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Datasheet for the decision of 14 December 2006

Case Number: T 1416/04 - 3.2.06

Application Number: 95120675.4

Publication Number: 0719531

IPC: A61F 13/15

Language of the proceedings: EN

Title of invention:
Absorbent sheet and process for producing the same

Patentee:
KAO CORPORATION

Opponent:
Kimberly-Clark Worldwide, Inc.

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56, 83, 84, 123(2)
EPC R. 57a, 29(2)

Keyword:
"Main and first to third auxiliary requests (lack of inventive step)"
"Fourth auxiliary request; presence of five independent claims considered allowable in respect of Rule 57a EPC; applicability of Rule 29(2) EPC (not required)"

Decisions cited:
T 0257/04

Catchword:
A request containing a plurality of independent product claims may be allowable under Rule 57a EPC in order to provide an amendment of a granted set of claims containing only one independent product claim, if the amended independent claims arise from deletion of previous claims. (see Reasons 5.1)

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Case Number: T 1416/04 **-** 3.2.06

D E C I S I O N
of the Technical Board of Appeal 3.2.06
of 14 December 2006

Appellant: (Opponent)
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Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 4 October 2004 concerning maintenance of European patent No. 0719531 in amended form.

Composition of the Board:

Chairman: P. Alting van Geusau
Members: M. Harrison
W. Sekretaruk

Summary of Facts and Submissions

I. Appellant 1 (proprietor) and appellant 2 (opponent) each filed an appeal against the opposition division's interlocutory decision of 4 October 2004 in which the amended form of patent number EP-B-0 719 531 according to the proprietor's second auxiliary request was found to meet the requirements of the European Patent Convention.

Appellant 1 requested maintenance of the patent according to a main request or alternatively according to a series of auxiliary requests.

Appellant 2 requested revocation of the patent.

II. Beyond the documents already in opposition proceedings, appellant 2 filed *inter alia* the following documents with its appeal grounds:

D9: "Handbook for Pulp & Paper Technologists", pages 17 to 19;
D10: "Kajaani FS-200 Operation Manual", pages 9.1 to 9.3.

III. In response to the appeal of appellant 2, appellant 1 filed a submission including the following documents:

D16: User's manual "Kajaani FS-200", Kajaani Electronics 1989, page 7.4;
D17: Pages 288 and 289 of Collins Dictionary of the English Language 2nd edition, 1986;
D18: Fiber Handbook - material -, 1982, page 448, and English translation thereof.

IV. With the summons to oral proceedings, the Board issued a communication informing the parties of its provisional opinion.

V. With its response of 14 November 2006 including amended requests, appellant 1 filed the following documents:

D19: Extract from "Practical Knowledge of New Rayons", published in Japanese on 12 September 1994;
D19a: English translation of D19.

VI. During oral proceedings on 14 December 2006, appellant 1 filed a new main request and four auxiliary requests.

Claim 1 of the main request reads:

"An absorbent sheet (10, 20, 30, 40, 50, 60) comprising at least hydrophilic fibers and thermally fusible bonding fibers or a strengthening assistant, and a superabsorbent polymer (16), the absorbent sheet being characterized in that:
the superabsorbent polymer (16) is not present on an absorbent surface (12) of the absorbent sheet for absorbing liquid but distributed inside the absorbent sheet, and is adhered and fixed to the hydrophilic fibers constituting the absorbent sheet; and the hydrophilic fibers are bulky cellulose fibers, the superabsorbent polymer is spread at an amount of 5 to 300 g per 1 m^2 of the absorbent sheet; and the absorbent sheet has a thickness of 0.3 to 1.5 mm, which is measured by applying a load of 2.5 g/cm^2 on a sample cut

from the absorbent sheet with a loaded area of 10 cm^2 (a disk having a radius of 17.8 mm) and measurement is made on 10 cut pieces per absorbent sheet to obtain an average thickness."

VII. Claim 1 of the first auxiliary request reads:

An absorbent sheet (10) comprising at least hydrophilic fibers and thermally fusible bonding fibers or a strengthening assistant, and a superabsorbent polymer (16), the absorbent sheet being characterized in that: the superabsorbent polymer (16) is not present on an absorbent surface (12) of the absorbent sheet for absorbing liquid but distributed inside the absorbent sheet, and is adhered and fixed to the hydrophilic fibers constituting the absorbent sheet; the superabsorbent polymer (16) is spread at an amount of 5 to 300 g per 1 m^2 of the absorbent sheet; and the absorbent sheet has a thickness of 0.3 to 1.5 mm, which is measured by applying a load of 2.5 g/cm^2 on a sample cut from the absorbent sheet with a loaded area of 10 cm^2 (a disk having a radius of 17.8 mm) and measurement is made on 10 cut pieces per absorbent sheet to obtain an average thickness, and the hydrophilic fibers are bulky cellulose fibers (13), and the absorbent sheet comprises a fiber aggregate (15) and a fiber web (18), the fiber aggregate (15) and the fiber web (18) forming a unitary body; the fiber aggregate (15) has the absorbent surface (12), and does not contain the superabsorbent polymer (16) at the side of the absorbent surface (12); the fiber web (18) comprises at least the bulky cellulose fibers (13) in an amount of 50 to 99 parts by weight per 100 parts by weight of the fiber web; and the superabsorbent polymer

(16) is predominantly distributed inside the fiber web."

VIII. Claim 1 of the second auxiliary request reads:

"An absorbent sheet (10) comprising at least hydrophilic fibers and thermally fusible bonding fibers or a strengthening assistant, and a superabsorbent polymer (16), the absorbent sheet being characterized in that:
the superabsorbent polymer (16) is not present on an absorbent surface (12) of the absorbent sheet for absorbing liquid but distributed inside the absorbent sheet, and is adhered and fixed to the hydrophilic fibers constituting the absorbent sheet; the superabsorbent polymer (16) is spread at an amount of 5 to 300 g per 1 m^2 of the absorbent sheet; and the absorbent sheet has a thickness of 0.3 to 1.5 mm as measured in accordance with the method taught in paragraph [0411], and the hydrophilic fibers are bulky cellulose fibers (13) which have a degree of fiber roughness of 0.3 mg/m or more as measured in accordance with the method taught in paragraphs [0324] and [0325] and/or a degree of fiber roundness in the fiber cross-section of 0.5 to 1 as measured in accordance with the method taught in paragraph [0326] and/or which are crosslinked cellulose fibers, and the absorbent sheet comprises a fiber aggregate (15) and a fiber web (18), the fiber aggregate (15) and the fiber web (18) forming a unitary body; the fiber aggregate (15) has the absorbent surface (12), and does not contain the superabsorbent polymer (16) at the side of the absorbent surface (12); the fiber web (18) comprises at least the bulky cellulose fibers (13) in an amount of

50 to 99 parts by weight per 100 parts by weight of the fiber web; and the superabsorbent polymer (16) is predominantly distributed inside the fiber web."

IX. Claim 1 of the third auxiliary request is the same as that of the second auxiliary request, with the exception that the following wording has been deleted:

"and/or a degree of fiber roundness in the fiber cross-section of 0.5 to 1 as measured in accordance with the method taught in paragraph [0326] and/or which are crosslinked cellulose fibers,"

X. The fourth auxiliary request consists of five independent claims, numbered as claims 1 to 5.

Claim 1 of the fourth auxiliary request reads as follows (whereby the labelling "(a)" and "(b)" of two sections has been inserted by the Board):

(a)"An absorbent sheet (10) comprising at least hydrophilic fibers and thermally fusible bonding fibers or a strengthening assistant, and a superabsorbent polymer (16), the absorbent sheet being characterized in that: the superabsorbent polymer (16) is not present on an absorbent surface (12) of the absorbent sheet for absorbing liquid but distributed inside the absorbent sheet, and is adhered and fixed to the hydrophilic fibers constituting the absorbent sheet; the superabsorbent polymer (16) is spread at an amount of 5 to 300 g per 1 m^2 of the absorbent sheet; and the absorbent sheet has a thickness of 0.3 to 1.5 mm as measured in accordance with the method taught in paragraph [0411], and the absorbent sheet comprises a

fiber aggregate (15) and a fiber web (18) said fiber web comprising at least the hydrophilic fibers and the fiber aggregate (15) and the fiber web (18) forming a unitary body; the fiber aggregate (15) has the absorbent surface (12), and does not contain the superabsorbent polymer (16) at the side of the absorbent surface (12);

(b) and the fiber aggregate (15) predominantly comprises bulky cellulose fibers (13) having a degree of fiber roughness of 0.3 mg/m or more as measured in accordance with the method taught in paragraphs [0324] and [0325]; and
the fiber web (18) comprises a permeable layer (17) predominantly comprising bulky cellulose fibers (13) having a degree of fiber roughness of 0.3 mg/m or more as measured in accordance with the method taught in paragraphs [0324] and [0325] and a diffusing layer (19) being located adjacent to the permeable layer (17) and comprising bulky cellulose fibers (13) having a degree of fiber roughness of 0.3 mg/m or more as measured in accordance with the method taught in paragraphs [0324] and [0325] and the hydrophilic fine fibers (14), the fiber web (18) being located adjacent to the fiber aggregate (15) at the permeable layer (17); and the superabsorbent polymer (16) is predominantly distributed inside the fiber web."

Claim 2 of the fourth auxiliary request starts with section "(a)" of claim 1, followed by the following wording:

"and the fiber aggregate (15) comprises a permeable layer (17) predominantly comprising bulky cellulose

fibers (13) having a degree of fiber roughness of 0.3 mg/m or more as measured in accordance with the method taught in paragraphs [0324] and [0325] and a diffusing layer (19) being located adjacent to the permeable layer (17) and comprising bulky cellulose fibers (13) having a degree of fiber roughness of 0.3 mg/m or more as measured in accordance with the method taught in paragraphs [0324] and [0325] and hydrophilic fine fibers (14), and the fiber web (18) predominantly comprises bulky cellulose fibers (13) having a degree of fiber roughness of 0.3 mg/m or more as measured in accordance with the method taught in paragraphs [0324] and [0325] and is located adjacent to the diffusing layer (19) of the fiber aggregate (15); and the superabsorbent polymer (16) is predominantly distributed inside the fiber web."

Claim 3 of the fourth auxiliary request starts with section "(a)" of claim 1, followed by the following wording:

"the fiber aggregate (15) predominantly comprises bulky cellulose fibers having a degree of fiber roughness of 0.3 mg/m or more as measured in accordance with the method taught in paragraphs [0324] and [0325]; the fiber web comprises bulky cellulose fibers (13) having an average fiber length of 1 to 20 mm and a degree of fiber roughness of 0.3 mg/m or more as measured in accordance with the method taught in paragraphs [0324] and [0325] and hydrophilic fine fibers (14) having an average fiber length of 0.002 to 0.5 mm, the proportion of the hydrophilic fine fibers (14) being higher in one of the sides of the fiber web than in the other side, and the fiber web (18) being located adjacent to the fiber aggregate (15) at the side having a lower

proportion of the hydrophilic fine fibers (14); and the superabsorbent polymer (16) is predominantly distributed inside the fiber web."

Claim 4 of the fourth auxiliary request starts with section "(a)" of claim 1, followed by the following wording:

"and the fiber aggregate comprises bulky cellulose fibers (13) having an average fiber length of 1 to 20 mm and a degree of fiber roughness of 0.3 mg/m or more as measured in accordance with the method taught in paragraphs [0324] and [0325] and hydrophilic fine fibers (14) having an average fiber length of 0.02 to 0.5 mm, the proportion of the hydrophilic fine fibers (14) being higher on one of the sides of the fiber aggregate (15) than on the other side; the fiber web (18) predominantly comprises bulky cellulose fibers (13) having a degree of fiber roughness of 0.3 mg/m or more as measured in accordance with the method taught in paragraphs [0324] and [0325], and is located adjacent to the side of the fiber aggregate having a lower proportion of the hydrophilic fine fibers (14); and the superabsorbent polymer (16) is predominantly distributed inside the fiber web."

Claim 5 of the fourth auxiliary request starts with section "(a)" of claim 1, followed by the following wording:

"the fiber web predominantly comprises bulky cellulose fibers (13) and further contains hydrophilic fine fibers (14) or hydrophilic fine particles (14), the hydrophilic fine fibers (14) or the hydrophilic fine

particles (14) being contained mainly in the areas where the superabsorbent polymer (16) is present; and the superabsorbent polymer (16) is predominantly distributed inside the fiber web."

XI. The arguments of appellant 1 relevant to the decision may be summarised as follows:

(a) Main request

(a1) Article 123(2) EPC:

The thickness test method introduced into claim 1 did not include the "thickness meter" mentioned in paragraph [0412], but this was already implicit in the method. Omission of the thickness meter thus did not contravene Article 123(2) EPC.

The thickness test of paragraph [0411] applied generally to all thickness measurements of a sheet to be measured according to the claim, in the same way as paragraph [0432] applied generally to measuring absorbent products containing a sheet. Although paragraph [0411] was in a section relating to examples and comparative examples, the further paragraph [0126] related generally to all sheet products of the invention and, since the applied load was the same in both paragraphs [0126] and [0411], it was self-evident that the same test was being used as in paragraph [0411]. It was thus unambiguously derivable that the test in paragraph [0411] was the test to be used for measuring sheet thickness in all cases.

(a2) Articles 83 and 84 EPC:

Sheets according to claim 1, in the technical field in question, were manufactured in great lengths. The test of paragraph [0411] could always be carried out, since ten areas of 10 cm^2 would always be available in such a sheet. Even a smaller sheet would have initially come from a larger sheet, so that it was sufficiently clear how the measurement on smaller sheet sizes could be carried out. Alternatively, the sheet area for the test of claim 1 simply had to be understood as being larger than 100 cm^2. The problems seen by appellant 2 in determining a thickness measurement for a smaller sheet were related to difficulties in determining potentially infringing products, and did not constitute a relevant objection under Article 83 or 84 EPC.

(a3) Article 54 EPC:

Claim 1 was novel with respect to:

D7: US 4 537 590

The feature of claim 1 according to which "the hydrophilic fibers are bulky cellulose fibers" was not fulfilled by the rayon fibers of D7, in particular those in accordance with col. 6, line 61 *et seq*. The patent defined "bulky fibers" in paragraph [0071] as "forming a bulky fiber web having a high void content". No indication of this was in D7. Although the absorbing layer of D7, in which the rayon fibers were present, itself had

high loft and dry resiliency, this was due to the other fibers present in the absorbent layer. Proof was found in D19/D19a which explained that rayon was "low in tenacity and also elastic recovery ratio" and that it was "low in bending stiffness". Rayon fibers were thus not responsible for the high loft and resiliency of the absorbent layer and thus could not be considered to constitute bulky fibers on the basis of the D7 disclosure.

Paragraph [0086] of the patent also showed that the term "bulky" had an understood meaning because commercially available crosslinked cellulose fibers were even named "high bulk additive".

None of the additional indicators of bulky fibers as given for example in the patent in paragraphs [0072, 0078 or 0082] was indicated in any manner in D7.

Further, any rayon present in the absorbent layer in D7 was only there in a small amount. Thus the arrangement of superabsorbent polymer (SAP) of claim 1 did not correspond to D7, as the SAP was defined in claim 1 as being "adhered and fixed to the hydrophilic fibers constituting the absorbent sheet" which fibers were in turn defined as being "bulky cellulose fibers". The SAP in D7 would primarily be fixed and adhered to other fibers.

The thickness of the absorbent sheet was neither disclosed in nor derivable from D7. The thickness measurement which would result when using the test of paragraph [0411] on an absorbent sheet from D7

containing rayon could not be deduced, as firstly such a test had not been used in D7, and secondly no initial thickness or material parameters were disclosed in D7 for a rayon-containing sheet. Even if the features of bulk and weight were taken from column 7, lines 9 to 12 as applying to rayon, which was not anyway agreed, these related to a range of bulk values starting from "at least 20 cc/gm" and from a range of weight having its highest value at "less than about 2oz/yd^{2}". Even though these end values together might give a thickness of 1.36 mm if the opponent's calculations were followed, this was irrelevant because the two values were merely extreme points of ranges which extreme points were not disclosed as a specific combination of values. Furthermore, no reason existed to use the two end points of both ranges in combination. Also, the SAP contribution to the sheet thickness was unknown. Additionally, the thickness of the wicking layer in D7, which was a part of the sheet to be measured, was entirely unknown. No dimensional information could be taken from the Figures and so the Figures were irrelevant in this regard. Finally the indication "superthin" in the title of D7 was irrelevant, as this was simply a relative term for products available at the time of D7 and thus meaningless.

The wicking layer 28, by itself, could not be considered the same as the sheet defined in claim 1, as it contained no SAP, as shown by D7 column 3, lines 32 to 42.

(a4) Article 56 EPC:

If claim 1 were novel due only to the sheet thickness dimension, this difference was anyway the result of an inventive step in the context of the combination of features claimed. The problem to be solved was to provide a more convenient product for the user in terms of handling, yet still having good absorption capacity. This was achieved by providing a very low thickness sheet but still providing high absorption due to the use of bulky fibers.

Merely because D7 was entitled a "superthin" product, this relative terminology did not motivate a skilled person to provide the very low thickness claimed.

D7 also taught away from providing an extremely thin product as claimed. Col. 11, lines 23 to 25 disclosed that the pressure used to compress the product into its final state should not be high enough to substantially crimp or crease the fibers. Compressing the starting product to a thickness in the area of thickness defined in claim 1 would be contrary to the teaching of D7.

The process in the patent (paragraph [0131 et seq]) by which a very thin sheet was produced, was not the same as D7, so the skilled person had no enabling teaching in D7 as to how to reach such a small thickness.

(b) *First auxiliary request*

(b1) Article 84 EPC:

Claim 1 contained a feature introduced from the description paragraph [0073] relating to the proportion of bulky fibers in the web, which made it a clearly purposive amount. The amount of bulky fibers in the "web" was clear for a sheet comprising both "web" and "aggregate", because the skilled person could distinguish between these two parts. Even if a clearly identifiable distinction might not exist at the interface of web and aggregate in the case that these were the same formulation of fibers, the proportion of bulky fibers in the web portion would be the same proportion as in the whole sheet.

(b2) Article 56 EPC:

The proportion of bulky fibers in claim 1 was inventive. No teaching existed in D7 to use more than a small amount of rayon. Items (1), (3) and (5) of D19/D19a supported this standpoint, because use of a large amount of rayon would not result in the required properties of resiliency, loft and bulk recovery as required by D7. Also, it had to be presumed that D7 used regular rayon since nothing else was disclosed.

D11: US 3 241 553

disclosed in col. 5, lines 64 to 69 that untreated cellulose had low resiliency in the dry state.

Absent any further disclosure in D7, the rayon must be presumed to be a normal untreated type. For this reason, and as a result of its required properties, it could only be present in a fairly small amount. The amount of 50 to 99 parts by weight per 100 parts by weight of the fiber web as defined in claim 1 was thus not suggested by D7 or any other document.

(c) *Second auxiliary request*

(c1) Article 83 EPC:

As disclosed by document D16, page 7.4, left column, the value of "upper limit" and "lower limit" were only set in the Kajaani FS-200 roughness meter if it were desired to cut away any section of the results from the X-axis. No mentioning of cutting away values appeared in the patent and thus no setting of the lower limit was required. Thus the method in the patent in paragraphs [0324] and [0325] was sufficient for performing the measurement. In the meter documentation cited by the opponent, namely

D10: Extract from Section 9 of the Kajaani FS-200 operation manual, pages 9.1 to 9.3

it could also be seen in the "printer report" that no value of lower limit had been set, so this was clearly not required in order to carry out the method, but merely a further feature of the device.

The opponent had provided no evidence for its argument that setting a lower limit value was a requirement nor that D16 related to a second use of the "lower limit" function mentioned in D10.

(c2) Article 56 EPC:

Each of the three defined parameters of bulkiness, namely roughness, roundness or cross-linking, limited the claims to specific bulky fibers. The overlap at the roundness value of 0.5 of fine and bulky fibers as in e.g. paragraph [0267] of the patent was not important, since only the effect achieved by such a roundness value was important. Inventive step was merely a question of whether D7 or another document combined with D7 suggested this. A roundness value of 0.5 to 1 was not normally present when making rayon fibers, as was clear from e.g. D18.

As regard the opponent's argument concerning whether the Examples in the patent showed any performance increase compared to Example 14 which was not covered by the claims any more, this was irrelevant as Example 14 was also not part of the prior art but simply excluded for consistency reasons. Example 1 in the patent was in fact more akin to D7. The choice of particular parameters for the bulky fibers was thus not an arbitrary choice without technical effect. The effects of a higher roughness value could be seen in the results.

The document entitled "Comparative data", concerning a variation of Example 2 in the patent, which was originally filed on 21 November 2004 by the proprietor, demonstrated the advantageous technical effect of higher roughness and roundness. The thickness of the sheet admittedly varied compared to Example 2 as in the patent, but this was simply the result of keeping other parameters the same.

The real question to be answered in relation to inventive step was whether the skilled person would choose bulky fibers as now defined for the absorbent sheet, when considering the teaching of D7 bearing in mind that D7 gave no indication of roundness, roughness or cross-linking. When producing a "thin" sheet, as in D7, the choice of thick fibers would at the outset be contrary to the product to be produced unless some teaching existed to steer this choice. No such teaching existed. D7 was also aimed at maintaining wet resiliency and the use of bulky fibers was not disclosed for this purpose.

Resiliency, as used in D7, was also not a mechanism used in the patent, as indicated at paragraph [0126], so the choice of bulky fibers to achieve properties required in D7 was not one which resulted from D7 without inventive skill.

Concerning the possible combination of D7 and D11, these documents were anyway incompatible. D11 did not use SAP whereas D7 required SAP. When starting from D7, the skilled person would not step back to

D11 from the year 1966 to find a solution. Furthermore it was important to note that D7 relied on wet crosslinked fiber webs, not dry crosslinked, the bulk values of which would be 13.38 cm^3/g and 11.97 cm^3/g for 4 and 6 inch rayon strips respectively. Likewise, these wet crosslinked fiber structures would not substantially recover the uncompressed state when water was absorbed. A skilled person would thus not be led by D11 towards a solution using crosslinking of fibers. A roughness value of 0.3 mg/m or more, as postulated by appellant 2 from col. 3, line 58 was also only relevant to an example of wet crosslinked fibers. The roundness value was not disclosed at all. Thus no disclosure in D11 could be combined with D7 to arrive at claim 1.

(d) *Third auxiliary request*

Essentially the same arguments apply as to the second auxiliary request, whereby additionally the selection of roughness value of 0.3 mg/m or more had been shown to be particularly advantageous also in the comparative examples. A roughness value of this magnitude was not taught by D11. The 3 denier rayon used in Example II, was for use in wet crosslinking, which would not meet the bulk or recovery requirements of D7.

(e) *Fourth auxiliary request*

(e1) Rule 57a:

The use of five independent claims, compared to only one independent product claim as granted, was responsive to a ground of opposition requiring alteration of claim 1. The subject matter of the five independent claims was already in the claims of the granted patent, albeit drafted in the form of dependent claims and so the amendments were not introductions of new independent claims but merely deletions of previous claims, together with minor amendments in all claims to comply with Article 83 EPC. No possibility existed to file divisional applications and thus maintaining the originally granted protection by use of further independent claims coming directly from the claims of the granted patent must be allowed. The amendments were in compliance with all relevant provisions of the EPC.

(e2) Rule 29(2) EPC:

Rule 29(2) EPC by its wording was clearly not relevant to opposition cases. Even if the Board considered it relevant, the five independent claims covered alternative solutions to the problem underlying the invention which could not be covered by a single independent claim.

(e3) Remittal:

No objections to remittal of the case were present if the Board deemed this appropriate.

XII. The arguments of appellant 2 relevant to the decision may be summarised as follows:

(a) *Main request*

(a1) Article 123(2) EPC:

The thickness test method of claim 1 did not include a "thickness meter" as disclosed by paragraph [0412]. Thus the claimed test method was generalised compared to the original disclosure due to omission of one of the test's features. Further, it was not disclosed in the application as filed that the thickness test in paragraph [0411] applied to anything but the comparative examples; the test in paragraph [0432] might equally be a correct test to apply. It was thus not unambiguously derivable which test should be used, so that inserting the test of paragraph [411] into the claim was contrary to Article 123(2) EPC.

(a2) Articles 83 and 84 EPC:

If the test in paragraph [0411] were used, the sheets and the product made therefrom would have to be bigger than 100 cm^2. It was then not clear how a thickness should be determined for a smaller sheet, which was covered by the whole scope of claim 1 and by dependent claim 10 relating to an

absorbent article containing the sheet of claim 1. Articles 83 EPC and 84 EPC were thus contravened.

(a3) Article 54 EPC:

Figure 2 of D7 concerned an absorbing layer 22 and a wicking layer 28 together forming an absorbent sheet, whereby SAP was present in the absorbing layer but not the wicking layer, and whereby SAP was not present on an absorbent surface of the sheet but interspersed and fixed to the fibers 23 (col. 5, lines 22 to 27). D7 (col. 6, lines 61 to col. 7, line 12 and col. 5, lines 39 to 43) further disclosed that the absorbing layer could be a high loft and resilient layer comprising rayon hydrophilic cellulosic fibers. Of the options given in D7, rayon was clearly stabilized with either heat-through bonding or adhesive, thus implicitly requiring the presence of either thermally fusible fibers or a strengthening assistant as defined in claim 1. These rayon fibers were also "bulky" in accordance with the definition given in the patent at paragraph [0072] which was very broad; both bulky and fine fibers according to the patent could even have the same fiber roundness of 0.5, even though this was supposed to be an indicator of bulky fibers.

The only feature of claim 1 not explicitly in D7 was the sheet thickness of 0.3 to 1.5 mm. D7 however disclosed in e.g. its title a "superthin" product and also that when using two composite structures of D7 as a sanitary napkin, this would have a thickness of "less than half the thickness

of the conventional fibrous batt" (col. 6, lines 19 to 23). Thus the thickness was always below the maximum value of 1.5 mm claimed in the patent. Additionally, when considering the pressure used during measurement in the patent compared to the pressure in D7, D7 used only 0.01 pounds per square inch (see e.g. col. 9, lines 35 and 36), thus being less than that defined in claim 1. At this lower pressure, the compressed absorbing layer having a dry bulk of at least 20 cc/gm and weight of less than about 2 oz/yd^2 (see e.g. col. 7, lines 9 to 12) would be less than 0.68 mm. Choosing the extreme ends of the two ranges of bulk and weight gave a "worse case scenario", whereby the thickness of the absorbing layer could thus only ever be less than or equal to 0.68 mm. D7 stated that Figs. 2 and 2A showed a detailed view of the layers, whereby the wicking layer was thinner than the absorbing layer. Thus, a total thickness of the entire sheet was less than 2 x 0.68 mm (i.e. less than 1.36 mm). The presence of SAP did not affect the thickness since the SAP was distributed so as to minimise interactions of SAP particles, even when wet (see col. 8, lines 29 to 34). Thus claim 1 lacked novelty.

Alternatively, the wicking layer 28 in D7, by itself, could be considered to correspond to the absorbent sheet, such that all features of claim 1 were present. Since the wicking layer was much thinner than the absorbing layer, the thickness limitation of claim 1 was met beyond doubt. Claim 1 thus lacked novelty also for this reason.

(a4) Article 56 EPC:

If claim 1 were novel due to the defined sheet thickness, it lacked inventive step. The problem to be solved was merely quantifying what was a suitably thin article according to D7 for any particular use. D7 was notably already entitled a "superthin" product. Alternatively, the skilled person's general desire to produce thinner and lighter absorbent products (acknowledged in case T 257/04) was a further problem to be solved which also led directly to the solution in claim 1. Starting from D7, it was merely a question of deciding how thin the product should be for any particular absorbent capacity. Although in col. 11, lines 23 to 25, D7 states that the compression of the sheet to a reduced thickness should not be so high that the fibers are crimped or creased, this did not teach the skilled person away from claim 1, since such would only occur if one started with a very thick uncompressed product; to make a thinner product without crimping it was evident to start with a thinner uncompressed product.

(b) *First auxiliary request*

(b1) Article 84 EPC:

Since claim 1 contained a feature introduced from the description paragraph [0073], according to which the bulky cellulose fibers were present "in an amount of 50 to 99 parts by weight per 100 parts by weight of the fiber web", a lack of

clarity resulted because the boundaries of the web and aggregate could not be distinguished from each other, in particular because these could have the same structure and be unified together according to paragraphs [115] and [136]. These needed to be distinguished to allow determination of the proportion of bulky cellulose fibers in the web of the sheet rather than in the aggregate of the sheet.

(b2) Article 56 EPC:

Despite introducing all the features of granted claim 2 into claim 1 and adding features from paragraph [0073], the sheet thickness was still the only difference compared to D7, thus the same reasons for lack of inventive step as applied to claim 1 of the main request applied equally. In particular, the feature "50 to 99 parts…", introduced from the description was implicitly present in D7 (see col. 6, line 61 to column 7, line 6) which could only be interpreted to imply that the major structure of the web was rayon fibers, rather than the interpretation alleged by appellant 1, in which rayon should only be present as an additive in a minimal amount due to its alleged lack of resiliency and bulkiness. "50 to 99 parts…" therefore covered merely the amount of rayon which would always be present in the absorbing layer of D7 when due regard was given to the small portion of other material used for its stabilisation. If regular rayon was not adequately resilient for its purpose, it would be stabilised in some way such as by using adhesive, as

understood from D19a, item 6. Furthermore, "50 to 99" was anyway merely an arbitrary choice without any described technical effect.

(c) *Second auxiliary request*

(c1) Article 83 EPC:

The value "0.3mg/m or more" for fiber roughness , which was more commonly termed fiber coarseness, defined in paragraphs [0324] and [0325], relied on setting an appropriate "lower limit" in the Kajaani FS-200 roughness meter. No lower limit value was mentioned in the patent. The influence of the lower limit on the roughness result was shown by page 9.1 of D10, right column, which stated: "Lower Limit influences the arithmetic fiber length and the number of fibers and therefore also the coarseness value." Thus determination of the coarseness value required knowledge of the lower limit, but the information for this was simply absent from the patent.

(c2) Article 56 EPC:

The introduced features had no understandable beneficial technical effect, and moreover the sheets were worse in terms of test results than sheets falling outside the claim. No inventive step could therefore be attributed to these features which were simply an arbitrary choice of parameters. This was shown by comparing Examples 14 and 16 of the patent; Example 14 was outside the claim, but exhibited vastly better

results than Example 16 falling within the claim. The document entitled "Comparative Data" concerning a variation of Example 2 of the patent, filed on 21 November 2004 by the proprietor, was not at all comparative, as the thickness of sample B' was smaller than sample B. No conclusion could be drawn from such data.

The rayon fibers in D7 were unspecified in as far as concerned the now claimed parameters. However, the rayon fibers had the same properties generally as the patent and thus it was implicit that these parameter values were present. Rayon of D7 would be a type typically used for absorbent products, which was well-known to be obtained by passing reconstituted cellulose through round openings. Thus, absent any further information, a skilled person would choose normal rayon which thus had a relatively high degree of roundness. Likewise, a denier of 3 and above for rayon was typical in the technical field, this corresponding to approximately 0.33 mg/m coarseness. Further evidence was shown in D9.

D9: Handbook for Pulp and Paper Technologists, Gray A. Smook, Second Edition, 1997, pages 17 to 19

On page 19, Table 2.4 disclosed several coarseness values for standard pulpwoods which were in the range claimed. Thus 0.3 mg/m roughness did not define a fiber having any special effect compared to any other standard cellulose fibers.

In terms of the claimed option of "cross-linking" the rayon, the purpose and effects of this were well known from D11. Example II of D11 related to wet cross-linked fibers, but col. 3, lines 18 to 24 disclosed the advantages also of dry cross-linked cellulose fibers. Likewise, D11 col. 5, lines 46 to 68, disclosed the properties of both wet and dry crosslinked fibers. Starting from D7, col. 6, lines 61 to 64, which disclosed the use of a layer returning after compression to its original thickness, D11 taught that dry crosslinked cellulose had these properties and, even though wet crosslinked fibers were used in the examples of D11, rayon was given as an example of a cellulose fiber. Since D7 however used SAP to maintain the absorbing layer compressed, it was evident that dry if not wet crosslinked fibers would be used when wishing to obtain a high loft layer when dry. No inventive skill was needed in applying the teaching of D11 to D7.

(d) *Third auxiliary request*

The same arguments applied as those made against the second auxiliary request, it being noted that crosslinking was not excluded by the claim and that crosslinking would also by itself provide an increase in coarseness value.

(e) *Fourth auxiliary request*

(e1) Rule 57a:

The use of five independent claims, compared to only one independent product claim as granted, was not responsive to a ground of opposition. The claims contained some common limitations but many which were only present in one claim. The claims did not define separate independent embodiments but simply arbitrary selections of parameters. Only one independent claim should be used and inconsistent claims deleted.

(e2) Rule 29(2) EPC:

All amendments to the patent after grant had to meet the EPC including Rule 29(2) EPC. However these were not met, since none of the criteria for the presence of multiple independent claims was present. Since lack of unity was not an objection in opposition cases, Rule 29(2) was the standard to be applied. Although the claims were essentially combinations of granted claims with parameter tests included, Rule 29(2) EPC still applied to such claims, since *arguendo* if it did not, this would allow proprietors to have, in some cases, very large numbers of independent claims merely because many dependent claims were present. This was clearly incorrect.

(e3) Remittal:

If the Board decided to allow the use of five independent claims, it was evident that these had not been the subject of a decision and their substance varied greatly so that remittal would be appropriate.

Reasons for the Decision

1. Main request

1.1 Article 123(2) EPC:

1.1.1 The objection by appellant 2 to the lack of a "thickness meter" in claim 1 concerns the disclosure in paragraph [0411] of the patent. This states *inter alia* "…the thickness of the sheet under load was measured with a thickness meter". However, since the applied load (2.5 g/cm^2) and the loaded area (10 cm^2 by a disk of radius 17.8 mm) are also specified in the same paragraph, it is evident to a skilled person that the method does not rely on use of a thickness meter to produce a measurement, but merely these specific parameters. The requirements of Article 123(2) EPC are met in this regard.

1.1.2 The thickness test for an absorbent sheet in paragraph [0411] is mentioned as one of several measurement tests following a list of examples and comparative examples, the test results then being listed in Table I. Paragraph [0432] follows a further set of examples and comparative examples and relates to measuring the

thickness of a product containing the sheet, rather than the sheet itself. Thus the reader is informed that when determining sheet thickness, only the test in paragraph [0411] is applicable. No other thickness test for a sheet is disclosed and nothing in the patent implies that the thickness test in paragraph [0411] would not be generally applicable to a sheet as claimed. This is confirmed by paragraph [0126] whereby the thickness of the absorbent sheet is also defined in the same manner as in claim 1 (i.e. thickness of 0.3 to 1.5 mm), whereby the thickness is measured under a load of 2.5 g/cm^2 which is the same applied load as in paragraph [0411]. Thus the skilled person unambiguously and directly derives that the thickness test in paragraph [0411] applies generally to sheets in the patent and not only to the examples and comparative examples. Therefore claim 1 meets the requirements of Article 123(2) EPC also in this regard.

1.2 Articles 83 and 84 EPC:

The objection of appellant 2 in this respect concerns sheets covered by claim 1 which might have a surface area themselves which is insufficient to obtain the requisite ten cut pieces of the size required. The Board concludes however that the claim only concerns sheets where a sheet sample, in accordance with the test in paragraph [0411], is available which is large enough to perform the test by obtaining ten cut pieces of the required dimension therefrom. A skilled person is therefore able to carry out the invention as claimed, wherever the required surface area is present in such a sample. If a sheet sample were not available which had the required area, this would not allow the test to be

performed and the sheet could not be said to fall within the scope of the claim. The requirements of Article 83 EPC are thus met.
Concerning the objection of appellant 2 in regard to lack of clarity, the Board finds that the steps for carrying out the test on a sheet sample of the requisite surface area, are defined clearly in terms of applied load and loaded area. No further information is needed. The requirements of Article 84 EPC are thus met.

1.3 Article 54 EPC:

Appellant 1 argues that claim 1 is novel over D7 in view of the bulky fibers, the connection of the SAP to the bulky fibers, and the sheet thickness, as defined in claim 1.

In regard to the term "bulky fibers", paragraph [0072] defines such as meaning "fibers having a three-dimensional structure such as a torsion structure, a crimped structure, a bent structure and/or a branched structure, or alternatively fibers having a thick cross-section, for example having a degree of fiber roughness of 0.3mg/m or more." The Board concludes that this terminology includes relative terms which are very broad, such as "bent structure" which can apply to any fiber which is not entirely straight and "thick cross-section" which is only exemplified, but not limited to a roughness of 0.3 mg/m or more.

The Board is not persuaded by the argument of appellant 1 that "bulky fibers" according to paragraph [0071] are not the same as those in D7 because the patent defines the bulky fibers as "forming a bulky

fiber web having a high void content…". In this regard, the Board notes that the terms "bulky fiber web" and "high void content" are both relative terms, which as such define no distinction over the rayon fibers in D7. That which is stated in paragraph [0071] does anyway not alter the definition given in paragraph [0072]. The reference to paragraph [0086] also does not assist appellant 1 in this regard, since the term "high bulk additive" is anyway a relative term viewed from a manufacturer's perspective which thus cannot serve to define the term "bulky fibers" any further.

The fact that D7 does not disclose specific values of roughness, roundness or crosslinking (as used in the patent) is not considered relevant since these values are also not in claim 1 of this request.

Thus the Board concludes that the contested feature "bulky (cellulose) fibers" is present in D7 by virtue of the rayon fibers disclosed in col. 6, line 61 to col. 7, line 12, whereby said fibers are, by their nature, implicitly stabilised either by adhesive or heat-through bonding when used to form such a web of high loft with resiliency allowing return to original thickness after dry compression.

Concerning the contested feature of the SAP being "adhered and fixed to the hydrophilic fibers", which are also "the bulky cellulose fibers", the Board concludes that D7 discloses this feature. The description of the absorbing layer in D7, col. 6, line 61 to col. 7, line 11 states a number of possibilities for the web fibers which produce a high loft web which upon dry compression followed by release

has a tendency to return to the original thickness. Immediately following this, the following is stated: "However, cellulosic fibers, such as rayon, may be used." This is continued by noting that stabilisation is used "if needed", including a list of the appropriate methods for stabilisation. The skilled person presented with this information is therefore taught that rayon constitutes in this case substantially the entire fiber content of the absorbing layer and should be suitably stabilised wherever the inherent properties of the rayon chosen do not give the required characteristics.

Contrary to the argument of appellant 1, there is no reason for rayon being present in only a small amount in the D7 absorbing layer. It is not questioned that documents D19 and D19a indeed show that an "ordinary rayon" may have low elastic recovery and bending stiffness. However, even if "ordinary rayon" of the type in D19/D19a were to be used in D7, D7 states that "if needed" it is anyway to be stabilised.

Since the SAP is dispersed intermittently in the absorbing layer and fixed therein (see e.g. col. 5, lines 2 and 3 and col. 7, lines 20 to 25), the contested feature is known.

The final contested feature relates to the thickness of the absorbent sheet. In this regard, while D7 deals with "superthin" sheets, this is however a relative term without defined limits, so the title superthin does not by itself mean a thickness somewhere between 0.3 and 1.5 mm. The statement in col. 6, lines 19 to 22, that a sheet comprising two superposed sheet structures

would provide a napkin of "less than half the thickness of the conventional fibrous batt napkin" is also relative, because the thickness of a "conventional" sanitary napkin is again unspecified and has no generally implicit value. The same reasoning applies to the absorbent structure of D7 being less than one third of the thickness of a commercial fluff diaper (see e.g. col. 5, lines 65 to 68), which again allows no unambiguous information on the thickness to be gleaned.

Whilst D7 quotes ranges of dry bulk and weight values from which thickness can theoretically be calculated, it is not clear which specific values would apply to rayon when rayon is used to form the absorbing layer. Also, since the test procedure for thickness involves a particular applied load, it cannot be stated with certainty that when the same load area (as in the patent) is used in D7, it would result in a layer having a thickness lying within the range claimed. Whilst choosing the two end points of the bulk and weight ranges in D7 would indeed result in a very thin sheet product, it cannot be concluded that the two end points would ever be chosen in combination. A "worse case scenario" giving the highest thickness, as alleged by appellant 2, is not present when choosing the two end points, since a higher dry bulk would give increased thickness and dry bulk is quoted in D7 only as a minimum value.

The SAP particles have no noticeable effect on thickness in D7 due to the disclosure in e.g. col. 5, lines 39 to 43 of D7, which indicates that even when in compressed state and when the SAP is softened by liquid, liquid may still pass between the SAP particles. This

implies that there is sufficient space between the particles when compressed (i.e. the form of the sheet before liquid absorption) such that they do not interfere with each other, which in turn implies that they would not affect the thickness parameter.

Thus, the Board concludes that only the feature "a thickness of 0.3 to 1.5 mm" when measured by the test defined in claim 1, is not unambiguously derivable from D7. The requirements of Article 54 EPC are thus fulfilled having regard to the prior art cited against claim 1.

1.4 Article 56 EPC:

The problem to be solved over D7 according to appellant 1 (due to the sole differentiating feature of the sheet thickness dimension), is to provide better handling characteristics while maintaining good absorption capacity. The Board however concludes that this problem is not objective starting from D7, in particular because the absorption characteristics obtained are, also according to appellant 1, the result of the use of bulky fibers, which the Board has already decided are present in D7 (see the conclusions under Article 54 EPC above). The Board, in line with the argument of appellant 2, thus concludes that the objective problem is merely to provide an adequately thin product falling in line with the general and well known trend of development of such absorbent articles aimed towards thinner and lighter products with sufficient absorbency. "Better handling" characteristics of such a product are merely the result of using a thin product. With this in mind, D7 is indeed a "superthin" product (see title and

e.g. column 5, line 57: "exceptionally thin") with absorbency allegedly equal to that of conventional products. Producing a thin web, in this case an absorbent sheet, with a specified thickness dimension, therefore does not involve an inventive step for a skilled person, since the thickness will depend merely on how much liquid needs to be absorbed for any particular application (e.g. if less liquid needs to be absorbed, the sheet can be thinner). Moreover, no specific absorption capacity requirement has to be met according to claim 1, so no limitation to a balance of absorption and thickness exists which might objectively deter a skilled person from making the D7 sheet as thin as desired.

The argument of appellant 1 that D7 teaches away from making such a thin sheet because of the need to avoid pressures which are too high, is found to be unconvincing. For the Board, avoiding too high a pressure when producing the sheet merely means that the web initial thickness before compression must be chosen to be small. Likewise, concerning the argument of appellant 1 that the process used in the patent and that in D7 are not the same and thus no teaching of how to provide a very thin product is given, this does not affect the aforegoing finding because the method of production is firstly not a feature of claim 1 and secondly the skilled person is anyway well aware that any particular thickness of the web in D7 can be obtained merely by starting with an appropriate initial web thickness.

The subject matter of claim 1 therefore lacks an inventive step and consequently claim 1 does not meet the requirements of Article 56 EPC.

2. First auxiliary request

2.1 Article 84 EPC:

Contrary to the objection of appellant 2, the Board concludes that the "web" and "aggregate" portions of the sheet defined in claim 1 are distinguishable, since the web and aggregate are produced as separate sheets as disclosed in paragraph [0027]. Thus even when the aggregate and web have the same formulation as in paragraph [0115], the nature of combining these sheets (see e.g. paragraph [0136]), will still allow the boundaries of the sheets within such a unified body to be identifiable. Appellant 2 has merely alleged that the web and aggregate would not be adequately identifiable, without providing any proof that this would in fact be the case.

Claim 1 thus meets the requirement of clarity in Article 84 EPC.

2.2 Article 56 EPC

Apart from the sheet thickness, already discussed with respect to the main request, the only additional contested difference is the quantity of rayon fibers within the absorbing layer of D7. Although appellant 1 maintained the view that the amount of rayon had to be minimal in the absorbing layer of D7 based on the properties of "ordinary rayon", the Board has already

concluded (see the conclusions on the main request made above) that D7 does not lead to that interpretation. The meaning of D7, col. 6, line 6 to col. 7, line 12 is thus that the rayon should form the main part of the fibrous web such that when suitably stabilised the weight contribution of said stabilisation by adhesive or thermal fibers would only constitute a few weight percent of the entire web. The amount of rayon fibers within the web would thus implicitly fall within the broad range of 55 to 99 parts by weight per 100 parts by weight of the absorbent layer of D7, which layer corresponds to the "web" of claim 1.

The only difference of claim 1 over D1 thus remains the thickness dimension of the sheet. The subject matter of claim 1 therefore lacks an inventive step over D7 for the same reasons as apply to the main request.

Claim 1 thus fails to meet the requirements of Article 56 EPC.

3. Second auxiliary request

3.1 Article 83 EPC:

Although D10 states on page 9.1, right column, that the coarseness value will be influenced by the "lower limit" setting, the information on page 9.2 in the form of a printer report shows that "lower limit" is set to "0.00". Thus, setting a lower limit value above 0.00 to thereby exclude some of the shorter length fibers is not a requirement of the Kajaani FS-200 coarseness meter. Furthermore, D16 indicates on page 7.4, left column, that the use of the functions "upper limit" and

"lower limit" is for cutting away portions of the result on the X-axis. Although appellant 2 stated that this was merely an extra feature of the "lower limit" function which did not override the requirement to set it initially, this has not been proven. Finally, the patent itself contains no disclosure of any need to exclude some of the fibers when measuring the coarseness value. Thus the Board concludes that the test method for fiber roughness given in claim 1 is sufficiently clear and complete for a person skilled in the art to carry out the invention. Based on the facts and evidence available, the requirements of Article 83 EPC are therefore met.

3.2 Article 56 EPC:

Whilst it is theoretically possible to produce cellulose fibers having a largely non-round cross-section with less than 0.5 roundness as shown by D18, the D18 rayon fibers do not relate to use in absorbent products. D18 deals with rayon yarns of "unusual" shape and texture (see D18 translation, page 2, line 2 and line 8) as well as with irregular shaped yarns (see heading of section "d" on page 1). One use of such a yarn is given as "decoration and interior furnishings". The Board therefore concludes that D18 is unrelated to normal rayon and unrelated to the type of rayon which would be present in absorbent products. It is well known to a skilled person that rayon used in absorbent products is typically produced by extrusion of regenerated cellulose through a nozzle which is, within manufacturing tolerances, circular. Thus the normal form of rayon has a roundness value approaching 1. Thus, even though no roundness value is quoted in D7, absent

any further information to the contrary, the skilled person would consider it normal practice, merely when carrying out the instruction of D7, to try using rayon with such a roundness value. No inventive skill is therefore required for selecting such a roundness value. Moreover, since even very thin fibers can evidently have high roundness values (see e.g. paragraph [0267] of the patent), no beneficial absorbency effect due to alleged "bulkiness" of such fibers can be attributed to roundness alone.

The use of a roundness value as defined in claim 1 consequently contributes nothing towards inventive step.

A further possibility for the bulky cellulose fibers in claim 1 is that they be crosslinked fibers. Starting from D7, requiring a resilient and high loft layer of e.g. rayon, which is held compressed by the SAP (see col. 11, lines 8 to 25), the skilled person when searching for suitable forms of rayon, would look to other prior art useful for this purpose. D11 relates to sheets for absorbent products of the type in question (see e.g. col. 1, lines 11 to 15). It is further disclosed that cross-linking increases resiliency (col. 5, lines 31 to 69) whereby wet cross-linked rayon is given as an example in the table of values in column 5. Whilst the invention in D11 concentrates on wet cross-linked fibers (see col. 2, lines 4 to 20 and col. 5, lines 31 to 69), it is likewise also disclosed that dry cross-linked fibers have a high resiliency in the dry state and the wet state but that they are simply more difficult to compress when dry, this being due largely to the characteristics of dry cross-linked fibers disclosed in e.g. col. 3, lines 18 to 28. A

skilled person therefore receives the information that the dry cross-linked fibers exhibit the desired properties for use in D7.

Appellant 1 argued that D7 and D11 are incompatible because one relied on the use of SAP and one did not use SAP. However, even though the resiliency of the dry cross-linked fibers is seen as disadvantageous in D11, it is noted that D7 (published more than twenty years later than D11, and being the starting point for assessing inventive step), already teaches that SAP (which came into common use in absorbent products only long after D11) is used to hold the layer of rayon fibers in a compressed state. Thus the skilled person would not regard the documents as being incompatible, but would, without inventive skill, readily extract the relevant information taught by D11 that dry cross-linked fibers would be highly suitable when selecting suitable rayon fibers for use in D7.

The argument of appellant 1 that the bulk value present in the examples of a 4-inch and 6-inch rayon strip did not meet the minimum bulk value set in D7, relates to strips of wet cross-linked fibers of which the dimensions are noted at a time after the absorbency test and where the samples are initially compressed by a cylindrical die (col. 6, lines 38 to 42), i.e. something not used in D7 for measuring dry bulk. More importantly, it is primarily the teaching of D11 that high dry resiliency can be achieved by using dry cross-linked cellulose fibers which, even when this information is taken by itself, would lead the skilled person to adopt the teaching from D11 that dry cross-linked fibers will be suitable for D7.

The use of cross-linking as defined in claim 1 consequently contributes nothing towards inventive step.

At least for each of the aforegoing reasons, the subject matter of claim 1 lacks inventive step and thus the requirements of Article 56 EPC are not met.

4. Third auxiliary request

4.1 Article 83 EPC:

The same reasons as apply to the second auxiliary request apply equally to the third auxiliary request. The requirements of Article 83 EPC are thus fulfilled.

4.1 Article 56 EPC:

In this request the bulky fibers are limited to a roughness value of 0.3 mg/m or more, which gives a certain degree of thickness to the fibers, providing thereby interstices between the fibers which are generally larger than those of a web of fibers of a lesser value.

The Board concludes that fiber coarseness values are equivalent to other more commonly used parameters adopted for this measurement, for example denier. Indeed, the statement of appellant 2 that a value of 3 denier was equivalent to approximately 0.33 mg/m was unchallenged and also the Board concludes that the conversion provided by appellant 2 is correct. A value of 3 denier is very common for rayon fibers and Example II in D11 also uses such rayon staple fibers

which, before wet cross-linking, are 3 denier. After cross-linking (whether dry or wet) as in D11, such cross-linking not being excluded by claim 1, the coarseness value would be higher. Thus the skilled person, armed with the knowledge of D7 to use SAP to maintain the absorbent sheet compressed after release, would at least be expected to try using the same rayon fibers as in D11 when selecting dry cross-linking. Furthermore, it cannot be overlooked that even the roughness values of several standard pulpwood cellulose fibers (see e.g. Table 2.4 of D9) are at or above the claimed value, which was also not contested by appellant 1, which further emphasises that a fiber roughness value above 0.33 mg/m cannot be seen to have any effect beyond that normally expected.

Appellant 1 contended that when choosing to make a sheet of the thickness in claim 1, the skilled person would be dissuaded from using fibers having a roughness of 0.3 mg/m or more. The Board however finds no support for such an argument, not least since D7 for example concerns using a high loft layer and a tendency to return to original thickness, thereby already implying relatively large interstices between fibers but still allowing a "superthin" sheet to be formed. Moreover, merely because thicker fibers are used does not detract from the fact that a thin web can be produced by starting from a thinner web using such fibers in the first place before compressing the web.

The additional fact that the patent states that the increase in its thickness is caused by swelling SAP and not resilient forces, as in paragraph [0126] is not relevant to the claimed subject matter, since the sheet

of claim 1 does not exclude resiliency in the fiber structure.

Nor is there any support for the proprietor's argument that its "comparative data" filed on 21 November 2004, regarding a variation of Example 2, proves a beneficial technical effect of such fibers. The "additional data" in Table 2 has a thickness ("0.54") which is significantly less than that of Example 2 ("0.72"), so the fact that the rate of absorption is worse than in Example 2 does not allow a conclusion to be drawn that this is a result of fiber thickness. Certainly by comparison of Example 14 and Example 16 in the patent, where Example 14 uses a roughness value of 0.24 mg/m and Example 16 uses 0.35 mg/m with a small difference in roundness value, the results for Example 14 are markedly better. Selection of a value of 0.3 mg/m or more therefore has not been shown to provide any beneficial effect.

Consequently, the Board concludes that a value of roughness of 0.3 mg/m or above is a value of roughness which a skilled person starting from D7 would consider as a typically used value in the technical field concerned, as for example known from D11. It would thus be obvious to select such a value for rayon when using the teaching of D7 and combining this with either common general knowledge or the information from D11.

The subject matter of claim 1 thus lacks inventive step and the requirements of Article 56 are consequently not met.

5. Fourth auxiliary request

5.1 Rule 57a:

The subject matter of the granted claims (in particular independent claim 1) required amendment in order to meet a ground of opposition. Thus the amendments, as such, result from a ground of opposition.

The subject matter of granted claims 12 to 16, each of which was dependent on claim 2 (which was itself dependent on claim 1) forms the basis of independent claims 1 to 5 of this request. Amendments have been made in all of these claims only to meet common objections under Article 83 EPC arising during appeal proceedings. Thus, the subject matter of each of the dependent claims 12 to 16, which, by virtue of being a dependent claim, includes the features of claims on which these claims themselves depend (see Rule 29(4) EPC), has remained substantially unchanged compared to the granted claims.

Protection was therefore provided by the granted patent for the subject matter of each of claims 12 to 16, independently of one another.

No claims have been added to those as granted. Claims have simply been deleted. Thus, the subject matter of these claims has always been present in the granted patent.

Considering the features in each of claims 12 to 16, there also appears to be no reasonable way to encompass

the subject matter of these claims by a lower number of independent claims.

Further, whilst it may have been possible to file divisional applications for each of the independent claims during prosecution of the application, this possibility is no longer available to appellant 1. Merely because the facts leading to the necessary amendment of the (granted) claims were not known before the patent was granted, cannot, in the Board's judgement on the present case, be used to force the patent proprietor to abandon protection for possibly valid subject matter.

Indeed, in the present case, the patent is lengthy and contains a large number of separate embodiments, including embodiments related particularly to the independent claims now on file. Thus, the granted claims also reflect fall-back positions which relate to the disclosed embodiments, rather than purely arbitrarily chosen combinations of features.

Due to the aforegoing, the Board concludes that the amendments made, in this case, have been occasioned by grounds of opposition and thus that the requirements of Rule 57a EPC are met.

5.2 Rule 29(2) EPC:

Although the amended claims of this request were filed in 2006, the Rule 51(4) EPC communication in this case is dated 17 March 2000. Thus the Board concludes that the version of Rule 29(2) EPC which might be applicable to this case (if Rule 29(2) EPC were at all applicable)

is the version existing before the amendments made by the Administrative Council's decision of 13 December 2001, which entered into force on 2 January 2002. That decision states that the amended Rule only applies to applications where the Rule 51(4) EPC communication had not been dispatched by 2 January 2002. The version of Rule 29(2) EPC in force (before the decision of the Administrative Council of 13 December 2001) stated:

"Subject to Article 82, a European patent application may contain two or more independent claims in the same category (product, process, apparatus or use) where it is not appropriate, having regard to the subject matter of the application, to cover this subject matter by a single claim".

In the present case, even if Rule 29(2) EPC should be considered applicable to opposition cases, the subject matter in the granted claims cannot appropriately be covered by one independent claim and thus the Board concludes that the requirements of this Rule would be met.

If, in the alternative, it were to be decided that Rule 29(2) EPC did not apply to opposition cases at all, by virtue of the wording of Rule 29(2) which relates to a European patent "application" and not to a granted patent, then no objection under this Rule would exist against the form of the claims. Therefore, the question as to whether Rule 29(2) EPC applies to opposition cases does not need to be decided in the present case.

5.3 Remittal:

The Board agrees with the comments of appellant 2 that, although the subject matter of the independent claims was substantially already in the granted claims, the decision of the opposition division no longer has sufficient bearing on the claims of this request, such that a re-opening of opposition proceedings to continue same in regard to the new independent claims is appropriate.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The main request and auxiliary requests 1 to 3 are rejected.

3. The case is remitted to the opposition division for continuation of the opposition proceedings.

The Registrar: The Chairman:

C. Vodz P. Alting van Geusau