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**Datasheet for the decision  
of 28 November 2008**

**Case Number:** T 0355/07 - 3.2.05

**Application Number:** 99934760.2

**Publication Number:** 1105570

**IPC:** D21G 7/00

**Language of the proceedings:** EN

**Title of invention:**

Method for manufacturing calendered paper

**Patentee:**

Metso Paper, Inc.

**Opponent:**

Andritz Küsters GmbH

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 56

**Relevant legal provisions (EPC 1973):**

EPC R. 65

**Keyword:**

"Admissible of the appeal - yes"

"Transfer of opponent status - yes"

"German utility model made available to the public as of the date of entry in the register - confirmed"

"Inventive step - yes"

**Decisions cited:**

T 0163/05

**Catchword:**

-



Case Number: T 0355/07 - 3.2.05

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.05  
of 28 November 2008

**Appellant:** Andritz Küsters GmbH  
(Opponent) Eduard-Küsters-Strasse 1  
D-47805 Krefeld (DE)

**Representative:** Henseler, Daniela  
Rethelstrasse 123  
D-40237 Düsseldorf (DE)

**Respondent:** Metso Paper, Inc.  
(Patent Proprietor) Fabianinkatu 9 A  
FI-00130 Helsinki (FI)

**Representative:** TBK-Patent  
Bavariaring 4-6  
D-80336 München (DE)

**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 3 January 2007  
rejecting the opposition filed against European  
patent No. 1105570 pursuant to Article 102(2)  
EPC 1973.

**Composition of the Board:**

**Chairman:** W. Zellhuber  
**Members:** H. Schram  
M. J. Vogel  
P. Michel  
E. Lachacinski

## Summary of Facts and Submissions

I. The firm Andritz Küsters GmbH & Co. KG (henceforth appellant), alleged successor in title to the original opponent Eduard Küsters Maschinenfabrik GmbH & Co. KG as from 11 May 2006, lodged an appeal on 26 February 2007 against the decision of the Opposition Division posted on 3 January 2007 rejecting the opposition against European patent No. 1 105 570, based on Article 100(a) EPC (lack of novelty, Article 54 EPC, lack of inventive step, Article 56 EPC). A statement setting out the grounds for appeal was filed on 28 April 2007. The appellant changed its name into Andritz Küsters GmbH as from 27 August 2007.

II. Oral proceedings were held before the Board of Appeal on 28 November 2008.

III. The appellant requested that the decision under appeal be set aside and that the patent in suit be revoked.

The respondent (patent proprietor) requested:

- (i) as a main request, that the appeal be rejected as inadmissible; or
- (ii) as first auxiliary request, that the appeal be dismissed as not allowable; or
- (iii) as second to eighth auxiliary request, that the decision under appeal be set aside and the patent in suit be maintained on the basis of the sets of claims filed as second to eighth auxiliary request, respectively, on 25 September 2007.

As a further auxiliary measure, the respondent requested to amend the fourth to eighth auxiliary requests by cancelling the amendment (underlined) in "the paper manufactured is SC paper of at least SC-A, SC-B or SC-C paper grade".

IV. The following documents were *inter alia* referred to in the appeal proceedings:

D2 DE 298 13 663 U1

D4 *Calendering of a moistened woodfree uncoated paper*, Granberg, A. et al., Nordic Pulp and Paper Research Journal no. 3/1996, pages 132 to 136, 140.

D6 *The Role of Nip Temperature and Surface Moisture in the Calendering and Supercalendering Processes*, Jackson, M. and Gavelin, G., Svensk Papperstidning 1966, No. 5, pages 131 to 138.

D13 DE 43 01 023 C2

D15 *Hard-nip and soft-nip calendering of uncoated groundwood papers*, Crotogino, R. and Gratton, M., Pulp & Paper Canada 88:12, 1987, pages 208 to 216.

D17 US-A 5,378,497

V. Claim 1 of the patent as granted (first auxiliary request) reads as follows (labelling of the features by the letters a) through g), j) and k) by the Board):

- a) "1. Method for manufacturing calendered paper, in which paper (W) is calendered after drying, wherein the method comprises the following stages:
- b) - drying (D) of the paper down to a moisture of under 7% lower than the target moisture of calendering,
- c) - wetting (1) of the paper after drying to the target moisture of calendering of over 7,5%, and
- d) - multi-nip calendering of the paper in the target moisture when the paper runs via wetting to a multi-nip calender (C)
- e1) - at least one of the surface layers of the paper is wetted in the wetting by metering moistening water in such a way that the moistening water is absorbed in the surface layer (W1, W2) of the paper
- e2) while the central layer remains substantially in the moisture to which the paper was dried,  
characterized in that
- f) - the paper manufactured is SC paper grade,
- g) - from the paper wetted at least on one of its sides, gradient SC paper is manufactured by means of gradient multi-nip calendering, having over 4 nips and being of the type where successive nips are formed between rolls superimposed in a stack of calender rolls including rolls with metal and polymer surfaces,
- j1) by restricting the paper-moulding effect of the multi-nip calender to the wetted surface layer (W1, W2) in such a way that the central layer of the paper is elastically

- restored substantially in its original state,
- j2) and a density difference in the thickness direction is attained in the SC paper while the central layer remains in a density lower than that of the surface layer (W1, W2),
- k) - the obtained gradient SC paper is reeled (R)."

VI. The arguments of the appellant, in writing and during the oral proceedings, can be summarized as follows:

*Admissibility of the appeal*

The findings in the decision T 163/05 of Board of Appeal 3.2.07 dated 8 April 2008, wherein it was held that the final appellant in that case, Andritz Küsters GmbH, resulting from transfers, changes of name and conversions during the appeal proceedings, was the successor in title to the original opponent in that case, Eduard Küsters Maschinenfabrik GmbH & Co. KG (see point 1 of the Reasons) applied to the present case. The appeal was thus admissible.

*German utility model (document D2)*

Document D2 was a specification of a German utility model registered on 26 November 1998. German utility models were considered publicly available as of their date of entry in the Register so that document D2 represented prior art in terms of Article 54(2) EPC.

*Inventive step*

Document D2 represented the closest prior art. In the decision under appeal the Opposition Division held that only two features of claim 1 as granted (cf. features e2 and j2 of claim 1 of the auxiliary request) were not known from document D2. However, document D2 referred on page 5, line 27, to document D13. Document D13 taught (see column 2, lines 51 to 65, and column 10, lines 1 to 13) that the web was advantageously moistened just before it entered the calender nip 4, so that the moisture did not have time to enter the inner layer of the web when it was calendered, cf. features e2 and j2. The person skilled in the art, starting from the method for manufacturing calendered paper known from document D2, seeking to simplify the known method, would dispense with the first wetting step proposed by document D2, since the second wetting step and the subsequent multi-nip calendering ("gradient multi-nip calendering") alone improved the paper surface quality (gloss and smoothness) as taught by document D13, and he or she would thus arrive at the subject-matter of claim 1 of the auxiliary request without exercising inventive skills. The first wetting step merely served to homogeneously wetting the web immediately after drying to the hygroscopic equilibrium value of the finished paper in ambient conditions during storage. The teaching of document D13, namely that during moisture gradient calendering the central layer remained substantially in the moisture to which the paper was dried, was also known from document D4 (see eg Table 1 on page 133, left column, whereby the moisture content was 3,7% in the as-received state) and D15 (see page 215, left column, lines 7 to 12).

According to document D6 the paper had to be dried down to below 5% moisture, since the plasticity of the paper increased considerably at moisture contents in the range of from 8 to 12%, cf. page 138, right column, lines 9 to 13, and page 132, right column, lines 1 to 5. The purpose of step b) of the method according to claim 1 of the auxiliary request, viz. drying (D) of the paper down to a moisture of under 7% lower than the target moisture of calendering, was very similar to the purpose of the first wetting step in the method known from document D2, namely to give the central layer of the web a moisture content that was compatible with the hygroscopic equilibrium value of the paper in ambient conditions during storage. The person skilled in the art knew from document D17 that a paper web having about 3 to 20% moisture at the center of the web could be moisture gradient calendered. It followed that a combination of document D2 with either document D4 (plus document D15), document D6, or document D17 would also lead the person skilled in the art to the claimed invention.

- VII. The respondent's arguments, in writing and during the oral proceedings, can be summarized as follows:

*Admissibility of the appeal*

The appellant could not be recognized as the successor in title to the original opponent, Eduard Küsters Maschinenfabrik GmbH & Co. KG, because the excerpt of the commercial register HRA 5348, Amtsgericht Krefeld, merely mentioned Eduard Küsters Maschinenfabrik GmbH & Co. KG as "Kommanditist" (silent or sleeping partner) of Küsters Technologie GmbH & Co. KG. In the present



case the alleged transfer took place during the opposition proceedings, whereas in the case considered in the decision T 163/05 (loc. cit.) the alleged transfer took place during the appeal proceedings. Moreover, case T 163/05 concerned an opposition to a different patent. No evidence was filed that the partial businesses "Non-woven" and "Papier" were actually transferred from Eduard Küsters Maschinenfabrik GmbH & Co. KG via Jagenberg AG to the appellant, now Andritz Küsters GmbH, and no evidence was filed that the opponent status in the present case belonged to these partial businesses. The appeal filed on behalf of the appellant should therefore be rejected as inadmissible.

*German utility model (document D2)*

The German utility model was registered on 26 November 1998, just one day prior to the validly claimed priority date of the patent in suit. The date of registration was the date on which a list was laid open for inspection at the branch office of the German Patent and Trademark Office (DPMA) at Zweibrückenstraße 12 in Munich. It was practically impossible for a member of the public to get knowledge of the content of document D2 on said day, because (i) the list contained several hundred entries, (ii) the list merely indicated the IPC class and the DPMA file number of German utility models, and (iii) the files itself could only be inspected upon request at another branch office of the DPMA at Cincinattistr. 64 in Munich. It was not proved that a member of the public actually inspected the file corresponding to document D2 on that very day.

Document D2 was not therefore state of the art for the patent in suit.

*Inventive step*

Document D2 was completely silent about the manufacturing of gradient paper according to feature g) of claim 1 of the auxiliary request. It was also silent about any reel up (cf. feature k), and silent about the overall moisture of the web before entering the calender nip (the range of 12 to 25% mentioned on page 12, lines 30 and 31 related only to a surface layer of the web). The subject-matter of claim 1 of the auxiliary request differed from the method for on-line manufacturing of calendered paper of SC-A paper grade known from document D2 in the features e2, g, j1, j2 and k. It was the object of the invention to provide an integrated manufacturing method for manufacturing gradient SC paper comprising low density, greater thickness and higher stiffness at the same surface quality. This object was achieved by the method for manufacturing calendered paper comprising the features of claim 1 of the auxiliary request. In particular, the web was wetted so that the central layer maintained the dryness or moisture which was produced in the drying step and water was absorbed in the surface layer(s) of the web only. Accordingly, the surface layer(s) were permanently compressed providing the required surface quality, whereas the dry central layer was elastically compressed and restored in its original state. The method known from document D2 required that the web was moistened completely by means of the steam moistener 7 in a first wetting step. The second wetting step performed by steam moisteners 19, 19' was not

appropriate for significantly increasing the overall moisture content of the web (as explained in eg document D13, column 3, lines 24 to 30), its purpose was merely to establish a temperature gradient, see document D2, page 12, lines 8 to 20. It was therefore not obvious to the person skilled in the art starting from document D2 to omit the wetting device 7.

Considering a combination of document D2 with any of the documents D4 (+ document D15) or D6 could not lead to a different conclusion. Document D4 was a report about test calendering of wood free uncoated paper in a pilot equipment (see page 132, left column, first paragraph of the Summary). The aim was to investigate how gradient moistening (water, not steam) just before the single calender nip operated at different speeds affected the paper properties, whereby homogenously wetted paper and unwetted paper having a moisture content of 10,5% and 3,7%, respectively, served as references (see table 1 on page 133, left column).

Documents D6 was a report about investigations about the effect of web moisture content and web temperature during calendering on the physical, optical and printability properties of paper, see page 131, first paragraph. Document D6 did not concern SC paper, and the tests were carried out on a single nip laboratory calender, see Figure 1 on page 132, left column.

Moreover, the passage on page 138, right column, lines 9 to 13, of document D6 cited by the appellant did not give any hint regarding the overall moisture after wetting.

## Reasons for the Decision

### MAIN REQUEST

#### 1. Admissibility of the appeal

Andritz Küsters GmbH & Co. KG is named in the decision under appeal as the opponent with the remark: "*opponent has changed from Eduard Küsters Maschinenfabrik GmbH & Co. KG*", see point 1.2 of the Reasons. In said decision the opposition against the patent in suit was rejected. Andritz Küsters GmbH & Co. KG was thus adversely affected by said decision and was entitled to appeal, Article 107 EPC.

The appeal was correctly filed in the name of Andritz Küsters GmbH & Co. KG ("appellant"), see point I above. The appeal thus complies with Rule 64(a) EPC 1973. It also complies with Articles 106 and 108, and with Rule 1(1) and Rule 64(b) EPC 1973, and is therefore admissible, Rule 65 EPC 1973(cf. Rule 101 EPC).

Consequently, the main request of the respondent is rejected.

#### 2. *Transfer of opponent status*

Article 110 EPC provides that if the appeal is admissible, the Board of Appeal shall examine whether the appeal is allowable.

A prerequisite for examining the appeal on its substantive merits is the question, whether the appellant can be recognized as the successor in title

to the original opponent, Eduard Küsters Maschinenfabrik GmbH & Co. KG.

Another Board of Appeal, Board 3.2.07, has decided in its decision T 163/05 dated 8 April 2008, "*that the opposition was transferred **along with the relevant business assets** from Eduard Küsters Maschinenfabrik GmbH & Co. KG to Küsters Technologie GmbH & Co. KG at 23.56h on 31 December 2005*", see point 1.2 of the Reasons (emphasis added by the present Board). Küsters Technologie GmbH & Co. KG changed its name to Andritz Küsters Technologie GmbH & Co. KG on 11 May 2006, which later on was converted to Andritz Küsters GmbH with effect from 27 August 2007, see point 1.4 of the Reasons of decision T 163/05. In said decision the business assets relevant to the opposition/appeal proceedings were identified as "Non-woven" and "Papier".

In the judgement of the Board, the reasoning in decision T 163/05 with respect to the party status of Andritz Küsters GmbH & Co. KG in that case (see points 1.1 to 1.5 of the Reasons of said decision) can be applied to the present appeal case, since in the present case the opposition was transferred along with the same business assets as identified in case T 163/05, viz. "Non-woven" and "Papier" (see point 1.1 of the Reasons of said decision, last paragraph), because both the opposed patent in case T 163/05 and the opposed patent in the present case are in the technical field of paper manufacturing, more particularly in the field of manufacturing calendered paper (the title of the opposed patent in case T 163/05 is *Method and apparatus for calendering paper*, Int.

Cl. D21G 1/02, and the title of the opposed patent in the present case is *Method for manufacturing calendered paper*, Int. Cl. D21G 7/00).

The fact that in case T 163/05 the transfers, changes of name and conversions all took place during the appeal proceedings, whereas in the present case the transfers, changes of name (with the exception of the change of name to Andritz Küsters GmbH as from 27 August 2007) and conversions took place during the opposition proceedings cannot lead to a different conclusion: In the present case the appeal was correctly filed in the name of the party adversely affected by the decision under appeal (see point 1 above).

FIRST AUXILIARY REQUEST

3. *Is document D2 prior art within the meaning of Article 54(2) EPC?*

The patent in suit validly claims the second priority date of 27 November 1998. The state of the art of the patent in suit thus comprises "everything made available to the public ... before the date of filing of the European patent application" (cf. Article 54(2) EPC). In the present case the date of filing is 27 November 1998, since the first (earliest) priority date of 10 July 1998 is not validly claimed.

Document D2 is a German utility model having 26 November 1998 as its date of entry in the register of utility models of the German Patent and Trademark

Office (DPMA), i.e. the day before the date of filing of the European patent application.

The date of entry corresponds to the date on which a list (typically containing several hundred entries and indicating the IPC class and the DPMA file number of German utility models for each entry) is laid open for inspection at the premises of the DPMA. A member of the public is allowed to inspect any file from that list as of said date.

The theoretical possibility of having access on 26 November 1998 to the information contained in document D2 renders it available to the public as of said date, it is not relevant whether on that date a member of the public actually inspected the file.

Consequently, document D2 is prior art within the meaning of Article 54(2) EPC.

#### 4. *Objection of lack of inventive step*

- 4.1 Document D2 represents the closest prior art. This document discloses (see page 9, line 1, to page 13, line 22, and the sole Figure) a method for on-line manufacturing of calendered paper of SC-A paper grade comprising the following stages: a paper web is dried down to a moisture of 3 to 7%, and cooled down in an intermediate cooling zone ("Zwischenkühlabschnitt 2"); in a first wetting step ("Nachfeuchten") the paper web is homogeneously rewetted (steaming device 7) to a moisture of 7 to 11,5% (page 8, lines 14 to 20, page 9, line 31, to page 10, line 2, and page 11, lines 14 to 28), and cooled down again in a second cooling zone

("Kühlabschnitt 10"); in a second "gradient" wetting step the paper web is wetted again by steaming devices 19, 19' immediately before the paper web enters the first nip 15<sub>1</sub> of a stack of calender rolls 16, 17 having 11 nips, whereby the paper web may be rewetted ("Nachfeuchten") immediately before the paper enters each further nip 15<sub>2</sub> to 15<sub>11</sub> by steaming devices 21 with a view to compensate for the moisture loss in the previous nip(s) (page 8, lines 8 to 12, page 10, lines 26 to 30, and page 13, lines 4 to 13). The second wetting step causes a transient temperature gradient (page 12, lines 8 to 20, and page 12, line 33 to page 13, line 2) and a moisture gradient (page 12, lines 20 to 32) that still exist when the paper web enters the first nip and which have the effect that during the subsequent multi-nip calendaring the central layer of the paper web is less compressed than the wetted outer layer(s) (see page 4, lines 29 to 33, page 5, lines 26 to 31, and page 7, lines 2 to 7). The paper web absorbs only a small amount of moisture in the second wetting step (page 5, lines 11 to 13, and page 12, lines 12 to 15).

The first and second wetting steps are essential steps in the method for on-line manufacturing of calendered paper of SC-A paper grade according to document D2 (page 3, lines 21 to 35, and claim 1). The optional rewetting ("Nachfeuchten") before the paper enters each further nip 15<sub>2</sub> to 15<sub>11</sub> (see eg page 8, lines 8 to 12, and claim 7 of document D2) and the optional second cooling step ("Zwischenkühlung", cf. page 6, lines 24 to 27, wherein the second cooling step is described as "..., daß die Papierbahn ... (erneut) zwischengekühlt wird") (see eg claim 2 of document D2) may further



enhance the Hunter gloss of the SC-A paper (page 13, lines 24 to 28).

- 4.2 The appellant has argued that the reference to rewetting ("Nachfeuchten") in the passage on page 13, lines 24 to 28, of document D2 cited above, referred to the first wetting step (rather than to the rewetting in the nips 15<sub>2</sub> to 15<sub>11</sub>) and concluded that document D2 taught that the first wetting step was an optional step and could be omitted.

This cannot be accepted by the Board. The thrust of document D2 is to feed the paper web to the multi-nip calender with a high amount of homogeneously distributed initial moisture of 7 to 11,5% applied in a first wetting step (page 6, lines 22 to 31, and page 13, lines 28 to 32), and to apply a small amount of "gradient" moisture to the outside layer(s) of the paper web in a second wetting step immediately before the paper web enters the multi-nip calender, thus obviating elaborate further treatments of the paper web (page 5, lines 11 to 13).

In contrast, in the method for manufacturing calendered paper according to claim 1 of the first auxiliary request there is no homogeneously rewetting step after the initial drying step: the paper is first dried down to a moisture of under 7%, then a gradient moisture is applied to the outside layer(s) of the paper web, while the central layer remains substantially in the moisture to which the paper was dried (cf. feature e2 of said claim 1), to a target moisture of calendering of over 7,5%, ie the ratio of the total water content to the entire mass of the paper (page 3, lines 33 to 36, of

the patent in suit). In a preferred embodiment (page 3, lines 36 and 37, of the patent in suit) the paper is advantageously dried down to a moisture of 2 to 4%, and rewetted advantageously to a target moisture of calendering of 8 to 12%, implying that a relatively large amount of moisture has to be applied to the paper during the gradient wetting to achieve the target moisture of calendering (taking into account that the moisture of the paper is reduced during calendering, the desired final moisture of the paper after calendering, is lower (page 2, lines 36 to 38, and page 4, lines 8 to 11, of the patent in suit)).

Whilst document D2 teaches that the paper web, including the central layer, has an overall moisture of 7 to 11,5% when it arrives at the steaming devices 19, 19' (through which action the overall moisture is only slightly increased before the paper web enters the first nip of the calender), claim 1 of the first auxiliary request requires that the paper has a moisture of under 7%, ie it is overdried when it is gradient wetted (cf. feature e1), and its central layer still has a moisture of under 7% when the paper is calendered.

- 4.3 The appellant has submitted that the person skilled in the art, starting from the method for manufacturing calendered paper known from document D2, seeking to simplify the known method, would dispense with the first wetting step, since the second wetting step and the subsequent multi-nip calendering ("gradient multi-nip calendering") alone improve the paper surface quality (gloss and smoothness) as taught by document

D13 which is cited in document D2 (see page 5, line 27, and page 10, line 18, of document D2).

However, in the method for manufacturing calendered paper known from document D2, the first wetting step, which aims at increasing the overall degree of moisture of the paper (page 8, lines 14 to 20), is an essential step in achieving the online manufacturing of SC-A paper (page 6, lines 22 to 31, and page 13, lines 28 to 32).

In the judgment of the Board, dispensing with the first wetting step in document D2 would therefore go against the teaching of said document.

- 4.4 When a prior art explicitly teaches something else as the claimed invention (here: document D2 teaches that the paper web is dried and rewetted to an overall moisture of 7 to 11,5%, which is about the target moisture of calendering, whereas the claimed invention requires that the paper is overdried, it must have a moisture of under 7% lower than the target moisture of calendering), any attempt to establish a logical chain of thought which could lead the person skilled in the art from said prior art to the claimed invention, inevitably gets stuck from the outset.

A combination of document D2 with either document D4 (using the definition of moisture gradient calendering given in document D15 on page 215, left column, lines 7 to 12), document D6, or document D17, therefore cannot lead the person skilled in the art to the invention. None of the other cited documents renders the method

for manufacturing calendered paper according to the first auxiliary request obvious.

It follows that the subject-matter of claim 1 of the first auxiliary request is not obvious to the person skilled in the art starting from document D2, and thus involves an inventive step, Article 56 EPC.

SECOND TO EIGHT AUXILIARY REQUESTS AND FURTHER AUXILIARY MEASURE

5. Since the first auxiliary request of the respondent is allowable, there is no need to consider any of the remaining auxiliary requests of the respondent.

## **Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:

D. Meyfarth

W. Zellhuber