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D E C I S I O N
of 29 November 2002

Case Number: T 0040/00 - 3.3.6

Application Number: 90302993.2

Publication Number: 0397308

IPC: D21C 9/153

Language of the proceedings: EN

Title of invention:

Method of bleaching cellulose pulp with ozone

Patentee:

Andritz Oy

Opponent:

- (I) Kvaerner Pulping AB
(II) Metso Paper Sundsvall AB

Headword:

OZONE BLEACHING/ANDRITZ

Relevant legal provisions:

EPC Art. 123(2), 113(1)

Keyword:

"All requests: Extension beyond content of application as filed - (yes)"

Decisions cited:

T 0771/92, T 0288/92, T 0383/88, T 0201/83, T 0147/99

Catchword:

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Case Number: T 0040/00 - 3.3.6

D E C I S I O N
of the Technical Board of Appeal 3.3.6
of 29 November 2002

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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 2 November 1999
revoking European patent No. 0 397 308 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: P. Krasa
Members: G. Dischinger-Höppler
C. Rennie-Smith

Summary of Facts and Submissions

I. This appeal is from the decision of the Opposition Division to revoke European patent No. 0 397 308 for lack of inventive step. The decision was based on the claims as granted, the only independent claim reading:

"1. A method of bleaching cellulose pulp with ozone serving as a bleaching agent comprising

introducing the pulp having a consistency of 5 to 25% into a fluidizing mixer,

introducing a mixture of oxygen and ozone gas into the mixer,

mixing said ozone containing gas with the pulp for approximately 1 second under intense agitation and under a pressurized state of 1 to 10 bar thereby forming a fluidized mixture, and

discharging the mixture into a reaction vessel."

II. Two notices of opposition were based on extension beyond the content of the application as filed (Article 100(c) and 123(2) EPC), insufficiency of disclosure (Article 100(b) and 83 EPC) and lack of novelty and lack of inventive step (Article 100(a), 54(3) and 56 EPC).

III. In its decision, the opposition division found that the claims as granted complied with the requirements of Article 123(2) and 54(3) EPC but not with those of Article 56 EPC. The Opposition Division held that the only features distinguishing the claimed subject-matter

from what was suggested in the closest prior art, namely the particular pressure and mixing time, were, considering the further cited prior art, the outcome of pure routine optimisations and therefore obvious.

- IV. Oral proceedings were held before the Board of Appeal on 29 November 2002 (in the absence of both Respondents (Opponents) as announced by letters dated 7 and 29 October 2002), in the course of which the Appellant filed amended claims in four auxiliary requests.

Claim 1 of the first auxiliary request differs from Claim 1 as granted (see under I above) by insertion of the feature "and at a water/gas ratio of between 1/10 and 1/1," between "10 bar" and "thereby".

Claim 1 of the second auxiliary request differs from that of the first auxiliary request in that "1 to 10 bar" has been amended into "up to 10 bar".

Claim 1 of the third auxiliary request differs from that of the first auxiliary request by replacing "consistency of 5 to 25%" by "consistency of 10%".

Claim 1 of the fourth auxiliary request also contains this latter amendment and corresponds otherwise to Claim 1 of the second auxiliary request.

- V. The Appellant (Proprietor) in writing and at the oral proceedings argued as follows:

- The features concerning the pressure and the mixing time find original support on page 4 in combination with Claim 11 of the application as filed. The amendments were admissible within the meaning of decision T 201/83.

- In addition, the claimed subject-matter was not obvious since none of the cited prior art suggested any use of ozone gas under pressure and mixing times of approximately 1 second.

- VI. The Respondents maintained all their objections raised during the opposition proceedings under Articles 123(2), 54(3) and 56 EPC and, depending on the interpretation of the claims, under Article 83 EPC. As far as Article 123(2) EPC is concerned, one of their objections was directed to the introduction of the features concerning the pressure and the mixing time.
- VII. The Appellant requested that the decision under appeal be set aside and that the patent be maintained as granted or on the basis of one of auxiliary requests 1 to 4 filed during oral proceedings.

The Respondents requested in writing that the appeal be dismissed.

Reasons for the decision

1. *Admissibility of late-filed requests*

The Appellant filed amended sets of claims in four auxiliary requests at a very late stage, namely during the oral proceedings before the Appeal Board and in the absence of the Respondents which did not attend these proceedings as previously announced. One issue to be decided is, therefore, whether or not admitting the new requests to the proceedings violates the Respondents' right to be heard (Article 113 (1) EPC).

The new claims were presented after a discussion with the Board of the objections raised by the Respondents under Article 123(2) EPC and in particular after hearing the Board's opinion on this issue. Moreover, the amendments made to the claims of the auxiliary requests are taken from that part of the description as filed (page 4) which was discussed by the Respondents in this regard during opposition and appeal proceedings.

The Board holds, therefore, that the Respondents could not be taken by surprise by the amendments made since, depending on the Board's opinion, they had to expect that the Appellant would try to overcome the objections made under Article 123(2) EPC (T 771/92, not published in the OJ EPO).

2. *Article 123(2) EPC*

2.1 Article 123(2) EPC requires that a European patent application or a European patent may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed. According to the established case law of the Boards of Appeal of the European Patent Office (4th edition, 2001, III.A.3.3), a decisive prerequisite is that the amendment can be directly and unambiguously derived from the application as filed in the sense that no technical information has been introduced which a skilled person would not have objectively derived from the application as filed (e.g. T 288/92; T 383/88).

2.2 According to all the requests on file, performance of the method under a particular range of pressure is claimed in combination with other features.

In the application as filed, pressure is mentioned in the following three passages:

- in dependent Claim 11 where it reads: "... **the bleaching stages are pressurized, pressureless or performed at underpressure**";

- on page 6, lines 6 to 7, which corresponds to Claim 11 and which is followed in lines 8 and 9 by the phrase: "**The density of the produced foam can be regulated by choosing the desired pressure**";
and

- on page 4, lines 4 to 15, in combination with Table 1 (lines 17 to 23) where it is shown how the **water/gas ratio varies between 1/10 and 1/1 depending on the pressure which varies between 1 and 10 atm** and when the ozone bleaching is performed at the consistency of 10%. The normal ozone dosage is said to be around 1% O.D. and the concentration of the ozone gas in oxygen is said to be 10% at the most. In the Table, at 10% consistency, the amount of free water was calculated to be 7m³ per ton of dry fibers and the amount of gas is calculated to be 70m³ for atmospheric pressure (1 bar), at an ozone dosage of 1% O.D. and at an ozone concentration of 10%, thus giving a water/gas ratio of 1/10. It is further shown that the volume of gas is 14m³ at a pressure of 5 bar and 7m³ at a pressure of 10 bar.

The latter relationship between gas volume (V) and pressure (P) corresponds to the equation of state for ideal gases $PV = \text{constant}$ (at constant temperature) which is well known to any skilled worker in the field. It does not, therefore, include any other teaching to someone skilled in the art than to apply 1, 5 or 10 bar or, as indicated more generally in the said passage on

page 4, to **vary the pressure between 1 and 10 bar.**

2.3 Main request and first and third auxiliary requests

2.3.1 Claim 1 of these requests contains the following feature which was introduced during the examining proceedings "mixing ... **under a pressurized state of 1 to 10 bar** and at a water/gas ratio of between 1/10 and 1/1...", by combining the pressurized state mentioned in Claim 11 with the pressure range in the description on page 4. However, whilst it follows from Table 1 (see above) that the latter range of 1 to 10 bar means pressure in bar absolute, the term "under a pressurized state of 1 to 10 bar" can, if anything, only be interpreted as an overpressure in the sense of a pressure above atmospheric, thus corresponding to 2 to 11 bar absolute.

2.3.2 This particular range of pressure is nowhere disclosed in the original application, either explicitly or implicitly. As the Appellant has not provided any convincing argument or any evidence to the contrary, the Board concludes that the amendments made to the claims extend beyond the content of the application as filed contrary to the requirements of Article 123(2) EPC, if only because of the pressure range described above.

2.4 Second and fourth auxiliary requests

2.4.1 In the respective Claims 1 of these requests, this pressure-related feature has been amended into "mixing ... **under a pressurized state of up to 10 bar and at a water/gas ratio of between 1/10 and 1/1...**", thus combining any pressurized state of above atmospheric pressure and up to 10 bar with any water gas ratio of between 1/10 and 1/1. Whilst Claim 1 of the second auxiliary request still applies to pulp consistencies

of 5 to 25%, Claim 1 of the fourth auxiliary request has, in addition, been restricted to a pulp consistency of 10%.

2.4.2 The Appellant argued that the claims were now restricted to the pressurized state as recited in original Claim 11 with an upper limit of 10 bar (absolute) as disclosed on page 4 (first full paragraph and Table 1) of the application as filed. The same paragraph on page 4 also disclosed the water/gas ratio of 1/10 to 1/1. With this combination of features, in particular when additionally restricted to a pulp consistency of 10% (auxiliary request 4), the claimed subject-matter corresponded to what is disclosed on page 4 of the application as filed. In accordance with the decision T 201/83 (OJ EPO, 1984, 481), these amendments were thus allowable under Article 123(2) EPC.

2.4.3 The Board does not accept this argument. In T 201/83, the amendment of the concentration range for a component of an alloy was held allowable on the basis of a value disclosed in a specific example, since it was apparent to a skilled person that this particular value was not so closely associated with other features of the example as to determine the effect of that embodiment of the invention to a significant degree.

2.4.4 The Board agrees that, in the present case, the passage referring to Table 1 on page 4 of the application as filed can be considered as examples. It contains, in particular, calculations to indicate how **the water/gas ratio varies when the pressure applied varies between 1 and 10 atm** (see above 2.2) and it is shown that the water/gas ratio is 1/10, 1/2 or 1/1 respectively if the pressure applied is 1, 5 or 10 bar respectively, **provided** the pulp consistency is 10% and the ozone is applied in an amount of 1% O.D. and in a concentration

of 10% in the gas.

- 2.4.5 The term "**under a pressurized state of up to 10 bar and at a water/gas ratio of between 1/10 and 1/1**" contains no restriction whatsoever to a combination of the upper limit of the water/gas ratio with the now undefined lower limit of the pressure or of the lower limit of the water/gas ratio with the upper limit of the pressure. Nor are the claims restricted to any particular amounts and/or concentrations of the ozone to be applied. The claims, therefore, cover any other combinations, such as e.g. a water/gas ratio of 1/10 and a pressure of 5 or 10 bar at 5 and 25% consistency (second auxiliary request) or at 10% consistency (fourth auxiliary request).
- 2.4.6 This is due to the fact that the calculations on page 4 of the application as filed are only possible because, unlike the situation in T 201/83, the respective parameters are closely and cogently interrelated (see also T 147/99, not published in the OJ EPO).
- 2.4.7 However, in the Board's judgment, the application as filed does not contain any suggestion to vary the only remaining parameters used in the said calculation which are not contained in the respective independent claims of the second and fourth auxiliary request, i.e. the amount and the concentration of the ozone to be used. These parameters are held to be hardly variable, since the ozone concentration in the gas is limited to 10% at the most (page 4, lines 10 to 11, page 6, lines 32 to 33) and it is evident from the calculation that lower concentrations would undesirably increase the water/gas ratio. The same applies if the ozone dosage was increased above the "normal dosage" of around 1% O.D., such as e.g. 0.9% (page 4, lines 9 to 10, Table I and page 7, line 14) and there is no indication in the application as filed to decrease it.

3. The Board, therefore, concludes that the decision T 201/83 is not applicable to the present case and that the combination of features as claimed in the second and fourth auxiliary requests is not directly and unambiguously derivable from the technical information contained in the application as filed, so that the claims of these requests also do not meet the requirements of Article 123(2) EPC.

Order

For these reasons it is decided that:

1. The auxiliary requests 1 to 4 are admissible.
2. The appeal is dismissed.

The Registrar:

The Chairman:

G. Rauh

P. Krasa