DS range of claim 1 and the DP of the used CMC is not disclosed (see 3.5.1, *infra*).

3.3 Technical problem in the light of D2

3.3.1 It is undisputed that the tensile strength of the paper sheet prepared by the method representing the closest prior art, i.e. that of example 1(3) of D2, is

by far better than that of a paper sheet prepared by mixing the same CMC into the fibre suspension without alkaline conditions. In fact, the paper sheet obtained in example 1(3) has a tensile strength of 737 g/25mm width while that of the comparison has a tensile strength of only 326 g/25 mm width (see Table 1, Test No. Ex. 1(3) vs. Control 1 (2) and page 3, lines 20 to 23).

For the Board this result is clear evidence that in example 1(3) of D2 the CMC, without need of retention enhancers, forms stronger bonds between the pulp fibres and more CMC is retained onto the fibres without being washed off.

Therefore, in the Board's view, the closest prior art already solved the technical problem explicitly identified in the patent in suit (see 3.1.1, *supra*). Moreover, the method of example 1(3) already made use of a CMC, which was water-insoluble under neutral conditions and had a DP below 0.5 (see 3.5.1, *infra*), thus achieving the advantages suggested by Appellant 02 and mentioned in paragraph [0030] of the patent in suit.

3.3.2 As also suggested by Appellant 02, the patent in suit (paragraphs [0033] and [0034]) appears to indicate a possible advantage arising from the use of a CMC having a selected DP. These passages read, in fact, "*Another important factor controlling the bonding of CMC is its molecular weight. If the molecular weight is high, the bonding only occurs on the outer surfaces of the fibers. This kind of modification allows enhancing of the strength properties of the fibers. CMC grades with smaller molecules can, on the other hand, penetrate the*

internal cells of the fiber wall, which also increases the amount of bonded CMC.
According to an advantageous embodiment of the invention CMC with a degree of polymerization (DP) of about 100 - 5000, especially preferably about 600 - 4000, is used. CMC having a low DP can be bonded into the fiber in greater quantities, which can have an advantageous effect on, for example, water absorption and degree of reservation of the fiber."

However, in the Board's judgement, CMCs having a range of DPs as encompassed by the wording of claim 1 at issue (600 - 4000) include CMCs having a molecular weight which cannot be considered to be "low"; in fact, as submitted by Appellant 01 in writing and orally and not contested by Appellant 02, a DP of 5000 corresponds to a molecular weight of about 1,000,000 (a DP of 4000 corresponding thus to about 800,000).

Therefore, even assuming for the sake of argument that the advantage mentioned in these paragraphs of the description of the patent in suit is really achieved by using CMCs having a low molecular weight, such as those having a DP close to the lower limit of the claimed range, it is not credible that this advantage has been obtained for CMCs having a high molecular weight (DP of 4000) and encompassed by the wording of claim 1 at issue. Therefore, this alleged technical advantage cannot be considered to have been credibly achieved throughout the whole range of CMCs encompassed by the claimed method.

An evidence that such an advantage can be obtained is also absent in the patent in suit, in which only a single CMC according to the invention has been tested, which CMC (according to the decision under appeal,

passage bridging pages 7 and 8) has apparently a low DP of 750.

3.3.3 The Board thus finds that the technical problem underlying the claimed invention, seen in the light of the disclosure of D2, has to be reformulated in simpler terms as the provision of a further method of bonding CMC to the fibers of a cellulose pulp without any retention enhancer for providing a water dispersible cellulose paper sheet having good tensile strength, i.e. the provision of an alternative to the prior art.

3.4 The solution

As the solution to this technical problem the patent in suit proposes the method of claim 1 at issue wherein a CMC having a DP of 0.2-0.4 and a DP of 600-4000 is mixed into a fibre suspension under alkaline conditions.

In the light of the description and the examples of the patent in suit, the Board is satisfied that this less ambitious technical problem is indeed successfully solved by the method of claim 1 at issue. This was not in dispute.

3.5 Obviousness of the solution

3.5.1 The closest prior art, represented by example 1(3) of D2, differs from the subject-matter of claim 1 only insofar as the used CMC has a DS of 0.43, higher than the upper limit of 0.4 required in claim 1 at issue, and insofar as the DP of the used CMC is not disclosed.

In fact, the method of this example (see D2, page 3, lines 10 to 17 in combination with page 2, lines 55 to

58 and Table 1 on page 5, Test No. Ex. 1 (3)) concerns the preparation of a paper sheet wherein a CMC having a DS of 0.43 and a pH of 6.1 is mixed into a fiber suspension, sodium carbonate is added in an amount of 400% by weight of CMC, thus rendering the suspension alkaline and the CMC at least partially water-soluble. The obtained suspension (paper making stuff) is settled for 2 hours and then a paper sheet is prepared and dried in a paper machine.

Therefore, for the Board, in the method of example 1 (3) of D2, CMC is undoubtedly allowed to be bonded to the fibrous raw material prior to drying the fibrous material so that the bonded cellulose derivative cannot be washed off with water.

3.5.2 It remains thus to be evaluated if it was obvious for the skilled person, in the light of the teaching of the prior art and of his common general knowledge, to choose as an alternative to the method of the closest prior art a similar method making use of another CMC having a DS between 0.2 and 0.4 and a DP within the range of 400 to 6000.

3.5.3 Document D2 itself teaches explicitly (page 2, lines 55 to 56 and page 4, lines 2 to 4) that a CMC having a DS in the range of 0.3 to 0.6 can be used for the purpose of that invention; therefore, it was obvious for the skilled person, in the light of the explicit teaching of D2, to use a CMC having a DS as low as 0.3 as an alternative to the CMC having a DS of 0.43 used in the example.

3.5.4 Moreover, since document D2 did not disclose any compulsory structural details, for example the molecular weight, of the CMC suitable for the purpose

of that invention, for the skilled person it was obvious to use with a reasonable expectation of success any CMC available at the priority date of the patent in suit having a DS as indicated in D2 (for example also one having a DS of 0.3).

The simple choice of any suitable CMC having a DS of 0.3 available at the priority date of the patent in suit cannot thus be considered to amount to an inventive step.

3.5.5 In its search for suitable CMCs having a DS of 0.3, the skilled person would have thus obviously looked among those currently used in the treatment of cellulosic pulp before formation of a paper sheet.

For example, document D4 (column 3, lines 28 to 46) disclosed a broad range of CMCs suitable for the application to cellulose pulp before formation of a paper sheet. These CMCs have a DS as low as 0.3 and molecular weights from 10,000 to 1,000,000, corresponding to a DP of about 50 to 5000 (see 3.3.2, *supra*), i.e. a range of DPs fully encompassing the range of DPs of 600 to 4000 of claim 1 at issue, the preferred range of molecular weights indicated in D4 being 90,000 to 700,000, i.e. corresponding to an even more restricted DP range of about 400 to 3500).

The fact that in this specific disclosure CMC is used in combination with a cationically substituted starch (D4, column 1, lines 7 to 12) and not alone as in document D2 is not, for the Board, a reason for the skilled person, looking simply for CMC binders having a DS of 0.3 suitable for application to a cellulose pulp, to disregard this document.

Moreover, the Board has no reason to assume that the range of CMCs disclosed in D4 was not available to the skilled person at the priority date of the patent in suit.

On the contrary, the Board remarks that the patent in suit itself indicates in paragraph [0035] that commercially available grades of CMC could be used for carrying out the invention.

3.5.6 Therefore, for the Board, the skilled person aiming at an alternative to the prior art of departure, could and would have tried, without need of inventive skill, a CMC having a DS of 0.3 and a DP within the range of 600 to 4000 as encompassed by the broader teaching of D4, in replacement of the specific CMC of example 1(3) of D2, thereby arriving at the claimed subject-matter.

3.6 The Board thus concludes that the subject-matter of claim 1 at issue lacks an inventive step (Articles 52(1) and 56 EPC).

3.7 Auxiliary request 1 is thus not allowable.

Appellant 02's auxiliary request 2

4. Compliance with the requirements of Article 123(2) EPC - claim 1

4.1 Claim 1 according to auxiliary request 2 differs from claim 1 according to the main request insofar as the CMC mixed into the fiber suspension has a DS of **0.2 to 0.3** (see VII, *supra*). Its DP is instead of 600 to 5000, i.e. identical to that of claim 1 as granted.

4.1.1 No objections under Article 123(2) EPC were raised against such an amended claim.

The Board is also of the opinion that this claim complies with the requirements of Article 123(2) EPC. Since this request fails on other grounds further details are unnecessary.

5. Inventive step - claim 1

5.1 Claim 1 according to this request differs from claim 1 according to auxiliary request 1 only insofar as the upper limit for the range of DS of the used CMC is 0.3 instead of 0.4 and the upper limit for the range of DP is 5000 instead of 4000.

5.2 Since the arguments exposed with respect to claim 1 according to auxiliary request 1 already concerns a CMC having a DS of 0.3 and a DP of up to 4000, i.e. a DP within the range of 600 to 5000 of claim 1 at issue, these arguments (points 3.1 to 3.5, *supra*) apply *mutatis mutandis* to claim 1 at issue.

5.3 Claim 1 at issue thus lacks an inventive step (Articles 52(1) and 56 EPC).

5.4 The auxiliary request 2 is thus not allowable.

Appellant 02's auxiliary requests 3 to 5

6. Compliance with the requirements of Article 123(2) EPC - claim 1

6.1 Each claim 1 according to all these requests requires that the DS of the CMC mixed into the fibre suspension

has a DS of 0.1 to 0.4 like claim 1 as granted (see II and VII, *supra*).

6.1.1 Therefore, as regards compliance with the requirements of Article 123(2) EPC, all these claims 1 suffer from the same deficiency discussed in point 1.1 to 1.3, *supra*, with respect to the main request.

6.2 The auxiliary requests 3 to 5 are thus not allowable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The European patent is revoked.

The Registrar: The Chairman:

D. Magliano P. Ammendola

Decision electronically authenticated